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IN MEMORY OF DR. JOHN ELLIOT REYNOLDS, III

John Elliott Reynolds, III passed away on 23 December 2017. There are few who have accomplished as much or has had as great an impact to marine mammal science and conservation, particularly sirenians, as John. His remarkable legacy will endure through his extensive contributions to science, policy and those he mentored. John's intelligence, wit, good humor, generosity, integrity and gentleness earned him deep respect and many friends around the world. John was a master of diplomacy who had a remarkable ability through gentle persuasion and eloquence of speech to weave a tapestry of understanding among divergent people to reach conservation outcomes. John's death is a huge loss to the scientific and conservation community.

John attended Western Maryland College and earned his BA in biology in 1974. He studied biological oceanography at the University of Miami Rosenstiel School of Marine and Atmospheric Science earning his MS in 1977 and Ph.D. in 1980. John began teaching at Eckerd College in St. Petersburg eventually

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becoming a Full Professor of Marine Science and Biology and chairman of the Natural Sciences Collegium. In 2001, he joined Mote Marine Laboratory as Senior Scientist and Manager of the Manatee Research Program until his passing. At Mote he also served as director for the Center for Marine and Mammal and Sea Turtle Research from 2007-2012 and was founder of the International Consortium for Marine Conservation there.

John was appointed to the US Marine Mammal Commission's Committee of Scientific Advisors on Marine Mammals in 1989, which he later chaired from 1991 to 2010 under the administrations of Presidents Bill Clinton, George W. Bush and Barack Obama. John's expertise and dedication were in high demand. In addition to the Commission, he was a member of the IUCN's Species Survival Commission's Sirenia Specialist Group, which he co-chaired from 2001 to 2008, a member of the UNEP's Caribbean Environment Programme from 2006 to 2017, a member of the Scientific Advisory Committee for the Ocean Park Conservation Foundation (Hong Kong from 2010 to 2017), the International Advisory Committee for Community Centered Conservation (UK from 2011-2017), as well as the Scientific Technical Advisory Committee and the Global Conservation Initiative to Protect Wild Populations of Small Cetaceans at the National Aquarium Conservation Center in Baltimore, MD. The Society for Marine Mammalogy elected John President of this prestigious organization of marine mammal scientists in 2004 and again in 2006. John received multiple academic awards and professional awards.

John is remembered not only for his accomplishments but as a wonderful man whose love for his son, grandchild and family ran very deep. John's breadth of knowledge was staggering and would frequently lead to fabulous and challenging conversations with his friends, students and colleagues. John was a long and dear friend, and like so many others, I miss him. His death is deeply felt among his brethren in the sirenian community of scientists and conservationists. **-James Powell**



LOCAL NEWS

AFRICA

African manatee training and surveys in Cote D'Ivoire

A collaborative training workshop for African manatee, turtle, and crocodile conservation was held December 2-9, 2017 in Grand Lahou, Cote D'Ivoire and was sponsored by the Rare Species Conservatory. Fifteen participants from Côte D'Ivoire's national parks and two graduate students were included in the workshop. The training consisted of three days of classroom presentations followed by three days of practicing skills in the field and a final day of round tables to plan future work. I led the manatee section which included lectures on manatee biology and research techniques, as well as three days of boat and interview surveys of a portion of southeastern Grand Lahou Lagoon and the lower Bandama River. These were the first manatee surveys conducted since Côte Ivorian manatee researcher Dr. Kouadio Akoi passed away in 2009 (see photo of survey tracks).



Figure 1. Three tracks of manatee boat and interview surveys in Grand Lahou Lagoon and the lower Bandama River, December 6-8, 2017. A manatee sighting is designated by a red star. Maps courtesy of Google Earth and map-library.com.

Fifteen interviews were conducted with a total of 24 people (23 men, one woman, all fishermen). Six interviews were in villages and fishing camps, the remainder were encounters with fishermen in boats. All respondents reported seeing manatees; 47% said they see them all year while 40% said they see them more in the rainy season (remaining respondents didn't identify specific times). Forty percent of people interviewed said manatees were mostly seen at night or in the early morning, and 13% said they could be seen at any time of day. When asked where manatees are seen, respondents said they approach/follow boats (33% of responses), are seen near sandbars or by the island across from the village of Braffe (27% for each response), at mangroves (13%), everywhere (20%), and at the inlet to the lagoon coming and going from the sea (7%). Reported manatee group sizes are shown in Figure 2.

Two people reported seeing manatees within 24 hours before our interview and we had one sighting of a single manatee at 13:40 on 12/7/18 in the lagoon near a sandbar adjacent to the island reported as a manatee sighting location during our interviews.

Reported Manatee Group Size, Grand Lahou Lagoon

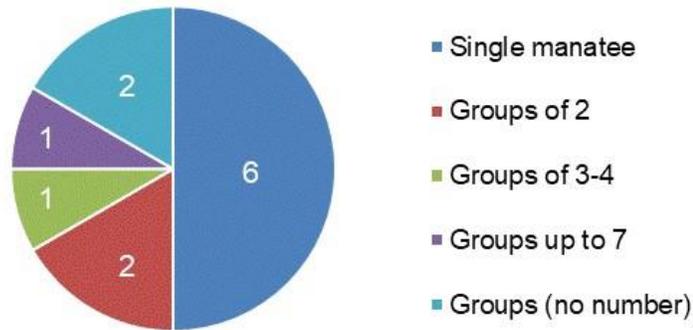


Figure 2. Manatee group size reported in 15 interviews at Grand Lahou Lagoon. Number in each pie slice indicates the number of respondents for each category.

When asked what manatees eat, 46% of respondents said plants and 40% mentioned fish, while smaller percentages mentioned grass, manioc peels (these are usually discarded in waterways at villages) and algae. Seven fish species were identified as eaten by manatees, always taken from nets. Manatees were reported ripping or destroying nets by 50% of respondents.

Respondents who answered questions about hunting were divided: 56% said hunting still occurs and 44% said it does not. Both specialized nets and box traps were mentioned as methods used to hunt manatees, but we were told box traps are no longer used because hunters know they are illegal. We didn't see any evidence of hunting in the waterways we surveyed. One man told us hunting only occurs upriver in the Bandama. Respondents also volunteered that manatee meat is cut up and sold at restaurants in the town of Grand Lahou, another said it is only eaten in villages, and a third told us everyone eats it when its available. Interestingly, we were also made aware of local beliefs that manatee hunters have problems at home, and if someone kills a manatee, someone in their family will die!

In conclusion, based upon interviews and our sighting, manatees are still present in Grand Lahou Lagoon and are seen frequently. In comparison to surveys I have conducted in other African countries, the frequency of sightings reported at Grand Lahou may indicate a significant population there. Hunting occurs but may be reduced from previous levels. Dedicated, long-term manatee studies in Côte D'Ivoire are needed to continue and expand the work of Dr. Akoi. I hope a graduate student or other biologist there will be inspired to take this on. Thanks to Matt Shirley of Rare Species Conservatory for organizing and supporting the workshop and fieldwork. -**Lucy Keith-Diagne** (African Aquatic Conservation Fund, BP 449 Ngaparou, Mbour 33022, Senegal; Email: lkd@africanaquaticconservation.org).

ASIA

The Dugong-Seagrass-Community Electronic Toolkit

<http://www.conservation.tools/>

The conservation and management of dugongs and seagrass ecosystems across their range needs to be informed by evidence from research. Good research is driven by questions rather than technology, is well-designed and uses robust methods appropriate to the resources available.

A wide range of methods and tools is available for conducting research to inform the conservation of dugongs and seagrasses and the human activities that support or hinder conservation goals. However, the costs and expertise required to use each method and tool vary greatly. It is often difficult to determine the most appropriate method to use without expert advice, which may not be readily available.

This electronic Toolkit is a web-based platform to help researchers precisely identify their information needs following a series of progressively narrowing questions. The Toolkit then presents the strengths and limitations of the methods and tools available to answer a wide range of applied research questions relevant to dugong and seagrass conservation and management.

Developing a research question and identifying clear objectives are essential first steps to obtaining the information required for evidence-based conservation. Overlooking these critical steps increases the risk of collecting data that are incomplete, unreliable or unable to be compared with pre-existing data, resulting in a loss of time, money, and effort and reduced conservation effectiveness.

Once conservation and management objectives and a research question have been clearly defined researchers, non-government/civil society managers, and decision-makers face the difficult task of choosing the most appropriate method and tool to achieve their objectives given the inevitable resource and logistical constraints.

The Toolkit is a question-driven platform to help researchers, non-government/civil society managers, and decision-makers in dugong range states refine their research questions by asking what information they need and why they need it. Based on the user's answers to these questions, the Toolkit identifies a list of recommended methods and tools and provides essential information about the constraints of each method, including the likely cost of implementation, the spatial scale at which each method is most suitable, and the level of expertise required to use it. The Toolkit also provides brief technical guidelines to help users determine which method is most appropriate to their situation:

- (a) An overview of the selected method, including a definition and indications as to how relevant it is for research designed to inform conservation management.
- (b) Information on the limitations of the method.
- (c) Warnings about various aspects of the method about which the user should be aware.
- (d) Key recommended steps for planning a research project using that method.
- (e) A list of the relevant peer-reviewed literature and in some cases manuals, to help the user plan their research.

The ToolKit has three inter-connected components covering the methods to conduct applied research on dugongs, seagrasses and the associated human communities. Most of the threats to dugongs and seagrasses are human-induced. The only way to reduce these threats is to work with the people who are conducting the threatening activities to find solutions that they are willing to accept and don't threaten their livelihoods

The Toolkit results from an international team effort over many months and is a significant contribution to dugong and seagrass conservation initiatives in relevant range states. The concept could easily be applied to other taxa.

Development team

Christophe Cleguer (James Cook University), Paul Cooper (Intex Design), Josh Donlan (Advanced Conservation Strategies), Amanda Hodgson (Murdoch University), Benjamin Jones (Cardiff University), Helene Marsh (James Cook University), Len McKenzie (James Cook University), Nicolas Pilcher (Marine Research Foundation), Richard Unsworth (Swansea University), Tara Sayuri Whitty (Center for Marine Biodiversity and Marine Conservation), and Simon Woodley (S&J Woodley Pty Ltd).

Management team

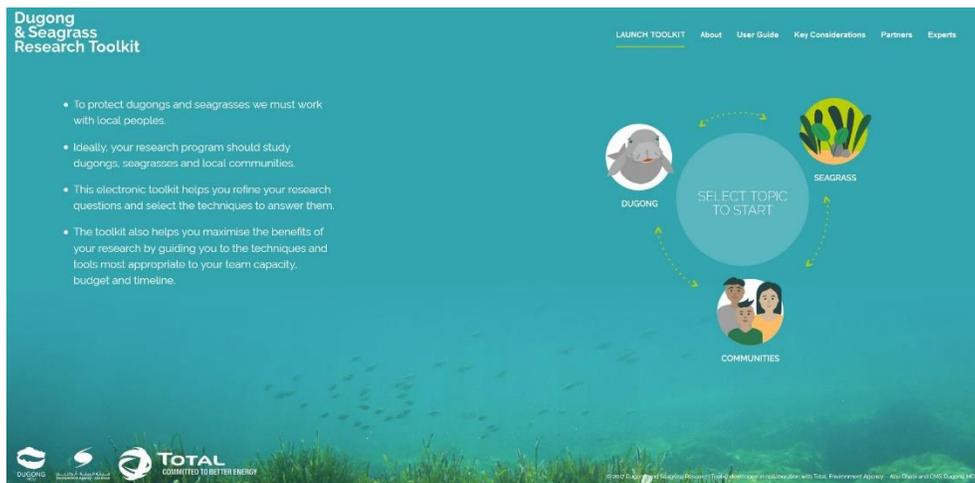
Shaikha Salem Al Dhaheeri, Das S. Himansu, Donna Kwan, Samantha Matthews.

Partners

The Dugong and Seagrass Research Toolkit was developed in collaboration with Total, Total Abu Al Bukhoosh, the Environment – Agency Abu Dhabi and the Convention on Migratory Species Dugong MOU.

Illustration

Caption: Landing page of the Toolkit



Logos of partners



CUBA

Protecting Manatees in the "Lanzanillo-Pajonal-Fragoso" MPA, Cuba: A Complex Conservation Problem.

The West Indian manatee is one of two species of marine mammals permanently found in Cuban waters. Historical records indicate that manatee populations used to be abundant in Cuba, but at present they seem to have declined considerably (Alvarez-Aleman et al. 2018). Since the 70s, the reduction of this population, due to poaching and habitat loss, has been observed in Cuba. Many places in Cuba are known for the significant presence of the species, such as one marine protected area (MPA) in Villa Clara: the "Lanzanillo-Pajonal-Fragoso" Wildlife Refuge. This area appears to have critical habitat for manatees and other species resulting in its declaration as a Fauna Refuge in 2001. Despite Refuge status, manatees have been frequently reported dead and the primary cause seems to be associated with human activities.

The Center for Marine Research, University of Havana, the Enterprise of Flora and Fauna, and Sea to Shore Alliance have been recording information about manatee mortality for this region. Being part of a nationwide initiative, the goal for this effort have been to achieve a better understanding of the distribution of this species and the nature of persistent threats to support the conservation process. Since 2001, 77 cases of mortality have been registered throughout the island; 43% of these cases have occurred in the province of Villa Clara, and 32%, more specifically, within the "Lanzanillo-Pajonal-Fragoso" MPA. This province has an average of four deaths per year, which is a high and alarming statistic for a region with six MPAs of different conservation categories, covering 203,436 ha of its marine platform. In the "Lanzanillo-Pajonal-Fragoso" MPA, the registered cause of deaths correspond to poaching (16), drowning in fishing nets (6), and some are of unknown nature (11). Recently, in this MPA, a cemetery was discovered with more than 500 ribs and other bones, which correspond to a minimum of 15 different animals.

These events illustrate mortality caused by human activity that is beyond the control of local law enforcement. It is likely that this negative interaction is related with commercial or/and private fishing activities as manatees are opportunistically or intentionally captured, and accidentally entangled and drowned. Conservation policies in place, therefore, include the eradication of trawl nets (2012), the complete eradication of fishing nets (2016), and lastly the regulation of the fishing boats using purse seine nets inside the MPA, in order to minimize impact of accidental entanglement and illegal hunting. Since 2016, only six out of the 78 fishing boats from the Villa Clara fishing industry are now allowed to fish inside Nazabal Bay (a bay inside the protected area where manatee mortality has been frequently reported).

Our team continues to monitor the impact of these regulations on the manatee population and local fishermen communities. At the same time, as part of the MPA conservation program, we continue implementing marine festivals and other educational activities within this communities. Due to the complex nature of these conservation problems, we are now facing challenges such as fishermen not wanting to collaborate with the MPA program and not being able to continue developing traditional activities which therefore affect their livelihoods. Unfortunately, conservation problems such as this often lack clear solutions due to their complexity and their linkages to other social and economic issues. In this case many issues continue to threaten manatee survival in the region, including persistent poverty and historic societal beliefs, lack of education, law enforcement, and a consistent conservation presence, as well as few economic alternative and alternatives to poaching. To remedy this situation, the area was selected for the implementation of a boat survey program in 2017-2018 and the continuation of a fishermen sighting and stranding network, funded through the Marine Mammal Commission (MMC) and Sea to Shore Alliance. These expeditions were an important step toward implementing a monitoring system between the MPA and the community and training local MPA staff.

The "Lanzanillo-Pajonal-Fragoso" MPA includes an important manatee habitat, perhaps one the most important in the north coast of Cuba due to its provision of abundant shelter, fresh water, and seagrass, but manatees are still not safe in this area. More education and enforcement are needed to continue mitigating threats. Exploring economic alternatives or other incentives to reduce poaching and improve the livelihoods of coastal communities are key for future incorporation in to the protected area management plan. -**Anmari Alvarez-Aleman**^{1,2}, **Eddy García Alfonso**³, **James A. Powell**⁴ (¹Centro de Investigaciones Marinas, Universidad de La Habana, Cuba; ²School of Natural Resources and Environment, University of Florida, USA; ³Refugio de Fauna Lanzanillo-Pajonal-Fragoso, Empresa Provincial para la Protección de la Flora y la Fauna, Cuba; ⁴Sea to Shore Alliance/Clearwater Marine Aquarium, USA; Email: aalvarezaleman@ufl.edu)

DOMINICAN REPUBLIC

First ever manatee day celebration in the Dominican Republic

This year the Dominican Republic proudly joined the group of countries that celebrate an International Manatee Day to promote the conservation of the Antillean manatee (*Trichechus manatus manatus*), nationally declared as critically endangered since 2011. The celebration was organized by the Proyecto de Biodiversidad Costera y Turismo (BCyT), which is coordinated between the Ministerio de Medio Ambiente y Recursos Naturales and the Ministerio de Turismo, financed by the Global Environmental Facility and implemented by the United Nations Development Programme. Other coordinating agencies were the Autoridad Nacional de Asuntos Marítimos (ANAMAR), the Universidad Autónoma de Santo Domingo (UASD), the Acuario Nacional de la República Dominicana and Diario Libre.

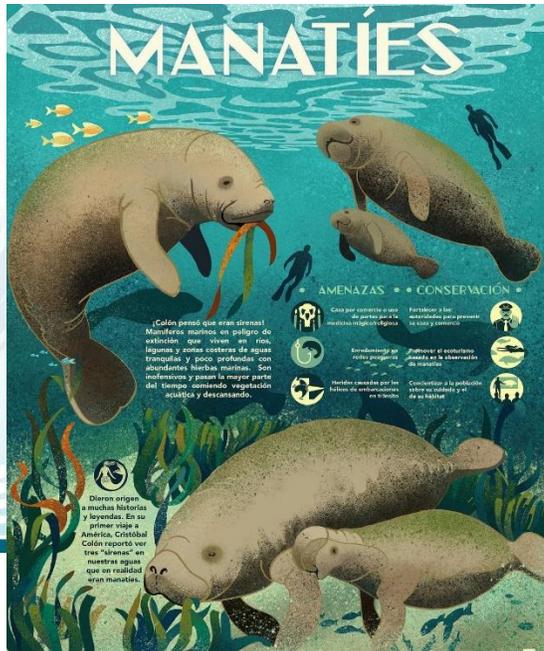
A “Day Dedicated to Manatee Protection and Conservation” was celebrated on September 27th 2018 at the Acuario Nacional. The event included a series of talks from the organizing institutions to inform representatives of relevant government authorities, local NGOs and international cooperation agencies about the origin of the International Manatee Day celebration, and about the latest manatee research, education and conservation efforts conducted in the Dominican Republic. In parallel to these talks, educational activities were prepared for 60 visiting children between the ages of 8-9 from the public school, Liceo Fe y Alegría.

During the event, the organizers launched a manatee mascot named Matum, a Taíno word meaning noble or generous. The character was inspired by a local legend about a manatee calf that was accidentally caught in the net of a Taíno chieftain and was released in a lake where it lived for 25 years, being well-known and loved by the indigenous community, until a time when it was swept away to the sea in the aftermath of a hurricane (MacNutt, 1912). To the amazement of the children, who were narrated the full-length story, Matum finally reappeared on the scene to lead them along a series of stations prepared at the aquarium where they learned about the marine environment, and about manatee anatomy, feeding habits and nutrition. At the final station, the children were awed to meet Pepe and Juanita, the two currently captive—and quite massive—rehabilitated manatees housed at the Acuario Nacional.

With this initiative we hope to spur the interest and support of the general public in our efforts to save this charismatic species that is deeply rooted in our history and culture. We also look forward to celebrating many more national and international manatee days in the years to come. -**Haydée Domínguez Tejo**¹, **Omar Shamir Reynoso**², **Jonathan Delance**³, **Marvin del Cid**⁴ (¹Centro de Investigaciones de Biología Marina de la Universidad Autónoma de Santo Domingo; ²Autoridad Nacional de Asuntos Marítimos; ³Proyecto Biodiversidad Costera y Turismo; ⁴Diario Libre; Email: hdominguez@gmail.com).

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MEXICO

Unusual mortality event of manatees in a freshwater basin ecosystem in the Southern Gulf of Mexico

From May 18th to September 6th, 2018, at least 42 manatees died in the State of Tabasco, Mexico. It was a surprise event for researchers and environmental authorities because it is the first massive mortality of manatees in Mexico. In 112 days, 42 dead manatees were accumulated, 16 females and 26 males, most of them from 175 to 275 cm, eight more than 275 cm and six calves (less than 175 cm).

The area of this mortality event covered 400 square kilometers approximately. It is a fluvial-lakes sub basin system with secondary rivers, channels and lakes. The main drainage of this sub basin is local, coming from nearby uplands, but at the rainy season it is connected with the large Usumacinta and Grijalva Rivers. This sub basin is within the Biosphere Reserve of “Pantanos de Centla” (Centla’s swamps). The region is characterized by extended use of fertilizer and pesticides (Córdova-Carrillo et al 2010), and presence of domestic effluents and oil and gas extraction fields (Páez-Osuma 2005).

This mortality of manatees was considered as a national environmental priority, because manatees are under federal protection and because of the unusual number of dead manatees. In early June, the Mexican government integrated a group of specialists, federal and state environmental authorities to create a National Committee to attend this event. At the local level, David Olivera (DO) and Darwin Jiménez (DJ), two manatee experts from Tabasco’s University, were the researchers in charge of the technical and scientific coordination, together with the director of the Biosphere Reserve, local and federal environment agencies. Multiple veterinarians of private and state facilities were quickly incorporated to support this emergency. At the request of the Minister of Environment, Benjamin Morales integrated a steering committee (SC) with DO, DJ, two veterinarian experts in marine mammals: Roberto Sánchez from AMHMAR association and Alejandro de la Rosa from Veracruz Aquarium, and Teresa Alvarez, an expert in aquatic pollution from ECOSUR. International manatee experts offered us their help at the SC as Martine deWit, James Powell, Greg Bossart and Bob Bonde. Martine sent the SC a protocol about undetermined unusual manatee mortality events in Florida, and getting valuable recommendations of our first results and evidences based on her years of experience with red tide manatee events in Florida.

June and July accumulated the most manatee deaths; week after week several manatee carcasses were reported by local fisherman in addition to a medium scale mortality of fishes, mostly herbivore carps (*Cyprinus carpio*) and armored catfishes (Loricariidae: Pterygoplichthys). Local people in contact with the water started to have skin and ocular irritations. Most of the manatee carcasses were highly decomposed; the local committee assumed that it was because of the difficulties for local people to report the cases, so a camping area was set in the area to receive information. Even with this field station, most of the carcasses were found decomposed which suggests a fast decomposing time of the animals. On this period, several relatively fresh animals were found, they were inspected on necropsies and samples of internal organs, digestive contents and encephalic tissue was sent for histopathological and toxicological analyses.

From late June to August counts of live manatees in the area using side scan sonar evidenced high densities of manatees in the core area, these high densities were previously reported for the area (Puc-Carrasco et al, 2016). To try to obtain prompt samples of blood, urine and feces from live animals, the committee started in June attempts to capture, keep on quarantine and translocate most possible individuals of the live manatees detected with sonar in the conflict area. A quarantine area was implemented in the field facilities of the biosphere reserve accompanied with an *in situ* laboratory for blood sample analyses. After several weeks trying to capture manatees using different techniques only two manatees were extracted from the area and were kept in captivity under veterinary inspection and care. Both of them are now in good condition and prompt to be relocated. In mid-August, the SG evaluated the implemented actions and because of most of the recent deaths were in sites apart from the initial core area, the sonar detection-capture and translocations efforts were interrupted to focus on an extensive search for early detections of carcasses in different areas. The priority was set to obtain fresher bodies, perform complete necropsies in a closed area conditioned for this and to gather tissue samples to get more evidence of the cause that was killing manatees. At this stage, the few histopathological analyses suggest acute damage on tissues, even at encephalic tissue.

All these actions implicated an enormous effort in the field, the installation of the laboratory for field samples of live animals and the necropsy facility area. A human team of field participants, veterinarians available 24 hours a day, along with many voluntary students from the local state university. For the last month of the contingency, this strategy served to find relatively fresh bodies and obtain the samples from five individuals.

Weather conditions in Tabasco state in May is characterized by low rainfall, the lower levels of the water in the hydrological systems, low movement of the waters and high temperatures. The water evaluation in 12 places showed temperature of 30 to 32°C, low quality water with high number of fecal coliforms and in some sites with *Escherichia coli*, presence of heavy metals but not in higher levels, except for Hg with concentration up to toxic permitted values. Also, low pesticides and hydrocarbons levels were detected. It is noteworthy that in May to June, water evaluation in several places showed high pH. Combined with low oxygen, high pH could evidence cyanobacterial blooms but it can also be due to salts from agrochemicals. Prospective evaluations of the sites showed the presence of algae *Aphanizomenon spp* and *Anabaena spp* species with the capacity to secrete microcystin and saxitoxin, both regular cyanobacterial harmful algal blooms in aquatic ecosystems (Paerl *et al* 2016). The evidence of these cyanobacteries in tissues of fish, sediments and plants evaluated in late august showed very low concentrations of biotoxins. As Martine deWit commented, no matter what we discussed before, the answer will be in the manatee carcasses. The manatee samples were sent for lab analysis services to the Marine Mammal Health and Stranding Response Program of NOAA/NMFS. With the first intense rains, fortunately, the deaths of manatees stopped. -**Benjamín Morales-Vela¹**, **León David Olivera-Gómez²**, **Darwin Jiménez-Domínguez²** (¹El Colegio de la Frontera Sur (ECOSUR), Av. Centenario Km. 5.5, C.P. 77014, Chetumal, México; ²Centro de Investigación para la Conservación y Aprovechamiento de los Recursos Tropicales de la DACBiología; Universidad Juárez Autónoma de Tabasco, Villahermosa, Centro, Tabasco, México. Email: bmorales@ecosur.mx).

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USA

Red tide event in Florida

Southwest Florida experienced a persistent red tide bloom throughout 2018. This bloom started in the fall of 2017 and through preliminary necropsy data, at least 216 manatee mortalities have been attributed to red tide between Pinellas and Collier counties as of 28 December 2018. Carcass counts were elevated above baseline for southwest Florida throughout most of the summer. Under section 404 of the Marine Mammal Health and Stranding Response Act (16 U.S.C. 1421 *et seq.*), a Repeat Mortality Event (RME) for red tide was declared by the Working Group on Marine Mammal Unusual Mortality Events on 27 July 2018. Sixteen live manatees with signs of red tide exposure were rescued and transported to SeaWorld Orlando for rehabilitation.

This RME marks the largest manatee red tide event in geographical range and duration. The full extent is not yet fully understood and is still under investigation. The total number of red tide-related mortalities continues to be adjusted as laboratory results for brevetoxin analyses of carcass tissues become available. Similarly, laboratory analyses of several carcasses recovered from areas affected by the red tide bloom on the Atlantic coast are pending to determine whether these were red tide-related. In addition, spatial and temporal analyses of approximately one quarter of southwest

carcasses that were verified but not necropsied are pending to estimate red tide mortality in this carcass portion. -**Martine DeWit, DVM¹** (¹FWC, Marine Mammal Pathobiology Lab, 3700 54th Ave. S., St. Petersburg, Fl. 33711 USA; Email: Martine.deWit@MyFWC.com)



VENEZUELA

A Caribbean Manatee Calf (*TRICHECHUS MANATUS MANATUS*) Rescued in Orinoco River Delta, Venezuela

The Caribbean manatee (*Trichechus manatus manatus*) in Venezuela is classified as a critically endangered species, mainly because of hunting and habitat destruction. On May 2017, a calf of this species was rescued in Venezuela by a team of professionals, local people and volunteers from all around the country.

The calf had been captured by a fisherman from the Warao ethnicity in the Guacajara river (Lat 9°25'56.03"N Long 62°13'16.90"W) of the Delta Amacuro State. The man, who was in an Indian canoe, harpooned it on the right shoulder and held it in an intent to attract its mother with the sound produced. This information was obtained from Clemente Gonzalez, another Warao man who rescued the calf from the fisherman. After two days with the fisherman, the calf was brought to a house in Boca de Uracoa, (9°7'35.70"N and 62°19'52.64" W), in Monagas State and placed in a 1000 L water tank and supplied with human baby formula (a dairy milk and Nan[®] formula mixture) three times a day (morning, midday and evening) for three weeks.

The need for a veterinarian or a biologist in Venezuela that could attend the calf was communicated through social media on May 12, 2017. National environment authorities (General Direction of Biological Diversity- MINEA) was informed of the situation the same day.

Katherine Morales, a veterinarian from Puerto Ordaz, Bolívar State, travelled an hour to attend the calf following guidance from the veterinary staff of the Bararida Zoological and Botanical Park (PZBB) in Barquisimeto, Lara State, on May 14th. She evaluated the animal and cleaned the wound, which was 4 cm wide and 3.5 cm deep and proceeded to administer antibiotics (Oxytetracycline) for an infection. She determined the calf was a female, took morphometric measures (27 Kg weight and 117cm total longitude) and estimated it was about three weeks old. The calf was named Chacha by Clemente Gonzalez.

Chacha was transferred by the regional environmental authorities from Boca de Uracoa to Tucupita, Delta Amacuro State on May 15, and housed in a 2000 liter tank under the care of Rudys Tirado (MINEA). It was recommended to stop feeding the calf with whole milk formula and to administer 150ml 0.9% PO NaCl orally through a syringe every three hours to improve hydration.

On May 18, Carlos Silva, a veterinarian from PZBB moved from Barquisimeto to Tucupita. His clinical evaluation evidenced dehydration and putrefaction from the wound due to a strong smell. Wound cleaning was conducted with hydrogen peroxide and iodopovidone soap solution and a wick, with a combination of iodine soap solution and Nitrofurazone-based ointment, was placed inside. Hydration was ensured with 150 mL of 0.9% PO NaCl through a No. 14 stomach tube as recommended by Dr. Tony Mignucci from the Manatee Rehabilitation Center of Puerto Rico.

The next day, biometric measures were repeated and weighing indicated 21kg. Using available onsite drugs, the calf was treated with 210 mg of Enrofloxacin 5% IM and 2 ml of Vit B complex IM, both at peduncle level. Daily protocol was established with wound cleaning and treatment twice a day and administration of 150 ml 0.9% NaCl every 2.5 hours, while organizing the transfer to Barquisimeto.

On May 21, the manatee was transferred by car to the Tucupita Airport. It was then placed on a mat covered with a wet towel, located on the passenger area of a private Bae jetstream 32 airplane and transferred to the International Airport Jacinto Lara, Barquisimeto, on a 2.5 hours flight.

Once arrived, it was transported to a private veterinary clinic to evaluate the affected area with X-rays and ultrasound, discarding pectoral fin and ribs fractures before reaching PZBB, where it was transferred to a 1200-liter tank. Oral hydration was immediately continued for three days with NaCl 0.9%. On May 22, milk substitute was supplied orally every 2.5 h, six times a day with a N° 14 stomach tube since it has no suction reflex. Bottle feed was used after 11 days and gradually accepted. It presented with hemorrhagic diarrhea and colic, which were treated with available drugs in the country (Simethicone 125 mg, Metronidazole). Wound cleaning was conducted twice a day with iodopovidine soap solution and Nitrofurazone, and antibiotics (Penciline, Trimethoprim Sulfa, and Amoxicillin) were administered IM. Unfortunately, after a week of presenting hemorrhagic diarrheal, Chacha was found dead on the morning of June 4.

Chacha is the first manatee rescued in the last 23 years at Orinoco River Delta, where there are reports of the species presence. Rescuing a wounded nursing manatee calf is always a challenge, and the actual economic and political situation of Venezuela made it even more challenging. Unfortunately, it was not possible to save this one, but the cooperation and collaboration between local communities, zoos, NGO's, government agencies, professionals, volunteer practitioners, and private companies, as well as the use of social media, showed that there is great hope for manatee conservation in Venezuela.

This rescue was carried out by Mr. Clemente González, PZBB, DGNB, State Environmental Attorney Delta Amacuro, National Guard Delta Amacuro State and the airline Transmandu C.A.

We extend our thanks to the Manatee Rehabilitation Center of Puerto Rico, Dra. Josefina Capodaqua, Dr. Luis Cedeño, Dra. Coralie Nourisson, and all the other people who helped with advice, milk and medical supplies, and communicating this information. -**Carlos Javier Silva¹, Leonel Ovalle², Katherine Morales³ and Rudys Tirado⁴** (¹IUCN SSC Sirenian Specialist Group; Parque Zoológico y Botánico Bararida; ²Parque Zoológico y Botánico Bararida; ³Volunteer practitioner professional; ⁴Ministerio de Ecosocialismo y Agua Delta Amacuro – MINEA; Email: cjsvet@gmail.com).

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NOTE FROM THE EDITORS: I would like to apologize to our Sirenews readers for the hiatus in publishing *Sirenews*. After this issue we hope to return to our April and October publication schedule. To help in this regard, I'm very pleased to announce that Dr. Robert Bonde will be joining me as co-editor of *Sirenews*.



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