

BACKGROUND

January 27, 2012

A floating hawksbill sea turtle was observed near Frenchman Caye in the Port Honduras Marine Reserve (PHMR) by Polly Wood, REEF CI. Reef CI reported the observation to rangers at TIDE (Toledo Institute for Development and the Environment) who manage the PHMR. TIDE is also a member of the Belize Sea Turtle Conservation Network and their staff is trained in sea turtle conservation and necropsy.



Initial photos take of Windy near Frenchman Caye in Port Honduras Marine Reserve. The number of gooseneck barnacles (*Lepas sp.*) on the anterior and posterior carapace indicates the turtle has probably been floating for at least one month since gooseneck barnacles are reported to have a growth rate of .5mm/day (Photos courtesy Reef CI).

TIDE rangers visited the site and confirmed that an adult female hawksbill turtle was floating in Frenchman Lagoon and captured and transferred the turtle to TIDE's ranger station at Abalone Caye to begin rehabilitation.

January 28, 2012

James Foley from TIDE made a visit to Abalone Caye to check on the turtle on. Two days later, on January 30th, it was reported that the hawksbill turtle named ‘Windy’ was still under the care of TIDE in southern Belize. She was identified to have floating syndrome which was suspected to be an indication of a blockage in the intestines or a lung infection causing gas build up.



James Foley conducting initial assessment of Windy; observing floating syndrome; barnacles; and taking measurements. Photos courtesy TIDE

February 1, 2012

It was determined that Windy’s condition was not improving and that no sufficient area to house her was available in southern Belize. She was transported from Punta Gorda to Belize City by Tropic Air accompanied by TIDE’s Science Director James Foley. James reported that extreme care should be taken when moving Windy since she was a large turtle and her plastron appeared to be separating from her carapace as small creases were evident.



James Foley and Windy on board Tropic flight from Punta Gorda to Belize; Windy arriving at Municipal Airport and transferred to Fisheries Department. Photos courtesy TIDE and ECOMAR

When Windy initially arrived she was placed in a small rubber tub. Meanwhile the Fisheries Department brought in a large 500 gallon Rotoplast container. Water was pumped into the vat from the sea and the salinity was measured at 15 ppt.

Dr. Jane Crawford from Belize Animal Medical Center made a visit to Windy at the Fisheries Department to conduct tests to assess her health. She was given 500ml of saline to help avoid dehydration the day she was transported.



Windy in her temporary container upon arrival; James Foley and Dr. Jane Crawford examining Windy; Windy in her 500 gallon container with Fisheries Department Marine Protected Areas Manager Isaías Majil on right. Photos ECOMAR

February 2, 2012

Dr. Jane Crawford administered an initial dose of antibiotics subcutaneously in Windy’s shoulder to help fight any bacterial infections that may have been causing the floating problem. Another 500ml of saline was then administered to avoid dehydration and finally, blood was drawn so that blood tests could be completed. Blood results are compared to normal values in the table below and suggest that Windy’s blood levels were normal. It is believed that the lab may have mixed up the values for Heterophils and Lymphocytes.

CHARACTERISTIC	WINDY’S VALUE	NORMAL VALUE
Hemoglobin	10.3 g/dl	11.04± 0.38 ²
Hemacrit	30.9 %	35.75± 0.60 ²
Heterophils	17.0 %	73.26± 5.29 ³
Lymphocytes	79.0 %	17.25± 8.2 ³
Monocytes	3.0 %	2.42± 2.46 ³
Eosinophils	1.0 %	0.33± 0.76 ³
Basophils	0.0 %	0.37± 0.96 ³
MCHC ¹	33.3 %	32.52± 2.0 ²

¹ Mean Cell Hemoglobin Concentration

² AlKindi, A.Y.A, I.Y. Mahmoud and H. Khan. 2001.

³ Baldrey, V., T. Bailey, S. Gough, K. Hyland, D. Robinson & W. Baverstock (2012) and M. R. Hampel, D. Robinson, W. Baverstock and K. Hyland (2009).

February 3, 2012

Windy seemed to be doing much better and was swimming around her tank happily. She took shrimp and sprat into her mouth as if tasting but then proceeded to drop them into the bottom of the tank again. Another dose of antibiotics was administered orally, along with 500 ml of saline.

A pump was also installed in her tank by Fisheries to keep the water clean. Linda Searle checked on Windy at 7:00 pm on Friday and reported that she was swimming around well and looked to be in excellent condition.

February 4th, 8:00 am

Fisheries Officer Hampton Gamboa called Linda Searle and reported that he received a call from the Security Guard at the Fisheries Compound that he observed no movement in Windy and believed her to be dead. By 9:30 am Linda Searle and Melanie Day came to check her condition and observed that she was indeed deceased. Following this observation, tools for a necropsy were quickly gathered and by 11:00 am the necropsy was started and was completed by 2:00 pm.

NECROPSY

The following reference materials were used to complete the necropsy:

Work, Thierry M. 2000. Sea Turtle Necropsy Manual for Biologists in Remote Refuges. U. S. Geological Survey, National Wildlife Health Center, Hawaii Field Station. 25 pp.

The remainder of this report follows the items outlined in the data sheet within this manual.

GENERAL MEASUREMENTS

MEASUREMENT	SIZE (cm)
SCL notch to notch	78.8
SCL notch to tip	80.7
CCL notch to notch	83.4
CCL notch to tip	86.3
SCW	50.7
CCW	77.1
Plastron Length	63.3
Plastron to Tail Tip	15.1
Plastron to Cloaca	11.2

EXTERNAL ASSESSMENT

Overall, the body condition was fairly good. The plastron was observed to have two red marks in the center both left and right of the central line of the plastron. The carapace had a few marks where large barnacles had been removed by TIDE. Post-mortem condition was fresh dead. The exact time of death is not known, however it is known to be between 7:00 pm February 3rd and 8:00 am February 4th, 2012.



Windy on Saturday February 4, 2012. Photos ECOMAR

Internal Assessment

When initial cuts were made into Windy's plastron it was immediately observed that large amounts of air were released from the body cavity. A particularly large build-up of air was observed in the throat region near the trachea. And as noted in the picture below, large amounts of gas were present in her gastrointestinal tract.

Musculoskeletal

No pectoral muscle atrophy was observed and little to no fat was observed in the body cavity. There was quite a bit of fluid in the body cavity, however there was much more air space than fluid in the body cavity.



Exposed body cavity after plastron removed.
Photo ECOMAR

Liver

The surface of the liver was observed to be smooth and the consistency was firm. The color of the liver was homogenous throughout and when transverse cuts were made, it was found to be a consistent color throughout.

Lungs & Trachea

The external surface of the lungs was observed to be pale white in color and smooth, however large hard lumps were observed in both lungs with the right lung have noticeably more. The overall consistency of the lung was found to be spongy and mottled red in color. When the tumors/nodules were removed and cut open, they were found to be tan in color with a cork-like hard consistency. Samples of these nodules/tumors were taken and frozen. The trachea was observed to have smooth lumen and was homogenous in color. However, it was noted that when cut, the right bronchus was obstructed with a large blood clot.



Right lung with tumors; inside of tumor, blood clot in right bronchus. Photos ECOMAR

Spleen

No observations recorded.

Kidney

Smooth surface, firm consistency and homogeneously brown/red in color. Large black spheres/lumps were attached to the outside membrane around the kidney.

Gonad

Many eggs present, some developed, some undeveloped. Many egg scars also remained in the membrane indicating that this turtle had previously nested. There were also large amounts of air trapped throughout the egg membrane.

Thyroid

No observations recorded.

Oral

Mouth was unable to be opened. No observations recorded.

Esophagus

Esophagus appeared to be in normal condition at the beginning. The mucosa was smooth and homogenously pink in color. Some small red and what appeared to be parasites were attached to the mucosa as seen below. Samples of these were taken and frozen.



Possible parasites found in the esophagus. Photo ECOMAR.

Crop

Obstruction of what appeared to be large wood pieces was found in the crop about 32cm down from the beginning of the esophagus. Hose water was not able to pass through the entire alimentary canal due to this obstruction. The area around the crop was very dense and was very twisted. After further investigation, the contents of the crop were confirmed to be:

- 8 pieces of wood of varying sizes
- 6 sponge fragments
- 3 green plant stems



Items recovered from the crop. Photo ECOMAR.

Stomach

Stomach was not specifically identified since it was empty, it was difficult to differentiate. Briefly we found in her gastrointestinal tract (GIT) several undigested items as well as several small parasites and what seemed to be a complete blockage near the pyloric sphincter, which joins the stomach to the small intestines, which would permit nothing past. After this point the GIT was filled with gas.

Small Intestines

Smooth mucosa, homogenously pink/tan in color. Much air was observed throughout the length of the small intestines. Green bile/algae liquid state substance was observed periodically in the intestine. Sample of this was taken.

Large Intestines

Smooth mucosa, homogenously pink/tan in color. Many air bulges were observed throughout the length of the large intestine. Green bile/algae substance was observed in sections throughout the large intestine.

Bladder

No observations recorded.

Brain & Salt Gland

Skull was left uncut. No observations recorded.

Samples Taken

All samples that were taken were frozen. The following samples were taken:

1. Rear flipper DNA sample
2. Egg membrane scars
3. Possible parasites in esophagus
4. All contents of crop – algae, sponge and wood
5. Large intestine content sample – green slime contents
6. Nodule/tumor samples from right lung

REFERENCES

AlKindi, A.Y.A, I.Y. Mahmoud and H. Khan. 2001. Hemoglobin, Plasma Fe+ + and Total Protein in Olive Ridley and Hawksbill Turtles under Natural Condition in Masirah Island, Oman. Pakistan Journal of Biological Sciences 4 (5): 608-610

Baldrey, V., T. Bailey, S. Gough, K. Hyland, D. Robinson & W. Baverstock. 2012. INTESTINAL SHELL IMPACTIONS IN REHABILITATED HAWKSBILL TURTLES (*ERETMOCHELYS IMBRICATA*) IN THE UAE. Wildlife Middle East News Vol 6 Issue 2/3, MARCH 2012. ISSN 1990-8237

Hampel, M.R., D. Robinson, W. Baverstock and K. Hyland. 2009. HAEMATOLOGY AND BIOCHEMISTRY BLOOD PARAMETERS OF JUVENILE HAWKSBILL TURTLES (*Eretmochelys imbricata*). Wildlife Middle East News Vol 4 Issue 3 December 2009. ISSN 1990-8237

Work, Thierry M. 2000. Sea Turtle Necropsy Manual for Biologists in Remote Refuges. U. S. Geological Survey, National Wildlife Health Center, Hawaii Field Station. 25 pp.