

GA710 - Nemo

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The case for this newsletter is "NEMO" a large male *Tursiops* who had been retrieved from the beach last October 29, rehabilitated and released January 12 with a radio tracking device. He washed ashore at 8 1/2 mile road, Galveston Island on January 31. Necropsy findings suggested that he was dead or died very soon after washing up. There were no signs of injury, although he had a peculiar lateral curvature of the spine that had not been noted in captivity. There were several skin lesions, the most notable being the large scarred and ulcerated lesion of the flukes. Two of these were the lesions of Lobo's disease (lobomycosis). This was confirmed for me by Dr. Michael McGinnis, Director of the Research Mycology Laboratory of our Center for Tropical Diseases. This is the first instance of Lobo's disease we have seen in animals collected by the Network. The only other instance of Lobo's disease on this side of the Gulf was in a wild *Tursiops* we sampled in Matagorda Bay as part of the NMFS study of the die-off of several years ago.

This was not the cause of death of Nemo. All evidence points to bacterial sepsis (systemic infection) as the cause of death. We isolated two species of pathogenic *Vibrio*, *V. fluvialis* and *V. alginolyticus*, from the heart blood. There were micro-abscesses in many lymph nodes. There was also very extensive myocardial degeneration, which we attribute to the infection and associated stress. This degeneration is enough to cause heart failure, which is often the final cause of death in cases of infection. This is unlike the usual "heart attack" of humans, which is most often associated with atherosclerosis and plugging of coronary arteries, which Nemo did not have. There was extensive injury of the liver, and congestion of the lungs which I attribute to heart failure. There was a very odd

change in the skeletal muscle associated with the spinal curvature. There was no inflammation in the muscle, but *V. alginolyticus* is known to infect soft tissues, and may be the cause. There were a few small acute lung abscesses associated with worms.

There was also a severe, destructive osteoarthritis of the left humeroscapular joint (flipper joint). No bacteria were recovered from the joint. This may be part of a degeneration associated with old age, or may be a reactive arthritis, associated with infection elsewhere in the body. Arthritis is not at all rare in the stranded animals we see.

Nemo had all the signs of an old animal. We believe that he died of infection with two species of *Vibrio*, together with extensive degeneration of the myocardium. These are sufficient to explain stranding and death. Since the infecting organisms are common in salt water, we cannot be sure where or when he picked them up. It may be that they entered through one of his deep skin lesions. There is no evidence of human interaction in Nemo's death.

Comment: Some volunteers have been very distressed at the need for a necropsy on Nemo, feeling that it would have been more appropriate for him to be buried or cremated without examination. We certainly can empathize with that feeling. Many people become very attached to a dolphin during the course of rehabilitation. However, there is another perspective that I would like to share with you.

You are perhaps aware of the great success the Network veterinarians and scientists have had in rehabilitating strandings. Typically, when a dolphin strands it is either very young and separated from its mother, or it is desperately ill. It will die in a short time, either of disease or because of hyperthermia and heart and respiratory failure. It has been usual for animals to die despite treatment. The

record of the Network in saving animals over the past few years is extraordinary. This is not an accident. It reflects progress in understanding the physiology and diseases of the dolphin gained largely from laboratory testing of blood samples, and from post-mortem examination. To treat without understanding the accuracy of a clinical diagnosis and the effect of treatment is merely fumbling in the dark. Without the corrective effect of new and accurate knowledge there is no progress in treatment, only guess-work.

The knowledge gained from clinical laboratory testing of live animals and necropsy of dead ones is very important to understand both the nature of the disease and the effect of treatment. A dolphin is unlike any other animal, and one cannot assume that diagnostic impressions are reliable, and treatments safe and effective based on experience with dogs and cats. We cannot lose an opportunity to learn how to do better. Part of volunteering is accepting the knowledge that dead animals will not be wasted, but will be studied so that others to come will have a better chance at survival.

Finally, it is important to know exactly what diseases an animal under human care has, to determine the risk to those giving care. Usually we do not know for sure what diseases a stranded animal has, and so precautions are taken. This explains the wearing of rubber gloves and masks, and the "dunk" in the barrel of disinfectant after being in the pool with a dolphin. Nemo's case emphasizes the need to understand potential hazards to care-givers. Nemo died of infection with two marine bacteria, both of which are well-known causes of human disease. Further, Nemo had Lobo's disease, which is known in human medicine as a stubborn and sometimes disfiguring tropical fungus disease of the skin. It has been reported that a keeper in Europe caught Lobo's disease from a captive dolphin. Nemo is the first animal with Lobo's disease to come into the hands of the Network. He is only the second known instance of Lobo's disease on the western side of the Gulf of Mexico. It is very important for us to have this

information, not only for scientific purposes, but to help insure the safety of the many volunteers that come into contact with rehabilitating dolphins. With these issues at stake, sentiment about dead animals, even well-known ones, has to be set aside.