

**Mystic Aquarium
55 Coogan Boulevard
Mystic, Connecticut 06355**

**Mystic Aquarium Permit #22629
Incident Report- Beluga whale, ID 'Havok'**

Summary

A male beluga whale ID 'Havok' under research permit #22629 was moved from Marineland in Canada to Mystic Aquarium. In the months following the move, the animal experienced a reversion and worsening of the pre-existing gastric condition identified medically at his former facility. Despite 24-hour care and intensive medical, behavioral, and nutritional support provided by a team of veterinarians who are board certified by the American College of Zoological Medicine, the whale died.

Complete Description of Events

A male beluga whale ID 'Havok' was transported successfully to Mystic Aquarium on May 15, 2021, from Marineland in Canada. The Marineland medical history for this animal included a history of gastric ulcers and associated bleeding, anemia, and inappetence. Once these were identified by the ML veterinarian, Dr. June Mergl, the 3 veterinarians at Mystic Aquarium who are boarded as specialists by the American College of Zoological Medicine, guided the care and treatment of this whale at Marineland and the ulcers healed and the animal resumed normal appetite. The transport was postponed on several occasions to ensure that the gastric ulcers had healed, and that the animal was doing well prior to transport. Preshipment diagnostics and transport planning conducted by Marineland veterinarian, Dr. June Mergl, and overseen by the Canadian Food Inspection Agency, a Canadian science-based regulator with a mandate encompassing food safety, and animal and plant healthy, included bloodwork indicative of stable condition, negative for all infectious diseases tested, and gastric sample and respiratory sample testing that were normal. Despite normal gastric samples prior to transport, the animal was given gastric medications prior to the transport as additional protection.

The transport occurred without incident or complication. Beginning at arrival on May 15, 2021, the animal was administered gastrointestinal medications as well as supportive antibiotics and antifungal medications as a precaution. Following arrival at Mystic Aquarium, the animal did well initially, eating soon after transport, though demonstrated inconsistent appetite for the first couple of weeks, which then improved into June 2021, and then declined towards the end of June 2021. This decline in his appetite was identified as being gastric in origin, with gastric samples consistent with the return of the gastric ulcers that had been identified in his medical history at his prior facility. Medications were adjusted with animal condition in real time. The gastric samples improved with treatment, recurred, and then again improved. Supplemental feeding provided during this period included additional fish, salmon oil, and milk matrix formula, to deliver a high level of digestible nutrition. Food was delivered in small volumes over a 16-hour period each day to allow for maximum digestibility. Hydration was provided orally and parenterally periodically as well. The animal's appetite became strong in mid-July and endoscopy showed that ulcerations appeared to be resolving shortly thereafter. Despite the supplemental feedings and high caloric intake, the animal developed a rapid and progressive loss of condition beginning in mid-July 2021. Bloodwork at this time showed inflammation and an elevation in liver enzymes, both of which improved over time, and a mild anemia. Endoscopy and gastric sample analysis confirmed the ulcerations in the

esophagus and forestomach were healing as previously documented; however, fasted gastric samples were thick and contained debris. The combination of gastric sample appearance and rapid weight loss despite high calorie nutritional delivery supports that the whale was not processing his food normally.

In the beginning of August 2021, the animal developed muscle spasms in his back, which resulted in the development of an acute spinal curvature. The animal could mostly straighten out during swimming, but the curvature persisted when not moving. Despite 24-hour care and intensive medical and nutritional management, the whale died on August 6, 2021, and was transported to the University of Connecticut Pathobiology Laboratory for necropsy. A gross necropsy report is attached to this incident report. Cause of death is pending histopathologic review.

This death was the result of a health issue and is unrelated to any research being performed.

Attending Veterinarians

Jennifer Flower, DVM, MS, Diplomate American College of Zoological Medicine; supervised by Allison D. Tuttle, DVM, Diplomate American College of Zoological Medicine

Research Samples Collected

A summary of research samples collected on this animal at Mystic Aquarium follows:

- The animal provided behavioral saliva samples on May 21, May 27, June 17, June 18, and June 25 and July 16, 2021.
- Microbiome samples (oral and skin) were collected under behavioral control on June 15 and June 24.
- Opportunistic fecal samples were collected from the pool on four occasions (May 23, June 1, June 29, July 16, 2021) without contacting the animal.
- Blood was provided to research only opportunistically from clinical health testing and occurred on the May 15 arrival, Jun 1, June 7, June 30, July 1, July 14, July 16, July 19, July 22, July 27, and July 30, 2021.
- Microbiome samples were collected opportunistically during clinical procedures on July 22, July 27, and July 30, 2021. Samples included blowhole swabs in addition to skin and oral for the 22-30 and a fecal swab on the 30th.
- A piece of skin was collected opportunistically on July 30th.

As this was an isolated health event and in no way related to the research being conducted, we respectfully ask for permission to resume research sampling on the other animals listed on the permit to accomplish our important research goals.

Identification of Steps to Reduce Risk of Additional Events

This case was an unpredictable health issue in an animal that had been cleared by qualified veterinarians in Canada to transport. We have, and will continue to, ensure that medical conditions in one whale do not pose risk to the others. This case has no impact on the health of our other animals. Accredited by the Association of Zoos and Aquariums (AZA), the Alliance of Marine Mammal Parks and Aquariums (AMMPA), the International Marine Animal Trainers Association (IMATA), and certified by American Humane (AH), Mystic Aquarium consistently provides the highest quality medical and husbandry care to our animals. Our veterinary program is led by veterinarians who are board-certified specialists in zoological medicine

and our facility has over 4 decades of experience in providing the highest quality husbandry care for belugas. With a strong focus on preventative medicine, our animals are well-monitored during periods of health and receive prompt attention to all medical or behavioral concerns. A fully functioning clinical lab and veterinary hospital equipped with portable ultrasound, endoscopy, and radiography are on site for immediate diagnostic results when any condition arises. When necessary, Mystic Aquarium provides 24-hour care to our animal collection. This exceptionally high platform of animal care ensures the maximal welfare for all our animals. We will continue to provide our consistently exceptional animal husbandry and veterinary care as we move forward.