

## **HAND RAISING MANATEE (*TRICHECHUS MANATUS*) CALVES**

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### **ABSTRACT**

Manatee (*Trichechus manatus*) calves are abandoned each year in the Atlantic Ocean or Gulf of Mexico around Florida and some of those animals are brought to SeaWorld Parks and Entertainment in Orlando (SWF) for rehabilitation and future release back into the wild. While in most cases we are unsure why the calf was separated from the mom, it is likely to be associated with her untimely death, which can be caused by cold stress syndrome, red tide, boat collisions, ingested debris or poor body condition. Manatee calves generally stay with their mom and nurse for 1 to 2 years and those that are separated within the first several months of life rarely survive in the wild. Calves brought to SWF are examined by a veterinarian and a full diagnostic workup including: blood, fecal, and whole body radiographs are performed. Initial problems commonly noted on admittance are dehydration and hypoglycemia. These are usually corrected through a combination of oral +/- parenteral fluids and dextrose. Once rehydrated, calves are fed a milk formula often consisting of Esbilac or Zoologic Milk Matrix, Isomil human based formulas, MCT and/or canola oil, taurine capsules, and a cetacean multivitamin every 3 hours for a total of 8 times per day. Tube feeding is the most common form of feeding upon arrival either because of the animal's inability or refusal to accept a bottle. Survivability of abandoned calves is poor and while some of this is contributed to their arrival condition and whether they accept a bottle on their own, the milk formula itself has, in some cases, caused excessive gas and constipation or diarrhea. The most severe GI complication is pneumatosis intestinalis, a sequela to necrotizing enterocolitis, which is theorized in human infants to be associated with administration of artificial milk formulas. The common practice for calves with pneumatosis intestinalis is to change the formula to 100% Nutramigen, which seems to help minimize the GI problems, but they are unable to gain weight and therefore they are put back on the formula that initiated the original problem. In July of 2010, an abandoned female manatee was brought to SWF and started on a formula of 50% Esbilac, 25% Isomil and 25% Nutramigen. She experienced intermittent GI issues including diarrhea, constipation, decreased appetite, WBCs in fecal cytology, and positive fecal occult blood that eventually led to severe pneumatosis intestinalis on radiographs in October 2010. She was placed on 100% Nutramigen to help alleviate the pneumatosis; however, while her GI issue seemed to improve her weight gain became stagnant. In November of 2010, she was started on a predigested liquid protein supplement that contained no sugar, fat, sorbitol or carbohydrates and immediately started gaining weight. The formula was then transitioned from Nutramigen to Elecare, which is a common formula for human babies battling with necrotizing enterocolitis between December 2010 and January 2011. In March 2011 a combination of oils (sustainable palm nut, macadamia, and coconut) was added at a ratio of 2:2:1 ratio in combination with MCT oil that was already in the diet to try and better align the fatty acid composition of the formula to the natural milk of a manatee. To date, the manatee calf is doing well and has gained 217% of its original body weight (18.60 kg) upon arrival until 22 May 2011 (56.02 kg) and averaged 0.53% daily weight gain. In April 2011 another calf (estimated to be a few days old) was brought in dehydrated and

started on the new formula, but at lower levels of protein and fat due to problems with reflux and positive buoyancy. The calf never accepted the bottle and was tube fed for 20 days, during which it lost 10.5% of its original body weight before it expired of aspiration pneumonia. While this experimental formula (protein 7.9%, fat 10.2%, sugar 5.9%) appears to have helped the first calf and is closer to the milk composition of manatee's milk (protein: 8.0%, fat 8.0-16.0%, sugar 1.0%) it is likely that this formula will undergo further refinement and needs to be tested on future animals.