



Inspection Report

INSTITUTE FOR MARINE MAMMAL STUDIES INC
P O BOX 207
GULFPORT, MS 39502

Customer ID: **322997**

Certificate: **65-C-0540**

Site: 001

INSTITUTE FOR MARINE
MAMMAL STUDIES INC

Type: FOCUSED INSPECTION

Date: 11-MAR-2021

3.106(b)(2) Critical

Water quality.

A 6-year-old adult neutered male California sea lion ("Jester") had a history of recurrent medical problems affecting his eyes. On November 14th, 2019, Jester was examined by the attending veterinarian and the presence of a large corneal ulcer was noted on the surface of his left eye, and trainers noted that the animal was "not eating as regularly as before". On February 11th, 2020 his left eye was noted to be worsening ("corneal ulcer subjectively seems deeper"), and he continued to receive treatment by the attending veterinarian. He underwent surgery on his left eye on March 5th, 2020 at which time it was noted that lesion was a "desmetocoele" (very deep eye ulcer). At the time of surgery, his right eye also had a bluish grey lesion on its surface which was not ulcerated. Jester died under anesthesia.

Water quality records from the pool where Jester was housed consistently had total chlorine levels of 2.2 parts per million (PPM) and free chlorine levels ranging from 0.1 PPM to 0.95 PPM in the month before his death. Free chlorine exceeded 0.5 PPM every day, often multiple times each day, from February 8th, 2020 to February 25th, 2020. The highest free chlorine measured during this timeframe was 0.95 PPM free chlorine on February 18th, 2020.

Facility management stated that the general aim for water on this system is to maintain free chlorine in the 0.3 to 0.5 PPM range in order to kill coliforms (bacteria). Facility records indicate that this target was lowered to the "0.2 range" on February 26th because Jester was being prepared for surgery and they wanted to "fix anything and everything" leading up

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to the surgery. Facility management stated, "there is no question that chlorine is irritating to the eyes." From February 26th to March 5th the free chlorine was often in the 0.2-0.3 PPM range, while total chlorine remained around 2.2 PPM. The consulting ophthalmologist confirmed that many of the other animals at the facility have eye problems. The attending veterinarian confirmed that 4 out of 5 sea lions on this water system have ocular issues, all of whom are under 10-years-old. Jester had been living at the facility since 2015, and he did not have any eye lesions when he arrived at the facility. A USDA marine mammal specialist visited the facility on August 27th, 2019 and the specialist told facility management that the chlorine was too high and needed to be reduced to better support animal health. At that time, facility management indicated that their chlorine levels were maintained at less than 1 PPM total chlorine.

Since June 2020, records from this water quality system show that total chlorine was often more than 1.5 PPM, and was regularly above 1.8 PPM. Records show that free chlorine often regularly exceeded 0.5 PPM.

Chlorine may contribute to the development and worsening of eye disease in captive sea lions. Chlorine and its byproducts are extremely irritating to eyes and mucus membranes, yet captive sea lions depend on pools of water in their enclosure to maintain normal body temperature and to exercise normal behaviors. Ulcers, infections, and inflammation on the surface of the eye are extremely painful and may cause vision loss, and may affect an animal's willingness or ability to eat, swim, ambulate, or rest comfortably. Animals with ulcerated eyes are especially vulnerable to the pain and irritation caused by exposure to chlorinated water. Sea lions are a high anesthetic risk, so eye problems that progress to a level where anesthesia or surgery is needed are especially hazardous to the animals' health and longevity.

Correct by maintaining appropriate levels of chlorine in marine mammal enclosures or an alternative system to maintain ideal water quality so there is no detrimental effect to the health of the animals contained therein. Temporary correction due by April 2nd, 2021, permanent correction due by May 31, 2021.

This inspection and exit interview were conducted with the licensee.

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Additional Inspectors:

Kendra Nicholas, VETERINARY MEDICAL OFFICER

William Campbell, VETERINARY MEDICAL OFFICER

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Species Inspected

Cust No	Cert No	Site	Site Name	Inspection
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Count	Scientific Name	Common Name
000007	<i>Tursiops truncatus</i>	BOTTLENOSE DOLPHIN
000008	<i>Zalophus californianus</i>	CALIFORNIA SEA LION
000015	Total	