The Marine Mammal Center

MEDIA ADVISORY

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Southern sea otter conservation efforts bolstered by new rehabilitation space at The Marine Mammal Center

(SAUSALITO, Calif.) – As part of The Marine Mammal Center's mission to advance global ocean conservation and the recovery of threatened species, the world-renowned veterinary teaching hospital has a new species onsite: southern sea otters. The ability of the Center to rehabilitate this threatened species marks an increase in the overall capacity to rehabilitate southern sea otters that are sick or injured along California's Central Coast.

"Retrofitting part of our hospital to safely house sea otters means we've effectively increased rehabilitation capacity for this threatened species," says Dr. Shawn Johnson, Director of Veterinary Science at The Marine Mammal Center. "The opportunity to release southern sea otters back into the wild can help contribute to the future health of the population and surrounding ecosystems."

With an increase in the sea otter population along the Central Coast, the number of live strandings is increasing as well, but the capacity for longer-term rehabilitation has not increased—until now. As the primary first responder for stranded sea otters across its 600-mile rescue range, the Center has transferred all otters that are candidates for long-term rehabilitation to the Monterey Bay Aquarium's Sea Otter Program. By retrofitting existing space at the hospital in Sausalito, the Center can now perform sea otter rehabilitation as well.

"The Marine Mammal Center is proud to play an important role in recovery efforts as a first responder for live strandings of sick, injured or orphaned sea otters along California's Central Coast," notes Dr. Johnson. "We work closely with partners at U.S. Fish and Wildlife Service and Monterey Bay Aquarium to make decisions together about how to provide humane and state-of-the-art care for rescued otters."

The Center is currently treating two southern sea otters. Otto, an eight-year-old southern sea otter, was rescued in San Luis Obispo County. Otto was given an admit exam early on in his treatment that provided a clear diagnosis: domoic acid toxicosis, a condition caused by the neurotoxin domoic acid. Produced by a type of algae called *Pseudo-nitzschia australis*, this toxin accumulates in shellfish like crabs, clams and scallops, which are eaten by sea otters in large quantities.

Domoic acid toxicity primarily attacks the brain, causing lethargy, disorientation, seizures and, if not treated, eventually, death. An MRI of Otto's brain revealed that he had a shrunken hippocampus, the area of the brain known to play a role in memory and navigation, a common finding in animals with domoic acid toxicosis. Yankee Doodle, also an adult male, was rescued in Half Moon Bay about a month after Otto showing signs of neurologic disease. An MRI revealed that he too had likely been exposed to domoic acid.

In sea lions, the clinical signs of domoic acid toxicosis are known, and the Center's experts can assess whether an animal has permanent brain damage by monitoring for healthy neurological behaviors such as alertness, the ability to move quickly on all four flippers and a natural instinct to avoid or be aggressive toward humans. But in sea otters these behaviors could look quite different, and no neurological

assessment has been developed thus far. In fact, very little is known about how domoic acid affects individual otters or the population as a whole.

Both otters will be released back into the wild with a second-generation Life History Transmitter (LHX) tag surgically implanted in the abdomen. This will be the first application of LHX tags in rehabilitated southern sea otters, and will be an important way to track the success of the rehabilitation efforts. LHX tags were custom developed by Dr. Markus Horning, Science Director at the Alaska SeaLife Center, in collaboration with Wildlife Computers Inc. (Redmond, WA), through a National Science Foundation award to better monitor survival in marine species, in particular endangered species.

Traditional satellite tags regularly transmit data to researchers, but are limited in their service life on marine mammals by annual molts and small battery-sizes. LHX tags are surgically implanted, and rely on a delayed transmission via satellite to transmit data post-mortality. LHX tags function in a manner similar to black boxes on aircraft. While implanted, built-in sensors continuously monitor for things including pressure, temperature, and motion, which can provide clues to what may be happening throughout an animal's life as well as how it died. LHX tags have been successfully used in Steller sea lions, California sea lions and Pacific harbor seals.

All sea otters successfully rehabilitated by the Center will be released back into their current range. While the population has grown, the range has not expanded during the past decade, likely due to white shark activity. As of May 2016, the southern sea otter's range extends from south of Half Moon Bay in the north to southeast of Point Conception in the south—only a small part of their historical range.

As many as 20,000 southern sea otters may have lived along the coasts of California and Baja California at one time, but that is no longer the case. Southern sea otters haven't populated San Francisco Bay since the early 1800s, when the fur trade nearly caused their extinction, and there have been fewer than 20 confirmed or credible sightings in the Bay Area since 1979, according to the U.S. Fish and Wildlife Service. For the last 40 years, southern sea otters have been listed as "threatened" under the federal Endangered Species Act with the population estimated at just a few thousand.

Studies show that sea otters are a keystone species that help shape and maintain healthy kelp forest and tidal wetland ecosystems. Sometimes called "ecosystem engineers," these top predators help contain populations of sea urchins and crabs, allowing kelp and sea grasses to thrive and provide habitat to many other species.

"Because of sea otters' important role as a keystone species, increases in their population size and range are essential for restoration of the ecosystems in which they were once found," says Lilian Carswell, Southern Sea Otter Recovery and Marine Conservation Coordinator for the U.S. Fish and Wildlife Service. "We rely heavily on our partners in these recovery and restoration efforts, and we are thrilled that The Marine Mammal Center is again equipped to rehabilitate stranded sea otters for release to the wild."

In order to care for sea otters, the Center had to retrofit existing pens, as sea otters are known to be capable escape artists, using their dexterous paws to reach through fencing to grab items or unlock gates. Two of the pens at the Center were retrofitted to be suitable for sea otters by replacing the fencing with solid walls of fiberglass-reinforced plastic, along with other feature changes to ensure safety.

Since 1995, the Center has responded to more than 350 stranded sea otters and previously rehabilitated 20 sea otters, the last one in 2003. Since the recent retrofit construction, the Center has admitted one other otter, a young female called Hope. She appeared to be a bit small for her estimated age of about 7 to 8

months when she was found stranded at Piedras Blancas near San Simeon. A thorough exam revealed troubling but inconclusive results, and two days later, she died. A necropsy, or post-mortem exam, found that she was suffering from an advanced case of Valley Fever, a disease caused by a fungus that destroys the architecture of internal organs. What is learned from her death advances the understanding of the disease agents that can impact the health of these animals.

ASSETS
Due to habituation risk, onsite photography and videography of sea otters is not permitted.

Photos and video clips are available for media use here. Caption and credit information is also available in this folder. https://www.dropbox.com/sh/df1ra6mmd4nj99s/AAA7yzllGy_PWPxMLThCR-LVa?dl=0

INTERVIEWS
Interviews are available with Dr. Shawn Johnson, Director of Veterinary Science at The Marine Mammal Center. Please contact media@tmmc.org or call 415-289-7361 to schedule an interview. Due to habituation risk, onsite photography and videography of sea otters is not permitted.

For additional questions about Life History Transmitter tags, please contact the Alaska SeaLife Center at media@alaskasealife.org or 907-224-6397 to set up an interview with Dr. Markus Horning.

OPEN TO THE PUBLIC
The Marine Mammal Center is open to the public daily from 10am to 4pm. Visitors can take docent-led tours to learn about the Center's mission of ocean conservation and see current patients rehabilitating. The current pool areas for sea otters are tucked away from public view in order to reduce human noise and interaction, as sea otters can become quickly habituated to humans. Visiting members of the public will have the opportunity to hear stories and view photos and videos of rehabilitating sea otters.

HOW THE PUBLIC CAN HELP
Sea otters must eat about a quarter of their body weight in seafood every day just to maintain a healthy weight, and their specialized diet includes expensive human-grade sustainable seafood such as scallops, mussels, clams, squid and shrimp. The Center is a non-profit organization, so members of the public can make a real difference for threatened sea otters like Otto by supporting this work to rescue and rehabilitate these animals and restore their natural habitat. Visit MarineMammalCenter.org to find out how to help.

If a marine mammal in distress is spotted on a beach, members of the public should call the Center's 24-hour hotline at 415-289-SEAL (7325).

ABOUT THE MARINE MAMMAL CENTER
At the Marine Mammal Center, we are guided and inspired by a shared vision of a healthy ocean for marine mammals and humans alike. Our mission is to advance global ocean conservation through marine mammal rescue and rehabilitation, scientific research, and education. Since 1975, the Center has been headquartered in the Marin Headlands, Sausalito, Calif., within the Golden Gate National Parks and has rescued and treated more than 20,000 marine mammals. In 2014, the Center opened Ke Kai Ola, a hospital for the rehabilitation of the endangered Hawaiian monk seal, in Kailua-Kona, Hawaii. Learn more at MarineMammalCenter.org. Follow us on Facebook, Twitter and Instagram.

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