

Sea Otters' Diet is Clue to Slow Recovery

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(PhysOrg.com) -- UC Davis researchers trying to understand the sea otter's slow recovery in California have found an important clue: Some sea otters feed almost exclusively on animals that raise their risk of being infected with potentially deadly parasites.

Abalone is sea otters' preferred food. But in places where otters have to compete for food, they must eat a variety of prey, such as small crabs, clams, small snails or worms, and they pass those habits to their offspring.

In the new study, sea otters that ate abalone had the lowest rates of parasitic infection. In contrast, sea otters living along the coast between San Simeon and Cambria that specialized in eating marine snails had the highest rates of infections with *Toxoplasma gondii*, a parasite that can cause brain infections.

Where they ate also made a difference. Sea otters along the developed shores of southern Monterey Bay near Fisherman's Wharf and Cannery Row eating mostly clams had very high rates of infection with *Sarcocystis neurona*, another cause of fatal brain infections in sea otters. Just southwest of this area, near Point Pinos, where the shoreline is undeveloped and sea otters eat mostly abalone, the rate of infections was very low.

"Higher levels of disease may be an unfortunate consequence of adaptations sea otters have made when preferred food is not available," said Christine Johnson, one of the study's lead authors and a veterinary epidemiologist at the UC Davis Wildlife Health Center, in the School of Veterinary Medicine.

Johnson said this study was unusual because it used an epidemiological approach typically used in human health, not wildlife, and reached across diverse disciplines and institutions.

"By closely observing sea otters for many years and collecting data on habitat use, daily

movements, diet choices and parasite exposure, we showed how an individual's actions influence its risk of disease," she said.

More information: The study, "Prey choice and habitat use drive sea otter pathogen exposure in a resource-limited coastal system," was published online Jan. 21 in the *Proceedings of the National Academy of Sciences*. Johnson's co-lead author is Tim Tinker, a U.S. Geological Survey sea-otter expert based in Santa Cruz. Other authors are Patricia Conrad and Jonna Mazet, UC Davis; James Estes, UC Santa Cruz; Michelle Staedler, Monterey Bay Aquarium; and Melissa Miller and David Jessup, California Department of Fish and Game.

Provided by UC Davis

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