



Elkhorn Slough Sea Otter Research Project



Robert Scoles via ESNERR

How do sea otters use Elkhorn Slough's estuarine habitats?

As part of a new project in Elkhorn Slough near Moss Landing, California, scientists hope to compile new data to support the recovery of **the southern sea otter** (*Enhydra lutris nereis*), a federally threatened species under the Endangered Species Act.

This partnership of federal, state and local institutions is **seeking to increase our understanding of estuary habitat use by sea otters** — and to help inform the conservation and restoration of suitable habitat and water quality conditions at Elkhorn Slough.

As southern sea otters continue their recovery and expansion into southern and northern reaches of the California coast, they will encounter estuary habitats. But scientists are really not sure how sea otters will respond and thrive in estuary environments, and how their recovery will affect estuary food webs.

For the time being, **Elkhorn Slough is our best example in California of sea otters using estuarine habitats** — which have different environmental factors than say, kelp forests and other habitats along the coast.

So using a variety of established study methods — **radio tracking, veterinary exams, genetic analysis, diet observations** — this collaborative group of scientists hopes to uncover new knowledge about this population of California's iconic sea otters — a population that hasn't been extensively studied for 15 years.

The research is being led by a partnership of the **U.S. Geological Survey, University of California-Santa Cruz, California Department of Fish and Wildlife, the Monterey Bay Aquarium, and the Elkhorn Slough National Estuarine Research Reserve (ESNERR)**, with assistance from other partners.

RESEARCH CONTACTS

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**Main Research Page
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Frequently Asked Questions



WHAT ARE THE PROJECT GOALS?

The specific goal is to determine how sea otters are using estuarine habitats and prey resources, understand their role in the estuarine food web, and to quantify and understand the effects of human-caused stressors — such as contaminants or nutrient inputs — on sea otters in Elkhorn Slough.

The ultimate goal of this project is to support the recovery of the southern sea otter in California, by informing conservation and restoration efforts to provide suitable estuarine habitat and water quality conditions at Elkhorn Slough — a habitat commonly used by sea otters.



WHAT KIND OF RESEARCH ARE YOU DOING HERE?

Veterinarians are doing **health checkups** on 20 sea otters in Elkhorn Slough, much like you or your pet might get at the vet or the doctor's office. We check for **weight**, **health condition**, and take **biopsies** for lab testing. Blood samples will be saved for a lab test that analyzes **RNA** in the blood, which can tell us if a sea otter **has been exposed to pollutants or diseases**. The sea otters don't feel anything during the exams. They are under sedatives — the same kind used for human prostate exams.



WHY DO YOU HAVE TO IMPLANT THE VHF RADIO TAG?

The 20 sea otters will also receive a small radio transmitter and temperature recorder (approximately the size of an egg). This lets us follow each otter closely as it swims throughout Elkhorn Slough, so we can study its behavior.

Marine mammals like whales, dolphins and seals have very smooth skin, short fur, or dorsal fins which allow the convenient attachment of tracking devices. Sea otters, however, depend on their dense fur for warmth, and any impediment to this fur can seriously damage a sea otter's ability to keep warm. That is why any type of tracking device must be internally placed.

HOW DOES THE RADIO TAG HELP WITH THIS RESEARCH?

The research team will spend several years **observing the feeding behavior** of the 20 radio-tagged sea otters, as well as other sea otters living in Elkhorn Slough.

The tag allows scientists follow individual sea otters, and take detailed notes about how often they hunt, eat and rest. We write down every kind of food they eat, and how long they dive — calories in, calories out, just like people — **so we can figure out their "energy budget"**.

Sea otters need to consume up to 1/3 of their body weight each day in order to meet their uniquely high metabolic demands. If they are not getting enough calories, they are more likely to get sick and die. **Understanding the energy budget of sea otters in Elkhorn Slough** can tell us how well they are doing in this habitat.



HOW CAN I HELP?

If you see researchers working at the veterinary station or taking part in a sea otter capture, please do not approach. Disturbing these processes can cause harm and additional stress to the sea otters.

If you see a technician observing sea otters through a telescope, please wait until they are at a stopping point to ask questions. We are happy to answer questions, but we apologize in advance for concentrating on research first!

If at any time you find a sea otter that is dead or dying here or anywhere in California, visit this website (<http://www.werc.usgs.gov/seaotterstranding>) to report the stranding.

To learn more about the estuary and its inhabitants, including sea otters, visit the Elkhorn Slough Reserve Visitor Center (<http://www.elkhornslough.org>).

Learn about USGS sea otter research at www.werc.usgs.gov/seaottercount.

WERC partners in sea otter ecology research include: California Department of Fish and Wildlife Office of Spill Prevention and Response • Monterey Bay Aquarium Sea Otter Research and Conservation Program • U.S. Fish and Wildlife Service • National Park Service • NOAA • Bureau of Ocean Energy Management • Fisheries and Oceans Canada • Seattle Aquarium • California Academy of Sciences • The Marine Mammal Center • Santa Barbara Museum of Natural History • Santa Barbara Zoo • UC Davis Oiled Wildlife Care Network • UC Santa Cruz • University of Wyoming

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