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# Sample lecture notes created with Microsoft OneNote

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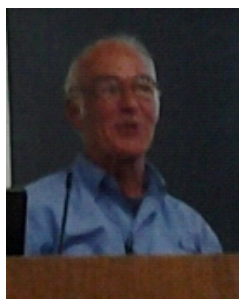
# Elkhorn Slough and the Otters that Flourish There


 These notes were created with Microsoft OneNote on a Samsung tablet

 Lecture Hall, Monterey Boat Works, Hopkins Marine Station  
 [American Cetacean Society - Monterey Bay Chapter](#)


## Summary

Report of a two-year project, where volunteers collected the empirical data for a scientific study showing that contrary to the currently held belief that Sea Otters rarely if ever haul out, the sample group of Southern Sea Otters in Elkhorn Slough actually spent 1/3 of their day on land.



 Ron Eby, Naturalist

## Opening Remarks

- Monterey Bay Marine Sanctuary is now in its 20th year
- Section from Point Bonita to San Pedro Point (near the Northern border of the Sanctuary) will be added soon, closing the last gap in protection. The Monterey Bay Marine Sanctuary stretches from 7 miles north of the Golden Gate Bridge to the city of Cambria in San Luis Obispo County
-  • [Team OCEAN](#) (Ocean Conservation Education Action Network) is a paddling group, members serve as docents on the water


## Definitions

slough  
a creek in a marsh or tidal flat

estuary  
a water passage where the tide meets a river current

hauling out  
the behavior of sea mammals of temporarily leaving the water

## Research Hypothesis

-  Disprove the belief that Southern Sea Otters never haul out

## Elkhorn Slough Quick Facts

- 7 miles/11 km long
- is one of the most contaminated areas on the West Coast
  - farmers today protect the Slough from contaminants
  - primary problem is legacy pesticide residue in the fields around the Slough
  - the power plant pumps out water to the ocean, not the Slough

## Elkhorn Slough Sea Otters

- Last marine mammal to evolve
- Present in archeological records in estuary
- Has only one pup a year
- Re-colonized Elkhorn Slough in 1980s
- Currently, Elkhorn Slough has highest sea otter density within range of the Southern Sea Otter
- Southern Sea Otter populations in estuary are increasing

## North Harbor Otter Raft

- Up to 100 male animals
- Use Moss Landing harbor area for shelter
- Extensive haul out site
- Transient: Do not depend on estuary foraging
  - Two 24 hour observations/month for two years
  - 85% forage in bay
  - Numbers are closely correlated with temperature

## Seal Bend Otter Raft

- Over 50 females and pups
- Higher density of mother/pup pairs than on open coast
- Raft together at Seal Bend

## Yampah Island Study

- 26% of these otters were mothers with pups
- Females mate with territorial male and sneakers
- Otters spend high tides in this area
- Exit at low tide and feed in main channel

## Percentage Time on Land and Water (based on observation of Yampah Island otters)

- Sea Otters spend 1/3 of their time on land
- Otters spend more than half of their combined water and land time resting
  - 53% Resting
  - 18% Traveling
  - 13% Grooming
  - 11% Interacting
  - 4% Foraging
  - 1% Patrolling

## Elkhorn Slough Habitat Use Questions

- Why are some tidal creeks used much more than others
- Where are animals foraging and on what prey
- Are prey populations sustainable given intense foraging pressure
- Are prey populations so contaminated as to be impairing health of pups in estuary
- Lessons learned from Elkhorn could eventually apply to San Francisco, Morro Bay and other California estuaries

## Links



[Patterns of Sea Otter Haul-Out Behavior in a California Tidal Estuary in Relation to Environmental Variables](#)



[Event website](#)