Defenders of Wildlife

Southern Sea Otter Summary

Why are sea otters important? How do they affect humans?

- Sea otters play a critical role in the marine ecosystem
  - ✓ A keystone species is one whose effect is large, and disproportionately large relative to its abundance
  - ✓ By limiting the numbers of grazers such as urchins and abalone otters promote the abundance of the kelp forests
  - ✓ If sea otters were not in the picture, the ecosystem would be completely different
- A healthy kelp forest supports thousands of organisms
  - ✓ Marine systems with and without kelp are like a forest (with kelp) and a barren desert (without kelp)
  - ✓ Healthy kelp forests greatly increase local biodiversity
- Sea otters are the top predator in their ecosystem
  - ✓ Unfortunately, this means that contaminants and other toxins that are present in lower levels among their prey get concentrated in their tissues
  - ✓ As with eagles and DDT, impacts of contaminants on sea otters can alert us to unsafe levels of contaminants in the waters that support the fish we eat
- Wildlife viewing is one of the most popular activities among tourists and residents of California
  - ✓ Tourists visiting CA to view wildlife will continue to return and promote the economy if their experience is positive
  - ✓ The quality of an outdoor experience is greatly enhanced by wildlife sightings

Systematics and Natural History of Southern sea otter

Systematics: *Enhydra lutris nereis*

- Smallest marine mammal in northern hemisphere
- Largest member of Family Mustelidae: relatives include ferret, badger, wolverine, mink, river otter, etc…

Natural History (refer to Sea Otter Fact Sheet)

Historic and current range; Protection acts and recovery plan

Historical range

- Fossil records indicate otters & their ancestors have been part of the CA ecosystem for 5 billion years
- In the early 1700's, before hunting began, the worldwide range was continuous from Japan-Baja CA and the population was estimated at between one half million to a million, w/ ~ 16,000-18,000 otters in CA
- During the 18th century, otters became a popular marine mammal to hunt because of their dense fur and were taken, w/o much regulation, for ~170 years
- They were finally given full protection under the International Fur Seal Treaty of 1911 but, by this time, only 2,000 otters were estimated worldwide and they were considered extinct in CA
- In 1918, a population of ~20-50 otters was discovered in a small section of the Big Sur coast (b/w Bixby Creek and Pfeiffer Pt.)

Current Range

- The entire CA population stems from that remnant population and now covers a range >250 miles of coastline

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from Half Moon Bay to Gaviota
- There is also a small population of ~40 otters located around **San Nicolas Island** in the Channel Islands of Southern California; these otters are the descendents of otters that were moved from the mainland population between 1987-1990

Protection
- CA sea otters were listed as "depleted" under the **Marine Mammal Protection Act of 1972**
- One year later, the **Endangered Species Act of 1973** listed the CA sea otter as "endangered"; the Act gives protection to species until they are no longer in danger of extinction

Census data
- The population in CA continued to grow to a peak of **nearly 1,800** (1,789) otters in the mid 1970's, an annual growth rate of ~5%
- Unfortunately, after 1976, there was a steady decline, that was later attributed to elevated mortality by entanglement in gillnets
- Standardized census of the population was initiated in **1983**
- Counts are conducted twice a year in the spring and fall, along the entire ranges
  - ✓ Spring counts are considered the most reliable due to more favorable viewing conditions and consistently higher annual numbers
  - ✓ The first of these censuses indicated the population had dropped to **less than 1,300** (only 1,277) otters in CA
- Once regulations were placed on the gillnet fisheries, the population began to rebound at an annual growth rate of ~5% until **1995**
  - ✓ Their numbers reached as high **nearly 2,400** (2,377) in 1995
  - ✓ This growth rate could be considered slow when compared to an annual recovery rate of 17-20% in pristine areas of WA, BC, & AK
- After **1995**, they took **another downturn**, until **1999**, for reasons that are still unclear
  - ✓ It is fairly certain that the decline is due to **elevated mortality** and not to reduced reproduction or immigration
  - ✓ Studies conducted by University of California (Santa Cruz & Davis), USGS-Biological Resources Discipline, Monterey Bay Aquarium, and CA Department of Fish & Game, seeks to define the causes of mortality so that management decisions that will aid in their recovery can be made
- The spring census of **2010** shows a three-year running average of **2,711**
  - ✓ This indicates a slight decrease from last year's three year average, and a population that is ~17% that of the pre-hunted population
- The counts have shown a decrease in **9** of the last **14** years
- *If they reach a population of ~3,100 in three consecutive years, they may be considered for delisting under the ESA, however, they will still be considered "depleted" under the MMPA until there are 8,400 independents (pups not included).*

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Management issues

Some of the critical management issues related to sea otters include:

- Because it is a threatened species, federal law requires that a recovery plan be written for the southern sea otter and critical habitat for its recovery be designated.
- The final recovery plan was issued nearly five years ago.
- The two primary management objectives for the population are to increase otter abundance and the size of their range. However, there are a number of hurdles to face before these targets are achieved.
- Population decline – Since the causes of the decline are not entirely known, it is difficult to identify and implement a management action.
    - ✓ Disease and contaminants – The major diseases that kill sea otters are bacterial infections, acanthocephalan parasites, protozoal encephalitis, and "San Joaquin Fever".
    - ✓ California sea otters carry much higher loads of DDT and PCBs, and animals that occupy areas near river mouths show the highest levels of these contaminants.
    - ✓ TBT, a chemical in boat paint has been found in high concentrations among sea otters near harbors. This chemical has been banned in Europe because it is known to cause immune suppression in marine mammals.
    - ✓ In general it is suspected that each of these contaminants has the potential to increase an individual's susceptibility to disease.
- Conflicts with fisheries – See otters are curious by nature, making them susceptible to entanglement in nets and traps.
    - ✓ Sea otter bycatch in gill nets resulted in the restriction of gillnets in waters shallower than 180 feet, protecting much of their habitat in the late 1970's.
    - ✓ This restriction was recently upheld in the California superior court.
    - ✓ However, there have been aerial surveys that have observed sea otters in waters deeper than 180 feet.
    - ✓ In areas with active shellfisheries such as Santa Barbara County, sea otters would be in direct competition with fisherman for their food.
    - ✓ A live-trap fishery uses homemade cages to catch live fish. These are baited with squid and crab, common prey of sea otters. Experiments with captive animals and traps showed that otters eagerly explored and became entrapped in the cages. No animals were injured during these experiments.

Results from sea otter research will have a significant impact on the future management of the sea otter population.

- Though oil spills did not cause any southern sea otter deaths in recent years, oil remains a tremendous threat.
    - ✓ Over 4000 large vessels carry hazardous materials through the sea otter range each year.
    - ✓ These vessels are allowed to follow the most expedient course, bringing them close to shore as they travel from point to point.
    - ✓ There have been many near misses, vessels adrift, and small oil spills.
    - ✓ Large oil spills have occurred off the coast of San Francisco and Santa Barbara. Additionally, there are over twenty active oil and gas platforms along the California coast in areas adjacent to sea otter habitat.
    - ✓ Recent requests have been made to activate and develop over thirty more.
    - ✓ Because their fur is their primary source of insulation, sea otters exposed to oil have a very high probability of death.

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- ✓ A spill the size of the Exxon Valdez spill could feasibly expose every animal in the current California population of sea otters to oil.

- Translocation – In 1986 an experiment was conducted to establish a population of sea otters at San Nicolas Island. 140 animals were taken from the parent population and transferred.
  - ✓ It was hoped that this population would grow and could potentially serve to replenish the mainland population in the event of a large oil spill. Today about 30 of their descendants remain.
  - ✓ At the time of the translocation a public law was passed requiring that sea otters located south of Pt. Conception, near Santa Barbara, be removed from the area and returned to the parent population.
  - ✓ This law was created to minimize conflicts between the experimental population and fishery resources in the Channel Islands.
  - ✓ Otters were removed and translocated for the first few years but this practice was discontinued in 1993 after the stress of removal caused the death of several translocated animals.
  - ✓ When the law was established, the provision was made that under certain conditions, the translocation could be determined to be a failure and the no-otter zone permanently removed.
  - ✓ The effectiveness of both the translocation program and the law are in the process of being re-evaluated.
  - ✓ Today, the commercial fishing industry is strongly opposed to efforts to declare the translocation a failure and remove the no-otter zone.
  - ✓ This action is critical to the growth of the sea otter population. The probability of translocated sea otters dying is high and then need for natural range expansion is critical. Additionally, studies have shown that individuals can travel hundreds of kilometers, making it difficult to place them anywhere that they would not be able to, and likely to return from.

You can make a difference

- A number of non-governmental agencies are involved in sea otter recovery efforts.
- Support efforts to control runoff that carries chemicals into the oceans.
- A commonly used substance that contributes to harmful runoff is detergents used to wash cars. They act as a dispersant to the oils in the pavement and carry them into the wastewater system or directly into the ocean, if you're lucky enough to live near the water.
- If you come across a stranded or dead sea otter, report it immediately.
  - ✓ http://www.defenders.org//sea_otter_mortality
  - ✓ Stranded otters can be rehabilitated and released into the wild.
  - ✓ Tissues from dead sea otters provide information to help researchers understand the impacts of parasites, contaminants, and disease.
  - ✓ The sooner a carcass is examined after death, the more likely the cause of death can be determined accurately.
- Support efforts to minimize bycatch of marine mammals, birds, and untargeted fisheries.
- Purchase products harvested sustainably (guides are available from the Audubon Society and the Monterey Bay Aquarium).
- Contribute to the CA Sea Otter Fund on your annual CA State Income Tax Form
- Support efforts to remove the "no-otter zone"

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