Marine Mammals Ashore
What to do?

Jim Rice
Coordinator, Oregon Marine Mammal Stranding Network
Marine Mammal Institute, Oregon State University
Entire Coast
- NOAA Fisheries (NMFS)
- Oregon State Police
- Oregon Department of Fish & Wildlife
- Oregon Stranding Network Coordinator
- Oregon State Parks
- Oregon Stranding Network Volunteers

North Coast (Columbia River to Tillamook)
- Portland State University
- Seaside Aquarium

Central Coast (Tillamook to Reedsport)
- Hatfield Marine Science Center, OSU
- The Oregon Coast Aquarium
- Oregon State Police Volunteers

South Coast (Reedsport to CA Border)
- Oregon Institute of Marine Biology
- Oregon Department of Fish and Wildlife
Oregon Marine Mammal Stranding Network

Marine mammal on the beach

Public → Oregon State Police Hotline
1-800-452-7888

Stranding Network Coordinator

Scientific Experts
Volunteers
Newspapers, radio, TV
Network Authorization

- All marine mammals are federally protected by the Marine Mammal Protection Act

- NOAA Fisheries authorizes us to intervene on behalf of stranded marine mammals by special permission

- Only people authorized by NOAA may handle marine mammals - these include state and local officials. Violations are punishable by a $10,000 fine
Oregon Marine Mammal Stranding Network

Objectives

- Promote scientific investigations of strandings
- Provide for the welfare of live stranded animals
  - reduce occurrences of harassment
  - disentanglement of whales and sea lions
- Minimize risk to public health and safety
- Advance public education
- Report **Level A Data** to NOAA for inclusion in national database
Collecting Level A Data

**Level A Data** are the basic types of information necessary to report a marine mammal stranding event to the NOAA Fisheries Service.

**They Include:**
- Species Identification
- Location of Stranding (latitude/longitude)
- Body Length
- Sex
- Status of the animal - live, dead (fresh/decomposed)
- Description of any signs of human interaction (net entanglement, gunshot, ship strike)
- Presence / Description of tags or brands
Oregon Marine Mammal Stranding Network

We generally *Do NOT*: 

- Dispose of dead marine mammals - generally the responsibility of State Parks
- Respond to bird, fish, or non-marine mammal calls
- Rehabilitate harbor seal pups or California sea lions - wild populations are healthy and growing in Oregon
Mitigating Beach Conflicts

• Public Outreach
  ► Protected species
  ► Stress is harmful

• Most people are well-intentioned but ill-informed about marine mammals

• Most will behave properly once they receive basic information
Bumper Stickers

Don’t Touch Seal Pups
Oregon Marine Mammal Stranding Network
Periodic Interventions
2010 Oregon* Strandings

n= 928    includes Long Beach, WA

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<tr>
<th>Species</th>
<th>Strandings</th>
<th>Sightings</th>
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<td>killer whale</td>
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<td>minke whale</td>
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<td>unidentified pinniped</td>
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Unique Scientific Value

- Stranded animals offer a unique sample of relatively inaccessible wildlife
- They are biased in favor of the diseased segment of the population and are generally easy to examine thoroughly
- Diseases in marine mammals may reflect environmental changes such as ocean pollution, shifts in prey, biotoxins, and emerging pathogens
Collaboration with OSU College of Veterinary Medicine

Veterinary Diagnostic Laboratory

- Team of veterinary pathologists, other faculty, students
- Can provide detailed gross necropsy, histopathology, and microbiology results
Cryptococcus gattii

- Emerging disease in Pacific Northwest
- Fungus native to Australia - first detected in the region on Vancouver Island in 1999
- The fungus can reproduce in salt water; porpoises likely become infected when tainted water enters their blow holes
- 3 confirmed cases in Oregon porpoises so far
Cryptococcus Cases

April 2008

July 2008

Sept 2007

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Leptospirosis in California sea lions

- A kidney infection that impairs the animal’s ability to concentrate urine
- Causes sea lions to become lethargic, dehydrated; neurological signs
- Often beach themselves near streams seeking fresh water
- Potentially reversible but often fatal
- Transmissible to humans and dogs – public health concerns
Suspected Leptospirosis Cases

Neskowin
10/16/2006

Driftwood SP
10/24/2006

Lincoln City
10/23/2006
Cancer in California sea lions

hydrenephrosis of the left renal pelvis and many of the calyces. Much of the renal cortex and medulla has been destroyed with only fibrous tissue remaining.
Why Do Marine Mammals Strand?

Many Reasons:

- Malnutrition
- Diseases and parasites
- Biotoxins (harmful algal blooms)
- Human impacts (oil spills, ship strikes, fisheries interactions, navy sonar, seismic exploration, chemical spills, explosions, marine debris…)
- Navigational problems (complex topography, gently sloping sandy seafloors, magnetic anomalies, wind-driven onshore currents)
- Social cohesion/group panic behavior in highly social cetacean species
- Combination of factors
Sentinels of Ocean Health

Evidence is mounting that marine mammal epizootics indicate human induced imbalances in marine and coastal environments

- **Marine Morbilliviruses** - Contaminant induced immune suppression?

- **Marine Biotoxins** - Harmful algal blooms ("red tides") are increasing in number, intensity and duration along the coasts of North America - related to increased nutrient load from runoff?

- **Pathogen Pollution** - Land-based diseases: *Leptospira, Toxoplasma* and *Sarcocystis* (protozoal encephalitis); bacteria from human sewage

- **Anthropogenic Contaminants** - persistent organic pollutants (POPs) including PCBs, DDTs, dioxins
  - Responsible for high cancer rates in California sea lions?

When Is a Marine Mammal Stranded?

When it’s:

- Dead
- Alive and:
  - Can’t get back to the water
  - Is critically injured or ill
  - Can’t get back to its natural habitat
When Is a Marine Mammal Stranded?

- Any whale or dolphin or porpoise on the beach is stranded.
- A seal or sea lion that is injured or sick and cannot return to the water is stranded.

BUT

- Healthy seals and sea lions are also found on land and they are NOT stranded.
Appearances Can Be Deceiving!

Some “healthy” animals look sick

Molting elephant seal - **NOT** stranded!
Suborder **Pinnipedia**
Latin for "feather or fin foot"

Related to other carnivores, including bears, dogs, raccoons, and weasels (otters)

- Family **Otariidae** - sea lions and fur seals
- Family **Odobenidae** - walruses
- Family **Phocidae** - “true” seals
How to tell a **Seal** from a **Sea Lion** (or fur seal)

- **Phocid**
  - Short front flippers
  - No external ear flaps

- **Otariid**
  - Long front flippers
  - External ear flaps
Poorly Understood Facts About Pinnipeds

- They are amphibious
- Don’t need to remain wet
- Need to rest on land
- Move awkwardly on land
- Capable of extended fasting
- Should be left alone
Harbor Seal
*(Phoca vitulina)*

**Maximum Measurements:**

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>6’3” (1.9 m)</td>
<td>5’7” (1.7 m)</td>
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<tr>
<td>Weight</td>
<td>370 lb (170 kg)</td>
<td>290 lb (130 kg)</td>
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</table>

- Snout blunt
- Color variable (gray to tan to brownish-black, with darker spotting);
- Pups gray to tan

(white lanugo typically indicates premature birth)
Dependent Pups

- Harbor seals nurse for 3-4 weeks
- Harbor seal mothers routinely leave pups ashore unattended while they forage at sea
- If a seal pup is removed from where it receives care, IT WILL DIE
Recently Weaned Harbor Seals

Points to remember

- Their mothers have recently abandoned them
- They are learning how to survive on their own
- They are often thin, injured, and not thriving
Elephant Seal
(Mirounga angustirostris)

Maximum Measurements:

Length
Male 13’6” (4.1 m)
Female 10’ (3 m)

Weight
Male 4,400 lb (2,000 kg)
Female 1,300 lb (600 kg)

• Males much larger than females
• Adult males have inflatable proboscis
• Color gray to brown with no markings – black whiskers
• “Catastrophic Molt” April-August, shed hair and skin
Northern Elephant Seal Skin Disease

- Unknown etiology
- Alopecia, ulcers, necrosis, sepsis

- Affects animals under age 2
- Higher serum PCB and DDE

Beckmen et al 1997
California Sea Lion
(Zalophus californianus)

Maximum Measurements:

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>7’10” (2.4 m)</td>
<td>6’7” (2.0 m)</td>
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<tr>
<td>Weight</td>
<td>860 lb (390 kg)</td>
<td>240 lb (110 kg)</td>
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</table>

- Snout long, straight, narrow
- Color dark brown, juveniles and females lighter
- Extreme sexual dimorphism,
- Males with prominent sagittal crest, more muscular neck
- Bark-like vocalizations
- Population at about 300,000

© Pieter A. Folkens
Entangled Sea Lions

Response: Monitor condition, educate public, possibly disentangle

Limited options
Sea Lion Capture Cage – Newport Bayfront
Sea Lion Disentangled March 31, 2010

http://www.youtube.com/user/OregonStateUniv#p/search/2/zRaSQQ-3x1o
Rescue of entangled California sea lion on Lincoln Beach, May 20, 2010
Steller Sea Lion

*(Eumetopias jubatus)*

Maximum Measurements:

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<thead>
<tr>
<th></th>
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<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>11’ (3.3 m)</td>
<td>9’6” (2.9 m)</td>
</tr>
<tr>
<td>Weight</td>
<td>2,400 lb (1,100 kg)</td>
<td>770 lb (350 kg)</td>
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- Front flippers broad
- Color light brown to blond, darker ventrally than dorsally
- Adult males much larger, mane
- No sagittal crest on head
- Breeding area at Three Arch Rocks
- Listed as a *Threatened* species
Steller Sea Lion Disentangled - Sea Lion Caves
March 18, 2010

http://www.youtube.com/watch?v=bhtZnsw4ZwQ
Northern Fur Seal
(\textit{Callorhinus ursinus})

Maximum Measurements:

<table>
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<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>6’11” (2.1 m)</td>
<td>4’11” (1.5 m)</td>
</tr>
<tr>
<td>Weight</td>
<td>600 lb (270 kg)</td>
<td>132 lb (60 kg)</td>
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</table>

- Small head, short snout
- Very long hind flippers
- Fur has coarse outer guard hairs
- Males brown, females dark gray
- Extreme sexual dimorphism, adult males with massive neck and bushy mane
Guadalupe Fur Seal

(\textit{Arctocephalus townsendi})

- Longer snout with a prominent bulbous nose
- Fur on the dorsal side of the front flippers which extends well beyond the wrist area.
- Between June 2007 and July 2008 WA and OR responded to 23 strandings
Sea Otter
(Enhydra lutris)

- Populations in California and WA
- Confirmed sighting in Depoe Bay, Oregon, Feb 09
- A “keystone species”; controls urchin populations, promotes kelp forest communities
- Often confused with Northern River Otter
Stranded Sea Otter

December 14, 2010
South Beach, Newport

First documented Oregon sea otter stranding in decades

Otter died from shark bite injuries
**Pinnipeds on the Beach**

**DO**
- Keep people and dogs away
- Keep the area quiet
- Avoid contact with the animal

**DO NOT**
- Pour water on the animal
- Attempt to return animal to the water
- Offer the animal any food
Keep a Safe Distance

Stay at least 50 yards away—½ length football field

Marine Mammals are wild animals. They can be aggressive and dangerous when approached.
Stranded Cetaceans

- Live whales, dolphins, and porpoises are completely helpless on land.

- Most that come ashore are sick and not likely to survive (mass strandings are exceptions).
Mass stranding of 41 sperm whales – Florence, OR 1979
Cetacean Stranding Effects
Entangled Whales
Ship Strike
Cetacean Supportive Care on the Beach

- Protect animal from harsh wind or sun
- Keep animal comfortable
  - Dig trenches for pectoral flippers
  - Rinse any sand out of eyes
  - Keep the area quiet
- Make sure the animal is not too cold or too hot
Harbor Porpoise
(*Phocoena phocoena*)

**Size**
- Adult length: about 5 feet (155 cm) long
- Adult weight: about 120 pounds (55 kg).
- Calf length: 27 to 35 inches (70-90 cm)
- Calf weight: 14 to 22 pounds (6.4-10 kg) at birth

**Appearance**
- Back, flippers and flukes appear dark gray or nearly black.
- Underside is a light gray to white in color.
- Dorsal fin is triangular rather than sickle-shaped

**Diet**
Feed on bottom dwelling and schooling fishes. Weaning porpoises eat small crustaceans, such as euphausiid shrimp.
Sea Turtles

• All sea turtles are listed as either Threatened or Endangered

• Oregon Coast Aquarium can provide rehabilitation

• Cold-stunned turtles often appear dead but might be salvageable
So How Can You Help?

- **Observe and Report Strandings**
  - Describe appearance, approximate size
  - General condition - alive or dead; fresh/decomposed
  - **Location** - be as specific as possible
  - Presence of tags - color, number, location
  - Take *digital pictures*!

- Help to educate the general public to reduce harassment and enhance public safety
Location, Location, Location!

http://maps.google.com/

- Right-click on position
- Select “What’s here?”
- Click on green arrow for coordinates
Photo Documentation

What to photograph:

- The general location
- All sides of the animal
- Lesions, wounds
- Tags
- Any obvious signs of Human Interaction (entanglement, gear etc).

Photograph live animals from a distance
Post signs

Help spread the word

✔ Protected species
✔ Stress is harmful

• Most people are well-intentioned but ill-informed about marine mammals

• Most will behave properly once they receive basic information
Outreach and Education

The following documents are available for downloading:

- Seal Pup Sign – English (PDF)
- Seal Pup Sign – Spanish (PDF)
- Seal and sea Lion Sign (PDF)
- Whale Stranding Sign (PDF)
Safety

- Avoid handling live animals - even seal pups have teeth!
- Stranded animals are stressed. They will consider you a threat, even if you are trying to help
- Marine mammals, dead and alive, may carry viruses and bacteria that can be transmitted to humans and pets. Use common sense; practice good hygiene
Human Stress Factors

- Marine mammals spark strong human emotions, potentially complicating effective stranding response
- Animals die through natural selection – this can be difficult to watch
- Euthanasia is sometimes an option to relieve suffering
- We need to better educate the public about marine mammals and the need to Share the Shore
http://mmi.oregonstate.edu/ommsn

- 24-Hour Emergency Hotline (Oregon State Police)
  1-800-452-7888

- Stranding Network Office
  541-867-0446 (M-F, 8:00 a.m. to 5:00 p.m.)

- Stranding Cell Phone: 541-270-6830

- E-Mail: jim.rice@oregonstate.edu

Hatfield Marine Science Center
2030 SE Marine Science Drive
Newport, Oregon 97365