

Finding Fish for Furnado



We learn a lot at The Marine Mammal Center about the health of our oceans through the health of our patients. Changes in the ocean impact marine mammals like Furnado the northern fur seal and can cause them to get sick and need our help. People and marine mammals eat the same foods, breathe the same air and swim in the same water, so by taking care of marine mammals and learning about what's making them sick, we can help protect people from ocean threats like climate change. In this activity, we will learn one specific way climate change is impacting our oceans.

Flip the page to take a look at Furnado's chart, a recording of his time at The Marine Mammal Center, and learn more about how we were able to give him a second chance at life. Think about what changes in the ocean might have caused Furnado to get sick and come into our care.

After that, we'll do a fun science experiment and see why we might be seeing these changes.

Stranded Animal Report

Rescue Location: Pismo Beach, San Luis Obispo County

Approximate weight: 13 pounds

Physical Characteristics: Ear Flaps Ear Holes

Short Front Flippers Long Front Flippers

Fur Color: Brown White Tan Spotted Black

Animal Observations on Beach/During Rescue:

Very skinny, can see animal's ribs and hip bones. People approaching animal and dogs are off-leash and biting at him. Very furry and very big flippers.



Patient's Name: Furnado

Admit Exam

Animal Name: Furnado

Species: California Sea Lion Northern Elephant Seal Pacific Harbor Seal
 Northern Fur Seal Guadalupe Fur Seal

Tag Number: Orange A0229 on Left Front Flipper

Sex: Male Female

Age Class: Pup Yearling Juvenile Subadult Adult

Weight: 13 pounds

State of Nutrition:

- Severely underweight
 Moderately underweight
 Mildly underweight
 Normal

Admit Comments/Diagnosis:

- Approximately 4 month old pup
- Shows interest in fish, but very slow eater
- Severely malnourished (should weigh 30 pounds)

Next Steps: Luckily, eating fish on own, so no need to provide formula.

- Feed whole fish in pen with pen mates so he has to compete for fish. Pair with other animals that are relatively slow eaters.
- Provide .4 pounds of fish, three times a day at 8 AM, 2 PM and 8 PM.
- Group with other fur seal pups and continue to monitor behavior and feeding to evaluate best pen mates to match with during rehabilitation.

What are the challenges for northern fur seals like *Furnado*?

The burning of fossil fuels like coal, oil, and natural gas is causing an increase in carbon dioxide in the atmosphere. This traps the heat of the planet like a blanket causing the oceans, land and atmosphere to warm. The ocean covers 70% of Earth's surface and has a high heat capacity. Approximately 90% of the warming that has happened over the past 50 years has occurred in the oceans.



Water heat capacity experiment

This activity will demonstrate water's high heat capacity. **Be sure to wear your safety goggles and ask for an adult's help when doing this experiment!** Feel free to watch [this video](#) for more instruction.

Read through the instructions before running through the experiment and make a hypotheses. [Which balloon will pop first? Why?](#)

Materials:

Two balloons

Lighter

Water

Bucket

Safety goggles

note: be sure to

limit the amount of

balloons you use in

order to reduce waste!

1. Inflate one balloon and tie the end. This balloon represents Earth's atmosphere.
2. Hold the balloon away from your face and hold the lighter beneath it. Take note of how long it takes for the balloon to pop.
3. Make a water balloon. This balloon represents Earth's oceans.
4. Hold the balloon over the bucket and hold the lighter beneath it. Take note of how long it takes for the balloon to pop.

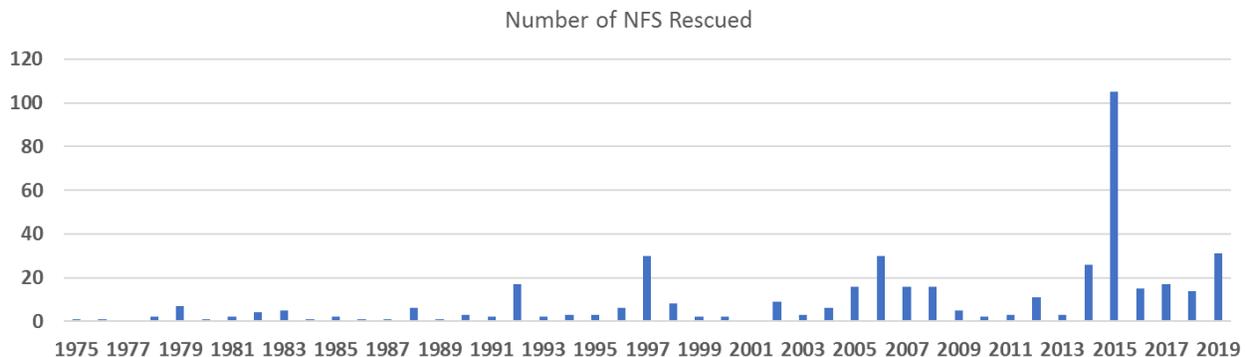
[Which balloon popped first?](#)

[Why do you think this happened?](#)

[What does this mean for our oceans and climate change?](#)

Why do we see northern fur seals like *Furnado* at The Marine Mammal Center?

Northern fur seals are a pelagic species, meaning they spend most of their time out at sea in search of food. Ocean temperatures are the warmest we have seen in the last 100,000 years and continue to warm at a record pace. Fish are going deeper in search of colder water, and therefore young fur seal pups and mothers must swim longer and farther to find their preferred food. These hungry young pups are not strong enough to find the food that has swam into the deeper colder water and will beach themselves tired and starving.



Over the years, The Marine Mammal Center has seen an increase in northern fur seal patients. In 2015, a mass of warm water nicknamed “the blob” spread throughout the Pacific Ocean, causing us to rescue over 100 northern fur seals! While the blob has since disappeared, this may have been a preview of what climate change could mean in the future.

How can you help?

We need to reduce the amount of carbon dioxide we release into the air and our carbon footprints. Look into using renewable energy in your home or school. Carpool, walk, or bike if you can to reduce the amount of cars on the road. Compost your food to cut food emissions. Conserve energy through unplugging electronics when not in use and switching to more energy efficient appliances.



If you see a sick marine mammal on the beach, stay at least 50 feet away and call The Marine Mammal Center’s 24-hour hotline. Remember *Furnado*? He was called into the center by people just like you! After four months of fattening him up in our care, we were able to successfully release him back into the ocean and give him a second chance at life!