

OCEAN BLUE CREW

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Newsletter



INTRODUCTION

Ahoy matey! It's the Ocean Blue Crew from the Clearwater Marine Aquarium, here to give you some nautical knowledge about our incredible ocean.

Did you know that the first week of March is "National Hearing Awareness Week?" This topic is very near and dear to our hearts here at CMA, as we care for several dolphins who have hearing loss! After all, the sense of hearing is very important to many marine animals, including dolphins. Just like we need to better understand the health, strength, and ability of humans, we need to be able to better understand this in animals as well! The more we understand, the better we can care for the animals we have rescued, as many of them have been deemed non-releasable and will call CMA their forever home. You may be thinking, "dolphins cannot speak. How do you know they have hearing loss?" That is a great question!

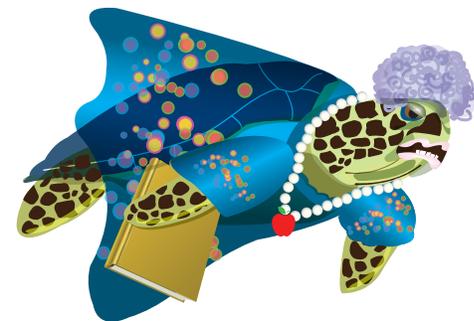
In this issue, you will learn about hearing loss in marine animals!



CAPTAIN'S LOG

Here at Clearwater Marine Aquarium, we have a lot of experience with dolphins who have some form of hearing loss. Three of our Atlantic bottlenose dolphins, PJ, Hemingway, and Apollo, as well as our two rough-toothed dolphins, Rex and Rudolph, have all been deemed non-releasable due to their hearing loss. In fact, our newest resident, Apollo, was initially taken in to treat parasites that covered his dorsal fin, pectoral fins, and flukes, as well as inflammation to his stomach and lungs. After these issues were addressed, a hearing test was performed by the National Marine Mammal Foundation (NMMF), and they determined that he has hearing loss, preventing him from being a candidate for release. We were lucky enough to have Apollo join our family since we have so much experience with dolphins with hearing loss.

Teacher Turtle is going to teach you about how we know our dolphins have lost their hearing and why a dolphin needs to hear in order to be successful in their natural habitat!



Teacher Turtle

Did you know that sound travels about 4.3 times faster underwater than it does on land? In order to successfully hunt in their natural habitat, dolphins have to be able to hear. Additionally, sounds are used underwater to communicate, to hunt, to find potential mates, and to escape predators. For dolphins, this hearing process is known as "echolocation." At the front of a dolphin's head, there is a specialized organ known as a melon. The melon amplifies the series of clicks that are sent out in the first step of echolocation. After exiting the melon, these sound waves bounce off of objects that surround the dolphin (other marine animals, boats, coral, etc.), and the dolphin will receive the relayed sound through the fat-filled cavity in their lower jaw. If a dolphin endures hearing loss, the ability to echolocate and, therefore, the ability to find food and stay safe from predators is lost.

Similar to tests performed on human babies, auditory evoked potential procedures are performed utilizing a jawphone. A jawphone is essentially a speaker in a suction cup that is attached to the lower jaw of the dolphin. Sensors are then placed on the dolphin's head, measuring brain signals to determine what the dolphin can hear. Bottlenose dolphins should be able to hear from approximately 75Hz to over 150,000Hz- much better than humans can. If the brain does not respond to the sounds from the test, hearing loss can be inferred.



What should you do if you are enjoying a beach day, boating, or kayaking and you see a dolphin in its natural habitat?

Here at Clearwater Marine Aquarium, we participate in a very important program started by NOAA (the National Oceanic and Atmospheric Administration) known as "Dolphin SMART." SMART is an acronym; therefore, each letter stands for something different:



Stay at least 50 yards from dolphins. After all, if we are in/on the water, we are visiting the dolphin's natural habitat! Just as we would want visitors to be respectful in our home, we should be respectful of the marine animals that could potentially surround us.

Move away cautiously if dolphins show signs of disturbance. Dolphins would typically show us they are upset by doing one of two things: chuffing or tail slapping. A chuff is a forceful exhale out of the blowhole, while a tail slap is exactly what it sounds like—the dolphin dives mostly underwater but slaps its tail on the surface! If we see one of these two signs, we know the dolphin is upset. While they may not be upset with us, we should take it as our cue to move away.

Always put your engine in neutral when dolphins are near. We do not want to create unnecessary noise pollution or injure any nearby marine animals!

Refrain from feeding, touching, or swimming with dolphins. We do not want to create beggar dolphins (dolphins who rely on food that is served from boats). We also do not want to upset a dolphin or make it sick, which could happen if it was fed food from your hand!

Teach others to be Dolphin SMART. Education is the most important part!

Should you ever encounter a dolphin in its natural habitat, make sure to be Dolphin SMART! Harassing a dolphin can not only negatively affect the dolphin's health and comfort but can get you in a lot of trouble. Dolphins are protected under the Marine Mammal Protection Act of 1972, which means they must be left alone. Any harassment violations can lead to fines of up to \$20,000 or a year spent in prison. You may be wondering why we can interact with our dolphins here at CMA without getting in trouble, that is a great question! Each of the residents at CMA is in human care through a federal permit. Let's not forget we are a working marine animal hospital which means every animal that lives here relies on our help!



Observation Otter

Did you know that sound travels almost five times faster under the water than it does in the air? Here is a fun experiment for you to try with a family member or friend at home. After completing this experiment, you will understand what hearing is like for a marine animal!

You Will Need:

- A bucket filled with water
- A recycled plastic water bottle or soda bottle
- Two metal spoons
- Scissors/kitchen shears to cut the bottle
- A parent or guardian

Directions

1. PARENTS/GUARDIANS: Using a sharp knife, kitchen shears, or scissors, cut off the bottom of the plastic water/soda bottle. Make sure the cap is not on!
2. Have your child place the bottle in the water so that the cut bottom is in the water. Have your child put his/her ear to the top of the bottle to listen.
3. Clang the two metal spoons together to make a sound in the bucket while your child is listening! What does your child hear?



NOTE: Your child probably noticed that the sound of the clanging is loud and clear. Point out that animals that live underwater are (usually) able to hear sounds very clearly. Because of this, loud sounds such as boat motors could potentially inhibit their ability to hear.



Creative Crab

Creative Crab here to show you how you can turn recycled paper into a dolphin bookmark! Once you have finished, the dolphin's tail flukes should wrap around your book's page!

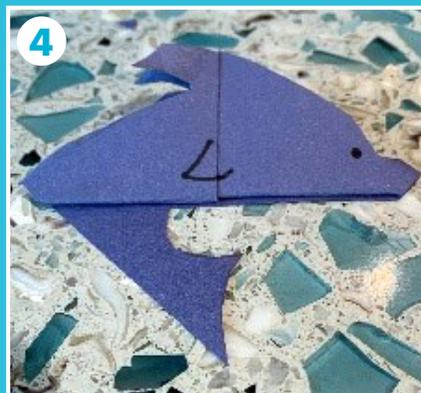
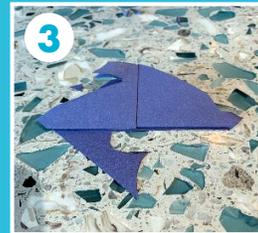
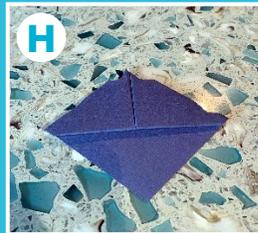
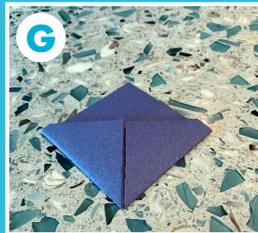
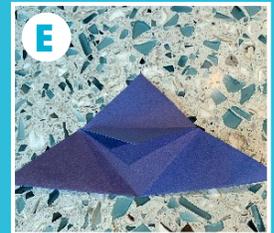
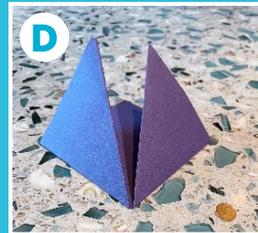
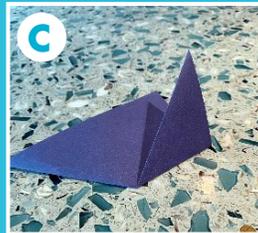
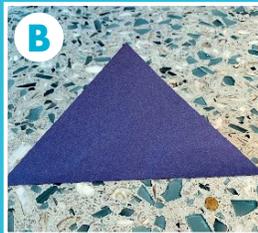
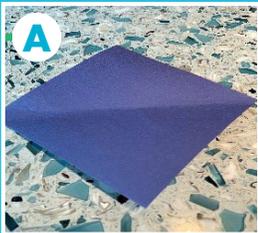
You Will Need:

- One blue piece of square paper (approximately 2x2in)
- Black pen or marker
- Pencil
- Scissors*

Directions:

1. View photos below for appropriate folding order. (Steps A through H)
2. Draw the outline of a dolphin, being sure to create a rostrum, a blowhole, and a dorsal fin.
3. Cut the outline you just created.
4. Draw a pectoral fin and an eye.

*NOTE: Always ask a parent or guardian for assistance when using scissors.





Chef Shark is here to teach you a turtle-y awesome recipe! Our recipe today will be packed with magnesium – a mineral that has proven effective in helping to limit or even prevent hearing loss.

You Will Need:

- 1 ripe banana
- 1/4 cup peanut butter
- 1/4 cup dark chocolate chips
- 1 teaspoon coconut oil or vegetable shortening

Directions:

1. Line a plate with parchment paper.
2. With the help of a parent or guardian, slice the banana into rounds about 1/4 inch thick.
3. Place a dollop of peanut butter on a banana slice, then top it with another banana slice (making a sandwich).
4. Repeat step 3 until all banana slices are used to make a sandwich.
5. Place all bites on the plate lined with parchment paper.
6. Place the plate in the freezer to harden for approximately 1 hour.
7. Once the hour is up, place the dark chocolate and coconut oil/vegetable shortening in a microwave-safe bowl. Microwave for one minute.
8. Stir the mixture and place it back in the microwave for 30-second increments until the chocolate is completely melted.
9. Remove the banana bites from the freezer. Dip half of each banana bite into the chocolate mixture. CAUTION: The melted chocolate will be hot so make sure you ask an adult for help when dipping the bananas.
10. Place the bites back on the parchment-lined plate. Place the plate back in the freezer for about 15 minutes.
11. Remove banana bites from the freezer to thaw for about 5 minutes before eating! Enjoy!

NOTE: if you have a peanut allergy, try using sunflower butter or another nut-free alternative!



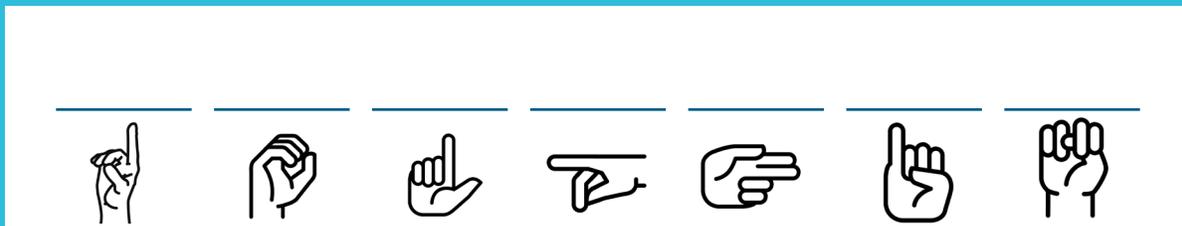


Playtime
Pelican

How do humans communicate when they experience hearing loss? Sign language! Using the key, help us spell out one of our favorite marine mammals!

AMERICAN SIGN LANGUAGE ALPHABET

A	B	C	D	E	F	G
H	I	J	K	L	M	N
O	P	Q	R	S	T	U
V	W	X	Y	Z		



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Sources:

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