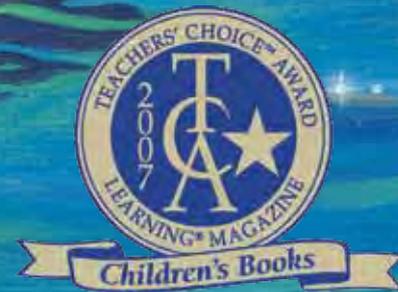


Water Beds

Sleeping in the Ocean



By Gail Langer Karwoski

Illustrated by Connie McLennan

Water Beds

Sleeping in the Ocean

2007 Learning Magazine's Teachers' Choice Award
2005 Moms' Choice Best Children's Book of the Year
2006 ForeWord Magazine Book of the Year Finalist

Whether tucking into bed or learning about animal adaptations, readers will be fascinated by how marine mammals—animals that breathe air like us—sleep in the ocean. Scientific facts are woven into simple, poetic animal portraits as seen through a young child's dreams.

Animals include:

- Orca whales
- Harbor seals
- Dolphins
- Manatees
- Humpback whales
- Northern fur seals
- Beluga whales
- Walruses
- Elephant seals
- Sea otters

It's so much more than a picture book . . . this book is specifically designed to be both a fun-to-read story and a launch pad for discussions and learning. Whether read at home or in a classroom, we encourage adults to do the activities with the young children in their lives. Free online resources and support at www.ArbordalePublishing.com include:

- For Creative Minds as seen in the book (in English & Spanish):
 - What makes an animal a mammal?
 - Make your own marine mammal
- Teaching Activities (to do at home or at school):
 - Reading Questions
 - Language Arts
 - Science
 - Math
 - Geography
 - Coloring pages
- Interactive Quizzes: Reading Comprehension, For Creative Minds, and Math Word Problems
- English and Spanish Audiobooks
- Related websites
- Aligned to State Standards (searchable database)
- Accelerated Reader and Reading Counts Quizzes
- Lexile and Fountas & Pinnell Reading Levels

eBooks with Auto-Flip, Auto-Read, and selectable English and Spanish text and audio available for purchase online.

Thanks to Loran Wlodarski, Science Writer, SeaWorld Orlando for verifying the accuracy of the information in this book.



Look for the sequel, *River Beds: Sleeping in the World's Rivers*, and take an around-the-world boat ride to learn how mammals sleep in or around ten of the world's major rivers.

Gail Langer Karwoski is an award-winning children's author. In addition to *Water Beds: Sleeping in the Ocean*, (Mom's Choice Best Children's Picture Book Author for 2005 and Learning Magazine's 2007 Teachers' Choice Award), Gail has written the award-winning sequel, *River Beds: Sleeping in the World's Rivers*, and *Julie the Rockhound* for Arbordale as well as several other books for young readers. Gail and her husband live in Georgia.

Connie McLennan has been a successful freelance artist for over 25 years since attending Academy of Art College in San Francisco. In addition to illustrating *Water Beds: Sleeping in the Ocean*; its sequel, *River Beds: Sleeping in the World's Rivers*; *The Rainforest Grew All Around*; *Mother Osprey: Nursery Rhymes for Buoys & Gulls*; and *Octavia and Her Purple Ink Cloud* for Arbordale, she also illustrated *The Wishing Tree* and *Domitila*. Connie and her family live in northern California.



Gail Langer Karwoski



Connie McLennan

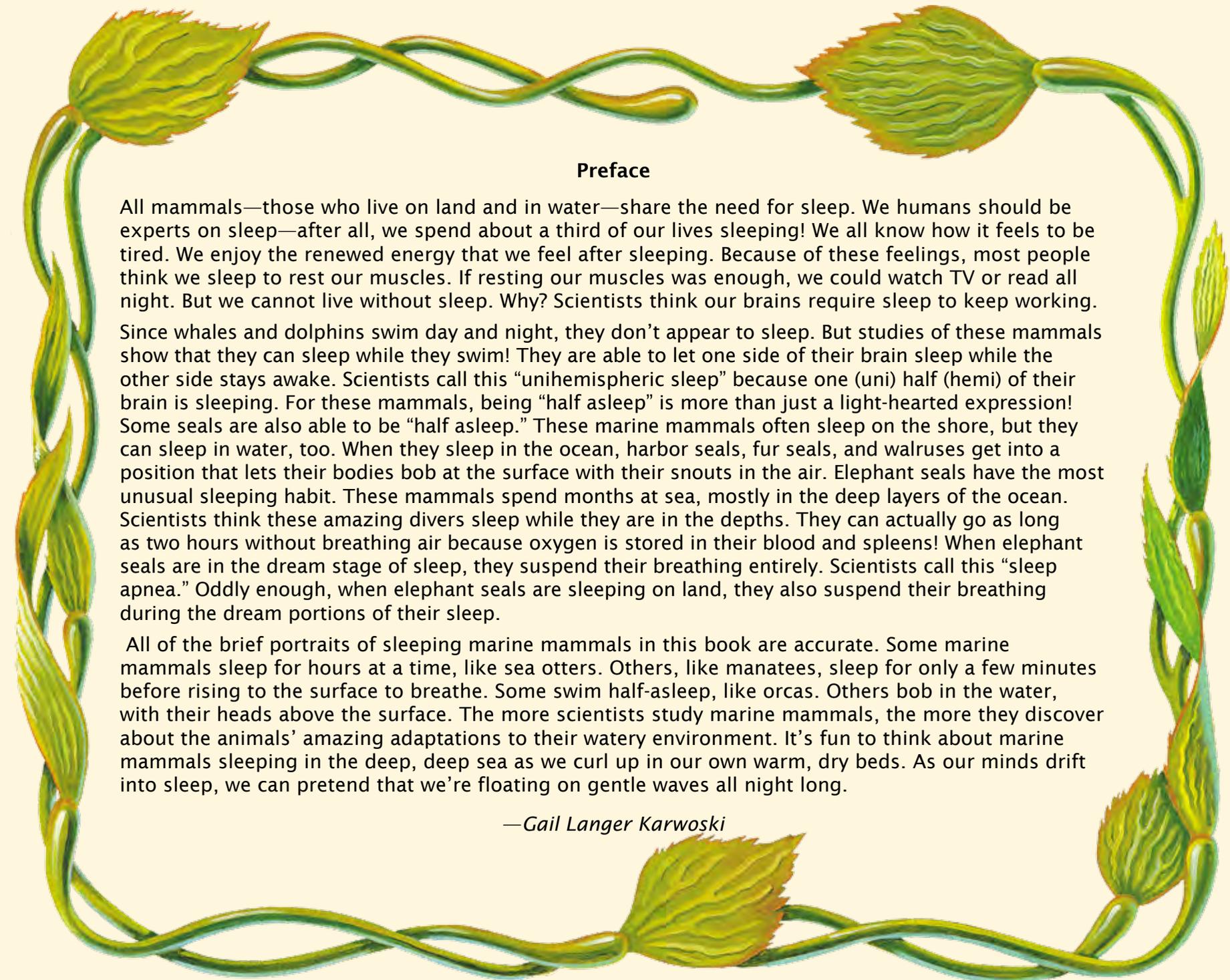
Preface

All mammals—those who live on land and in water—share the need for sleep. We humans should be experts on sleep—after all, we spend about a third of our lives sleeping! We all know how it feels to be tired. We enjoy the renewed energy that we feel after sleeping. Because of these feelings, most people think we sleep to rest our muscles. If resting our muscles was enough, we could watch TV or read all night. But we cannot live without sleep. Why? Scientists think our brains require sleep to keep working.

Since whales and dolphins swim day and night, they don't appear to sleep. But studies of these mammals show that they can sleep while they swim! They are able to let one side of their brain sleep while the other side stays awake. Scientists call this "unihemispheric sleep" because one (uni) half (hemi) of their brain is sleeping. For these mammals, being "half asleep" is more than just a light-hearted expression! Some seals are also able to be "half asleep." These marine mammals often sleep on the shore, but they can sleep in water, too. When they sleep in the ocean, harbor seals, fur seals, and walruses get into a position that lets their bodies bob at the surface with their snouts in the air. Elephant seals have the most unusual sleeping habit. These mammals spend months at sea, mostly in the deep layers of the ocean. Scientists think these amazing divers sleep while they are in the depths. They can actually go as long as two hours without breathing air because oxygen is stored in their blood and spleens! When elephant seals are in the dream stage of sleep, they suspend their breathing entirely. Scientists call this "sleep apnea." Oddly enough, when elephant seals are sleeping on land, they also suspend their breathing during the dream portions of their sleep.

All of the brief portraits of sleeping marine mammals in this book are accurate. Some marine mammals sleep for hours at a time, like sea otters. Others, like manatees, sleep for only a few minutes before rising to the surface to breathe. Some swim half-asleep, like orcas. Others bob in the water, with their heads above the surface. The more scientists study marine mammals, the more they discover about the animals' amazing adaptations to their watery environment. It's fun to think about marine mammals sleeping in the deep, deep sea as we curl up in our own warm, dry beds. As our minds drift into sleep, we can pretend that we're floating on gentle waves all night long.

—Gail Langer Karwoski



I have been gathering information for this book for over six years, and I have many people to thank. In addition to collecting information from published books and articles, I've talked with people who work with marine mammals at several major aquariums. Three were particularly generous with their time and knowledge: Nedra Hecker, former Curator of Marine Mammals at the National Aquarium in Baltimore, Maryland; Mary Church, Educator at SeaWorld in Orlando, Florida; and Jenny Montague, Assistant Curator of Marine Mammals at the New England Aquarium in Boston, Massachusetts. My husband and first reader, Chester Karwoski, helped me capture complex ideas in simple language. The "Four at Five" writers group—Loretta Hammer, Wanda Langley, and Bettye Stroud—also contributed suggestions.

To my "soul sister," Marilyn Gootman, a continuing source of inspiration about friendship, parenting, and now... grandparenting! Many thanks to all...and to all a good sleep.—GLK

To Geoff and Thomas—CM



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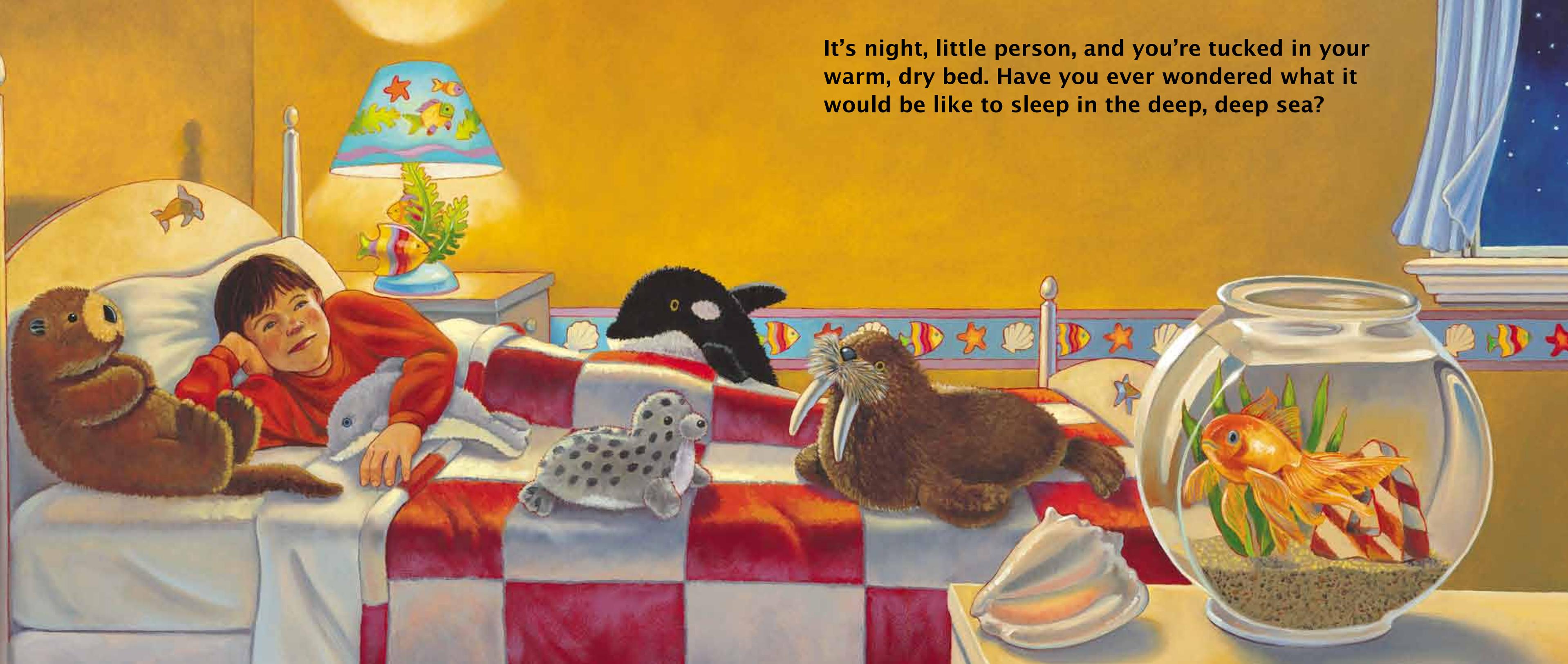
Sleeping in the Ocean

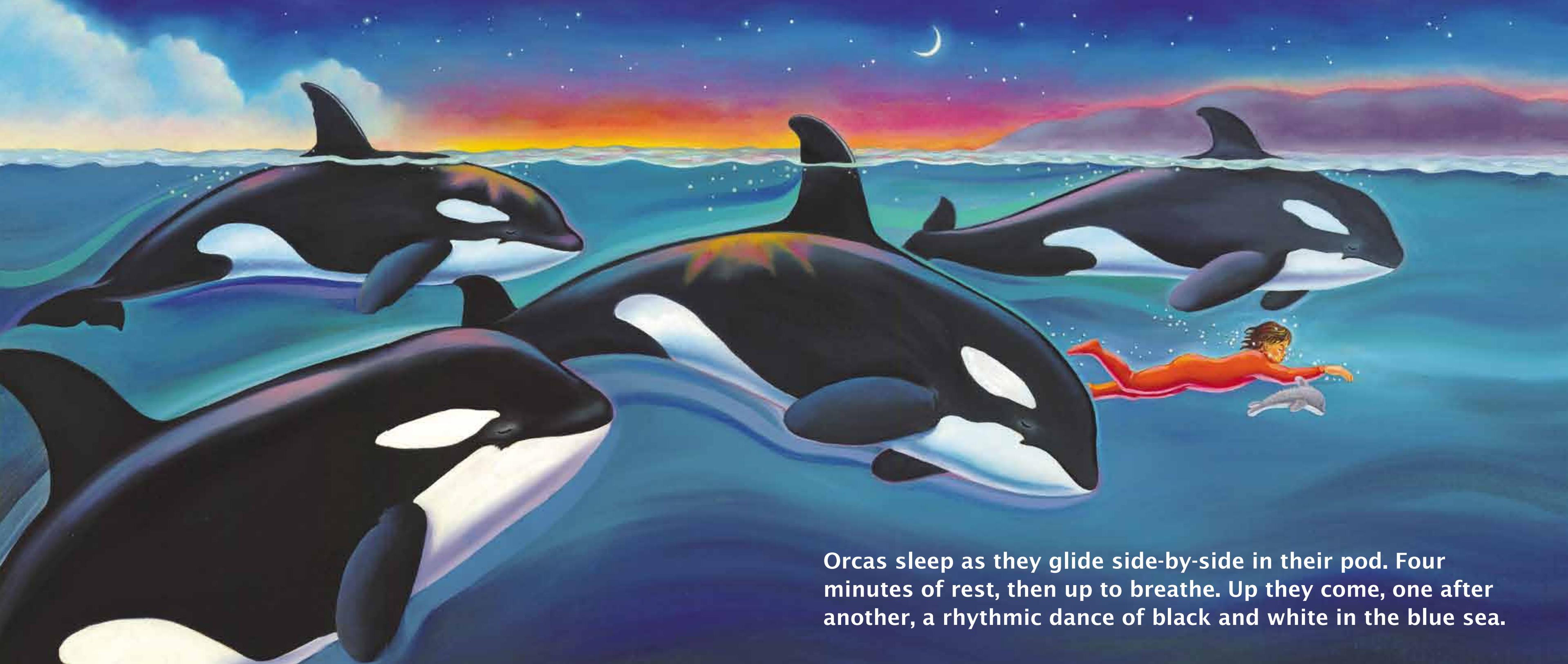


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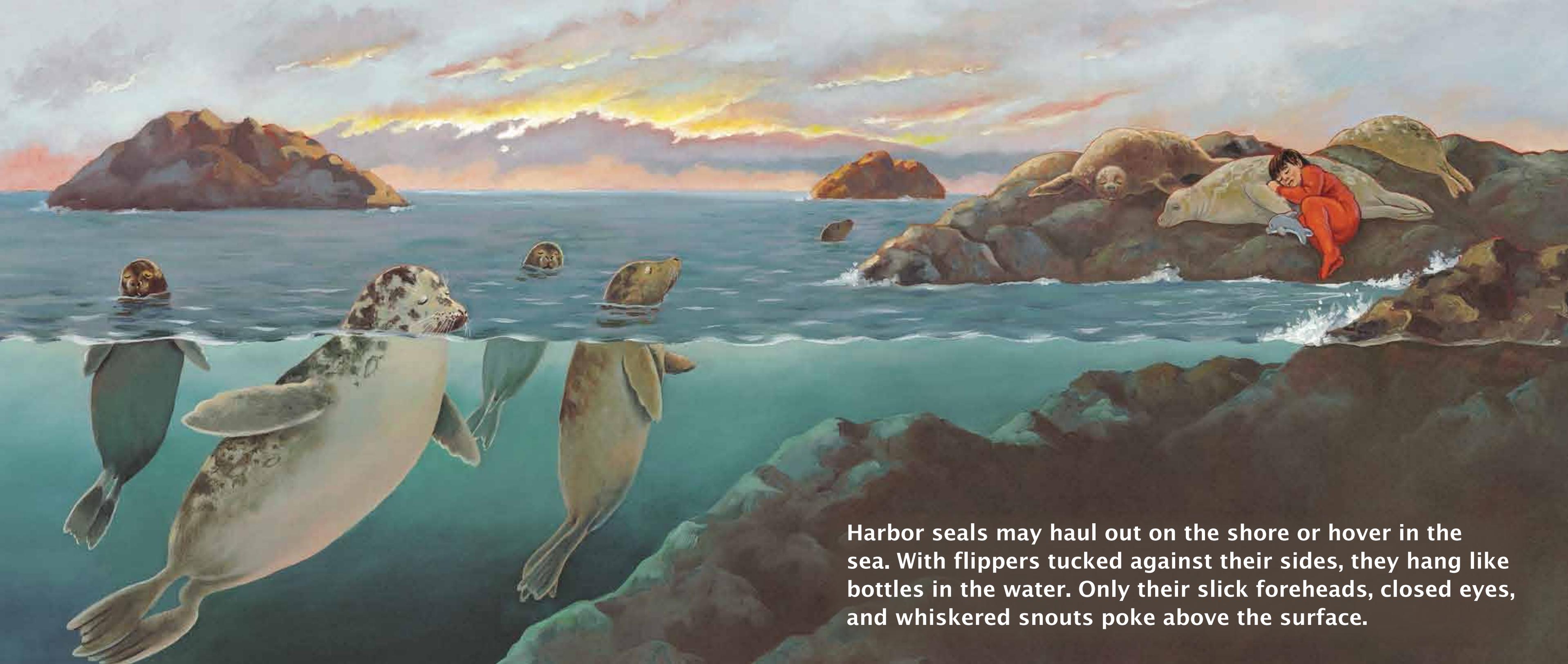
Illustrated by Connie McLennan

It's night, little person, and you're tucked in your warm, dry bed. Have you ever wondered what it would be like to sleep in the deep, deep sea?





Orcas sleep as they glide side-by-side in their pod. Four minutes of rest, then up to breathe. Up they come, one after another, a rhythmic dance of black and white in the blue sea.



Harbor seals may haul out on the shore or hover in the sea. With flippers tucked against their sides, they hang like bottles in the water. Only their slick foreheads, closed eyes, and whiskered snouts poke above the surface.

For Creative Minds

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What makes an animal a mammal?

All mammals are **warm-blooded** and breathe **air**.

They have **hair**.

All mammals protect their young and feed their babies on **mother's milk**.

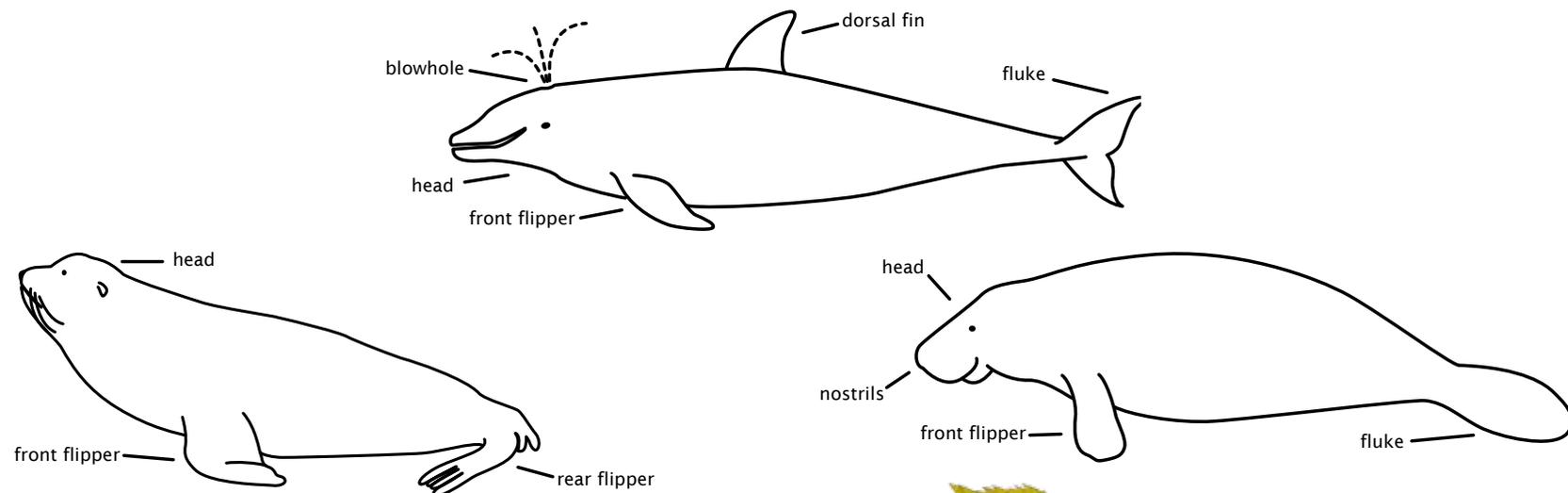
There are about 4,000 types of mammals. Most mammals live on land. People are one type of mammal. Cats and dogs are mammals. So are many farm animals, such as cows, goats, and horses. Zoo animals like monkeys, kangaroos, and hippos are mammals. Bats are mammals that can fly. Marine mammals are mammals that live in the ocean.

Scientists sort marine mammals into three groups or "orders:"

Cetaceans are whales and dolphins.

Carnivora are polar bears, sea otters, and the pinnipeds (seals, sea lions, and walruses).

Sirenians are manatees and their relatives, the dugongs.



Adaptations help animals to live in their habitat: to get food and water, to protect themselves from predators, to survive weather, and even to help them make their homes. Marine mammals have special adaptations so they can live in the ocean. Can you match the adaptations that help mammals live in the ocean? Answers are upside down, below.

1 Marine mammals are able to store oxygen longer than land mammals so they can stay underwater for longer periods.

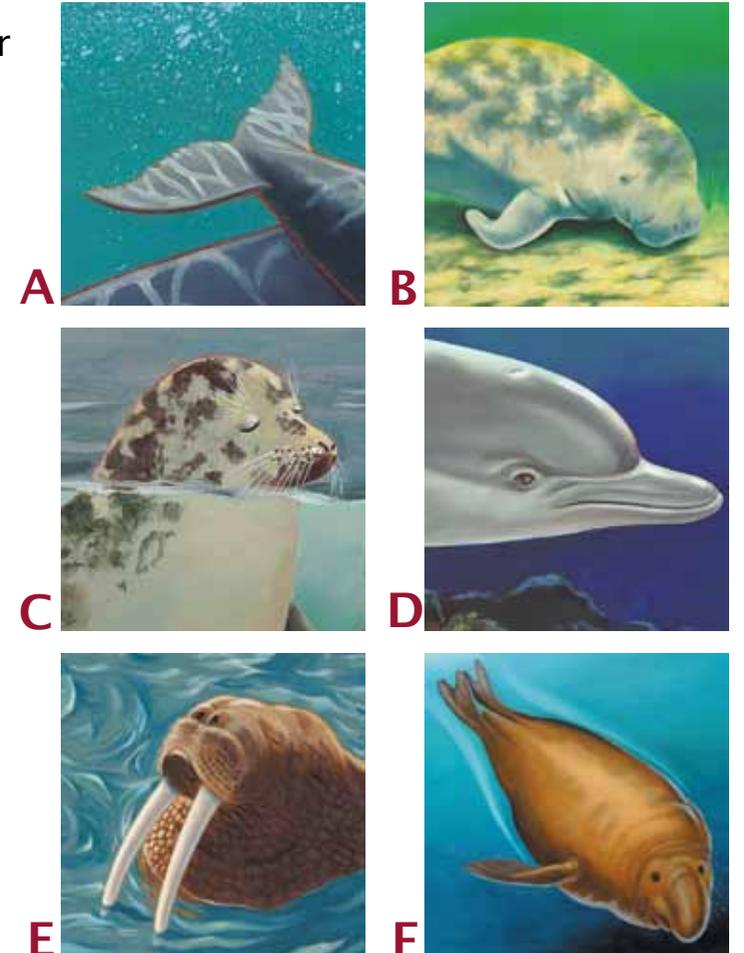
2 A blowhole at the top of the head helps dolphins and whales to breathe easily while swimming. They can keep their heads underwater to watch for predators or food while they breathe! Some cetaceans have one blowhole while others have two.

3 Nostrils stay closed when marine mammals swim.

4 Dolphins' and whales' tails (called flukes) move up and down to help them swim. They use their front flippers to steer.

5 Walruses use their tusks to help pull themselves up onto shore.

6 Manatees use their paddle-like front flippers for swimming or "walking" along on the ground. Sometimes they even use their flippers to hold things and to bring food to their mouths!



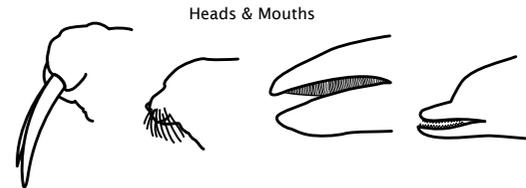
1 - F, 2 - D, 3 - C, 4 - A, 5 - E, 6 - B

Make Your Own Marine Animal

Copy or download the last page. Cut out each rectangle. Using the information below, decide what features your animal(s) will have and draw your choices onto the appropriate area. Staple the pages together along the spine and cut all four layers on the dotted line just up to the solid gray line (spine). Now you are ready to mix and match your animals!

Here are some things to think about when designing your marine mammals:

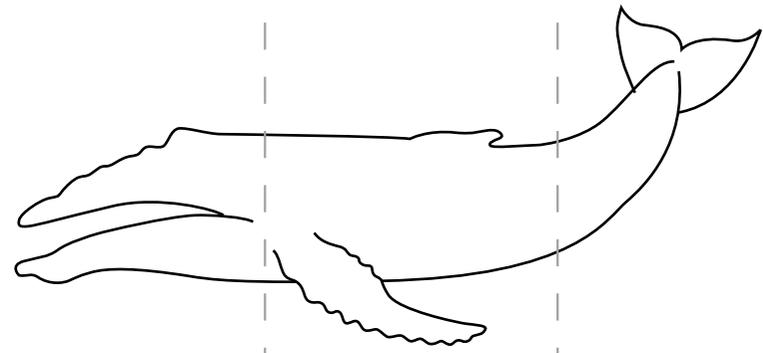
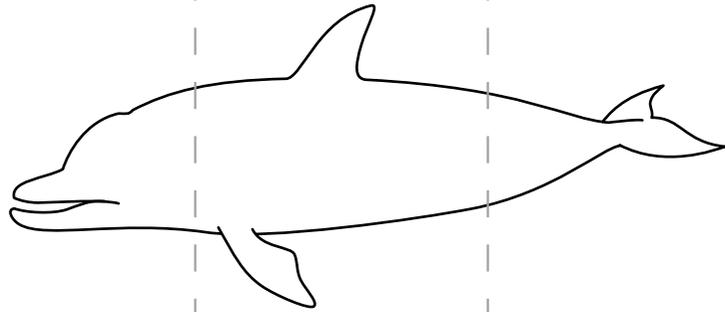
- Will your animal breathe through a nose or blowhole? Draw the nose or blowhole(s) on the head.
- Draw tusks, whiskers, or baleen if desired.
- Draw eyes on the head where you think they should go. Large eyes help animals to see in the dark water. Eyes closer to the top of the head are good for animals that like to float with their head above water. Eyes further down on the side of the head make it easier for animals with blowholes to see in the water when they come up for a breath.
- Some marine mammals (pinnipeds) use “whiskers” to find food. The walrus uses its tusks to dig for food in the sand. Draw whiskers or tusks if desired.



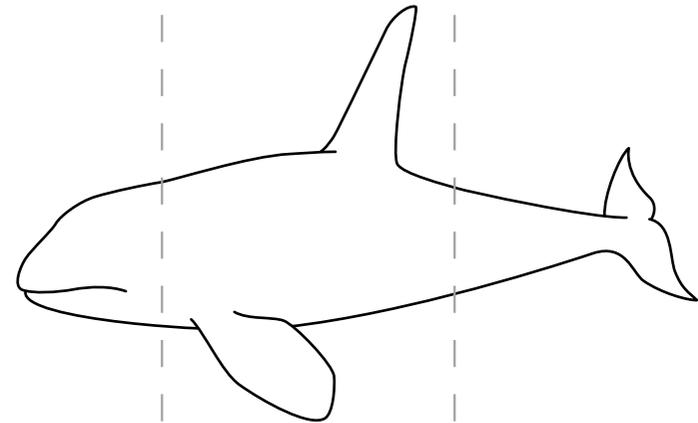
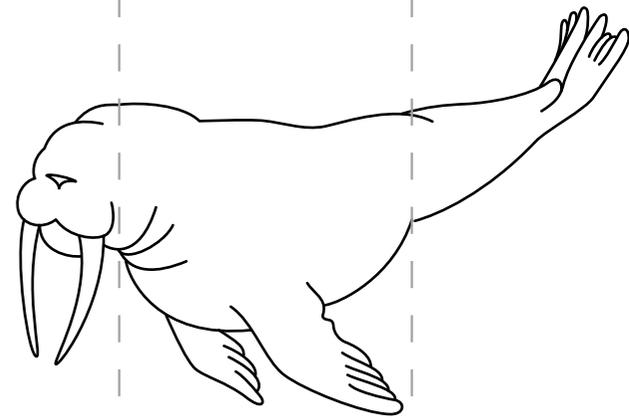
- Sea lions, fur seals, and sea otters have external ear flaps like us. Cetaceans “hear” by using echolocation (they send out a sound that bounces back to tell the cetacean where something is). How will your animal hear? Draw ears if desired.
- Will your animal live in warm or cold water? If it lives in cold water, how will it stay warm: fur or blubber? Blubber is a heavy layer of fat that helps to keep marine mammals warm in cold water. Draw fur onto the body if the animal has fur.
- Dorsal fins steady animals as they swim. Will your animals have a dorsal fin? Here are some kinds of dorsal fins that you can draw on the top of its back.
- Will your marine mammal be able to climb onto land? If so, will they have claws on their front flippers? Draw onto the animal.



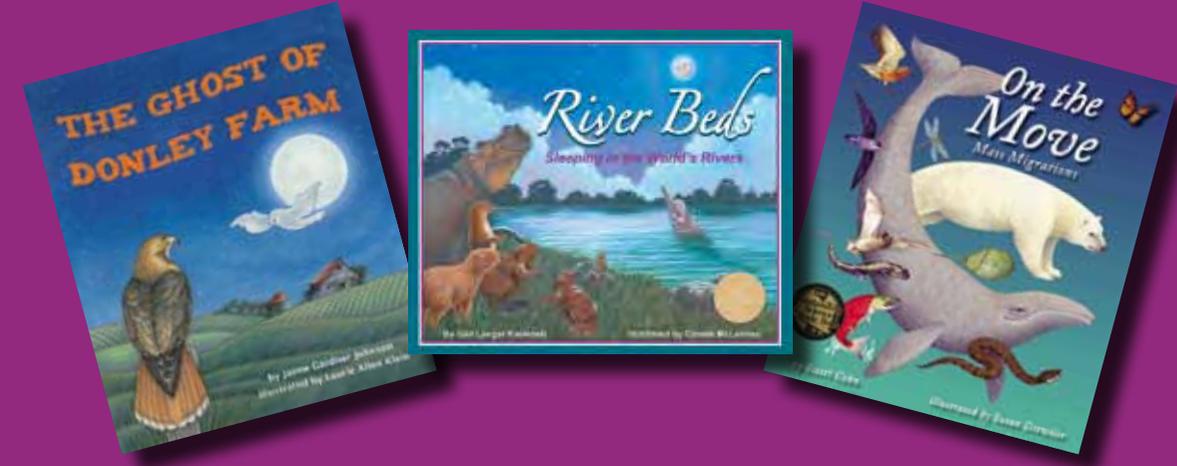
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look for other Arbordale books that may also be of interest:



“The question of how sea animals sleep in a world so unlike ours is addressed elegantly in Karwoski and McLennan’s book.” *Christine Thomas, ForeWord Magazine*

“My class, old-hands at listening to nonfiction texts read aloud to them, could not wait to reread this book independently, and they unanimously recommended it for other children to enjoy.” *Nancy McDonough, National Science Teachers Association Recommends*

“Water Beds dives into the many mysteries of animal sleep with illustrations that are a dream come true. It’s a great way to introduce youngsters to the variety of sleeping patterns found in marine animals ranging from killer whales to sea otters to walrus. A wonderful bedtime story, perfect for inspiring dreams on the beauty of the oceans.” *Brad Andrews, Corporate Vice President for Zoological Operations, SeaWorld Adventure Parks*

Includes 4 pages of
learning activities.
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