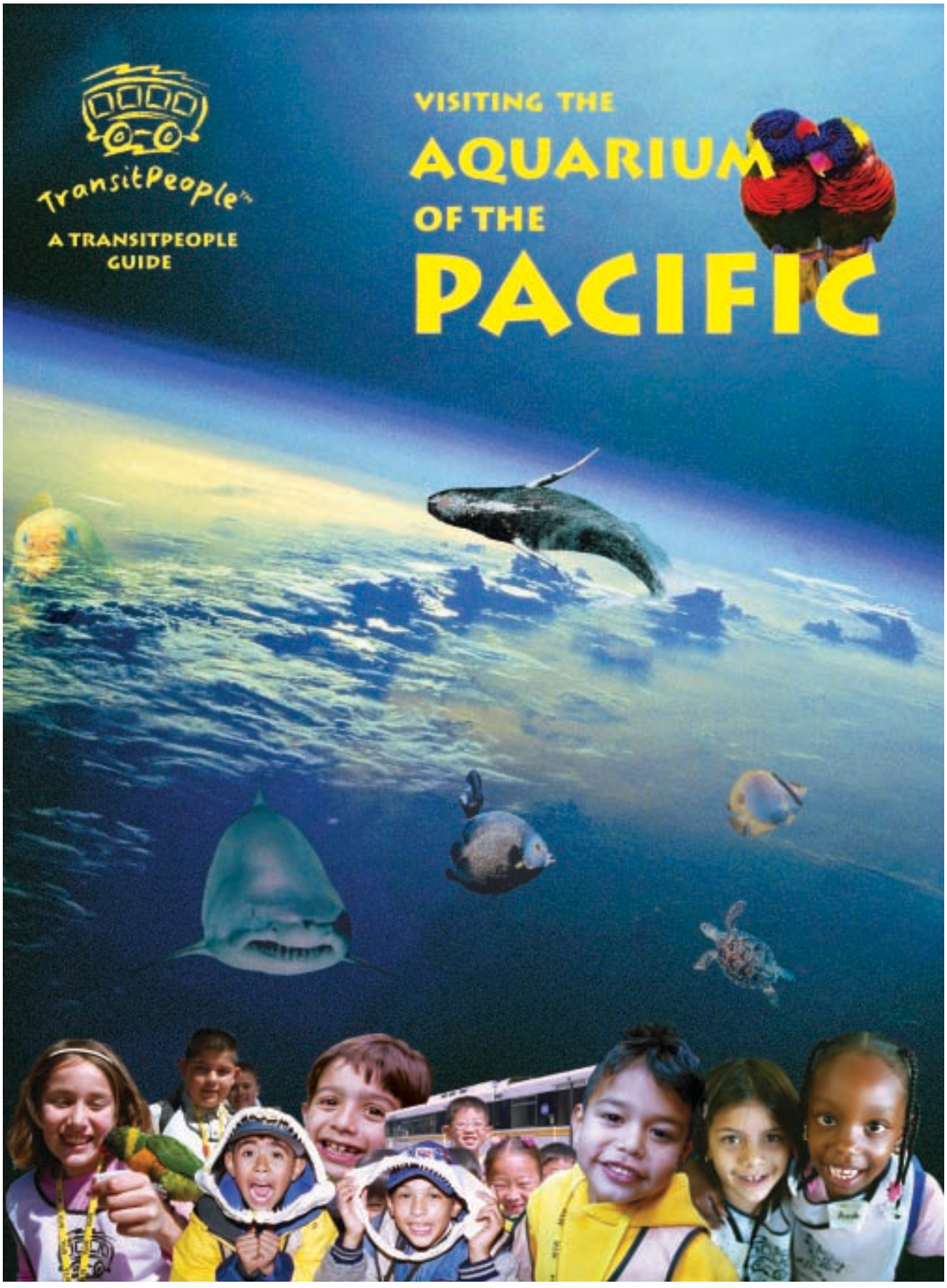
TransitPeople

A TRANSITPEOPLE GUIDE

VISITING THE AQUARIUM OF THE PACIFIC



WORLD OF WATER

The aquarium in Long Beach isn't called the 'Earth Aquarium,' or the 'All the Oceans in the World Aquarium.' It's called the Aquarium of the Pacific.

That's because it's about the Pacific Ocean. The Pacific Ocean is just one of the oceans in the world. The others are the Atlantic Ocean, the Indian Ocean, the Arctic Ocean and the Antarctic Ocean.

If you get them mixed up, don't feel bad. All the oceans of the world are connected.

Look at the globe. Do you see how the waters of the different oceans flow into each other?

Even though they're connected, the oceans have unique features, and are home to different animals. Some animals live in all the oceans; others live in only one.

The Pacific Ocean is much bigger than the other oceans. It's so big that it covers one third of the entire world! The biggest animal on earth lives in the Pacific Ocean. The deepest place on earth is in the Pacific. So is the longest mountain range. At its widest part, the Pacific Ocean is eight times wider than the entire United States!

Animal Adaptations

The plants and animals of the Pacific have adaptations that let them live in different regions.

Look at the pictures of the iguana and the mountain goat. The mountain goat lives in the mountains of the far north; the iguana lives in Central and South America, where it's warm.

Do you think the mountain goat could live in the warm south with the iguana? And could the iguana survive in the mountains with the goat?

Did you say 'no?' You're right! The adaptations of the goat and the iguana let them live comfortably in some areas, and not in the others. The thick fur of the goat is an adaptation to the cold of the mountains.

It's the same for the plants and animals that live in the Pacific. The Pacific is deep in some places, and shallow in others. The surface waters are warmer near Hawaii than they are near Alaska. Different plants and animals live in different places.

The Aquarium of the Pacific is divided into galleries, to show what kinds of marine life live in different parts of the Pacific. There are more than 12,000 animals at the aquarium, so we can't talk about every one! But this booklet will introduce you to some of them.

BLUE WHALE

When you walk into the aquarium, look up! Do you see the giant whale hanging from the ceiling? This is a model of the blue whale, the biggest animal ever to live on the earth.

You probably think that elephants are pretty big. But an elephant only weighs about as much as a blue whale's tongue. It would take twenty-five or thirty elephants to weigh as much as one full-sized blue whale. A blue whale's heart is as big as a small car.

Blue whales don't have teeth. They have baleen plates, which they use to filter tiny shrimp called krill from the water. A blue whale can eat almost 8,000 pounds of krill a day. Blue whales come to California between June and August, when there's lots of krill to eat.

Like seals and sea lions, which you'll also see at the aquarium, whales are mammals. They breathe air, just like us, although they can stay underwater as long as an hour. Most of the other animals you'll see at the aquarium are fish. Fish are cold-blooded, and don't breathe air. They have gills, which let them breathe oxygen from the water.

SEA JELLIES

Can you imagine what it would be like to live without a heart, eyes and a brain? Well, that's how sea jellies live. They're over ninety percent water, and they've lived here on earth almost 100 times longer than humans: over 650 million years.

Sea jellies eat fish, plants, shrimp — and other sea jellies! They can sting other animals without trying to. Do you see the long, stringy tentacles of the jelly in this photo? The jelly's tentacles have special stinging cells. If a fish brushes against them, the stinging cells can launch venomous barbs into the fish's body.

Jelly stings don't bother sea turtles, which is why sea turtles can eat them. But the stings of some jellies can hurt humans. Seventy of the two hundred jelly species are known to sting people. A dead jelly still can sting you, so be careful if you see one!

SOUTHERN CALIFORNIA BAJA GALLERY

If you walk past the blue whale, you'll come to a very tall exhibit called the Blue Cavern. The Blue Cavern is the start of the aquarium's Southern California/Baja gallery. If you ever go for a swim in the ocean waters of California, you might see some of the fish you'll see here.

The biggest fish in the Blue Cavern is the giant sea bass. If you stand close to the glass, the bass might come up and take a look at you. They're known to be pretty curious. Some live to be seventy-five years old and weigh over five hundred pounds.

Next to the Blue Cavern is the aquarium's Amber Forest. The Amber Forest is a little like a rainforest, except that it has kelp plants instead of trees. In the wild, brown holdfasts cling to rocks on the ocean floor, holding the kelp in place like the roots of a tree.

The leafy kelp fronds grow near the water's surface, so they can get energy from the sun. Do you see how the sunlight reaches the kelp in this photo?

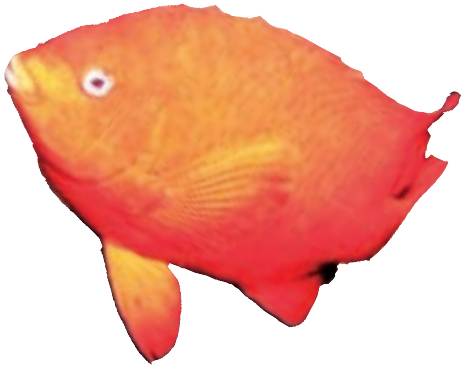
Kelp is the fastest growing plant in the world; it can grow up to two feet per day! People use kelp and kelp products to make everything from ice cream to paint to toothpaste.

Many animals live in the kelp forest. You'll probably see the bright orange garibaldi, but finding the scorpionfish may be tougher.

One reason the scorpionfish stays alive is that it's colored to blend in with its surroundings. This is called *camouflage*. Bigger fish can't eat it if they don't know it's there.

While you're at the aquarium, look around.

Can you find other aquarium fish that are camouflaged, too?



SEALS AND SEA LIONS

If you walk all the way through the Southern California/Baja gallery, you'll come to the underwater viewing area for the seals and sea lions. Seals and sea lions look similar, but there are a few ways to tell them apart.

Does the animal swimming past you have ear flaps? Then it's a sea lion! Seals have ear holes, but no ear flaps. Seals also have nails on their front flippers. Sea lions don't.

Seals and sea lions are mammals, like whales. They come out of the ocean to have pups, and sometimes just to lie around in the sun. But they can spend a lot of time underwater, too. Some can dive for over an hour without breathing!

Seals and sea lions are adapted to life in the ocean by having thick layers of blubber. Blubber is a a lot like fat! The blubber keeps them warm in the icy ocean water, and gives them a streamlined shape, so they can glide through the ocean quickly.

Seals and sea lions don't have a blubber layer at birth. Instead, some seals are born with a thick, fluffy coat of fur, which protects them from the cold until they grow blubber layers of their own. Drinking their mother's milk helps. There's more than ten times as much fat in seal milk as there is in the cow milk sold in stores!

While you're at the Blue Cavern, see if you can find the eel. Don't feel bad if you can't find it, though. Eels like to hide!

Eels eat fish and mollusks. They can't see very well, but they have a great sense of smell. Eels usually don't bite people, but be careful: they have very sharp teeth!

Northern Pacific Gallery

Some ocean animals live in the waters of the far, far north: near northern Canada and Alaska, where the days in winter are only a few hours long, and temperatures sometimes fall to sixty degrees below zero. You wouldn't like living there very much, but some fish do! At the aquarium, you'll find them in the Northern Pacific gallery.

Puffins

You can think of puffins as the divebombers of the Pacific: they catch fish by diving into the ocean and grabbing them in their beaks. Some puffins can dive over 100 feet deep!

Puffins don't need to spend a lot of time on land. Their feathers are waterproofed, so they can sleep and rest on the water. They can drink salt water, too. Puffins usually live on the ocean in the winter, then come to shore for their breeding season in spring and summer.

A puffin egg takes about forty days to hatch. One puffin parent sits on the egg to keep it warm, while the other goes to the ocean to get food. After the eggs hatch, puffins feed their babies by bringing fish ashore in their beaks.

Giant Pacific Octopus

If you ever have trouble opening a jar of peanut butter, maybe you should ask if you can give it to the giant Pacific octopus!

Octopuses are good at getting things open. They use the hundreds of suckers on their arms to pry open the shells of the clams and crabs they catch in the ocean.

Sometimes they even drill through the shells, like a safecracker!

Octopuses are pretty shy. They like to live in dens and caves, where none of the other fish can see them.

If they really don't want to be bothered, they pile rocks in front of the den openings. That makes it even harder for intruders to get in.

SEA OTTER

Another ocean animal that might be able to open that jar of peanut butter is the sea otter — but in a much messier way. Sea otters often break open clams by putting them on their bellies and banging on them with rocks. Your mom probably would get mad if you tried to eat that way!

Rocks aren't the only tools that sea otters use. When sea otters want a good night's sleep, they sometimes use kelp strands to tie themselves up so they won't drift away. Sea otters are among the few mammals that use tools — besides people.

Sea otters like to eat mollusks and sea urchins. They often feed by diving to the ocean floor, where they collect the food they want to eat and some rocks to use as tools.

Sea otters even have a built-in carrying bag: they can use little flaps of skin on their chest as pockets to store the things they collect before returning to the surface.

Otters like to rest by floating on their backs; sometimes as many as a hundred otters will rest that way together. Sea otter mothers even take care of their pups while floating on their backs.

Otters don't have a layer of blubber to keep them warm in the cold water. Instead, they have thick fur — ***very*** thick fur!

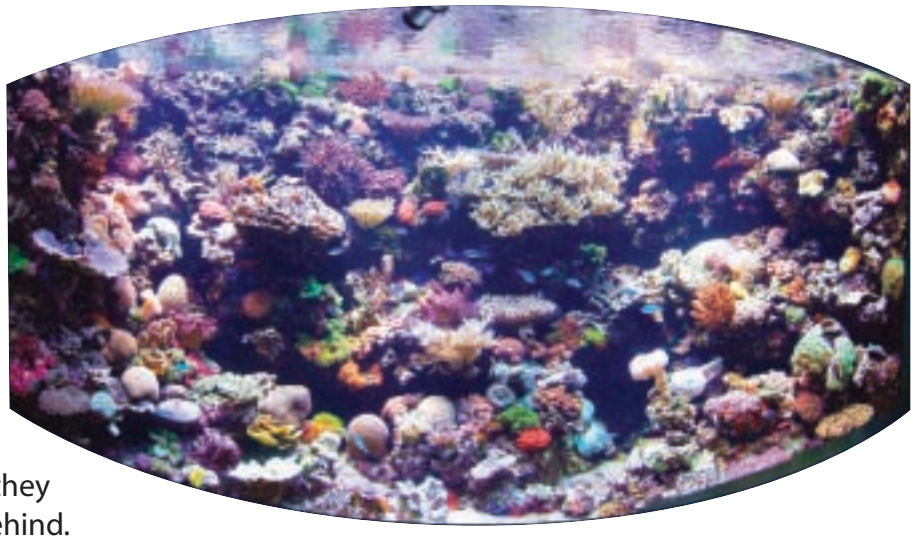
You have about 100,000 hairs on your entire head. A sea otter's fur has over half a million hairs — in just one square inch!

TROPICAL PACIFIC GALLERY

Do the prettiest fish live in the Tropical Pacific? Some people think so. The fish species that live in the warm waters near Tropical Pacific islands are brighter and more colorful than fish that live where it's cold. Look at the pictures of the angelfish and the humphead wrasse on the opposite page.

CORAL REEF

What's the biggest thing ever built by living organisms? The pyramids of Egypt? The Great Wall of China?



Wrong! The biggest is the Great Barrier Reef of Australia; it's over 1,200 miles long. But it wasn't built by people. Coral polyps built it.

Coral polyps didn't build it because they're big and strong. Most are only the size of a pencil eraser. But they make hard exoskeletons to protect their soft bodies. When they die, their exoskeletons are left behind.

The exoskeletons are what form the reef. Living coral polyps grow on top of the exoskeletons of dead coral polyps — on and on, like stacking building blocks, as long as the water is warm and clean enough for the polyps to survive. Algae live inside the coral, and help to give the reefs their brilliant colors.

It takes about fifteen years for the coral to grow as big as a basketball. After thousands of years, a reef is formed.

PORCUPINEFISH

If you see the porcupinefish swimming in the Coral Lagoon, you might wonder why other fish don't eat it. It's not very big, and it doesn't look tough.

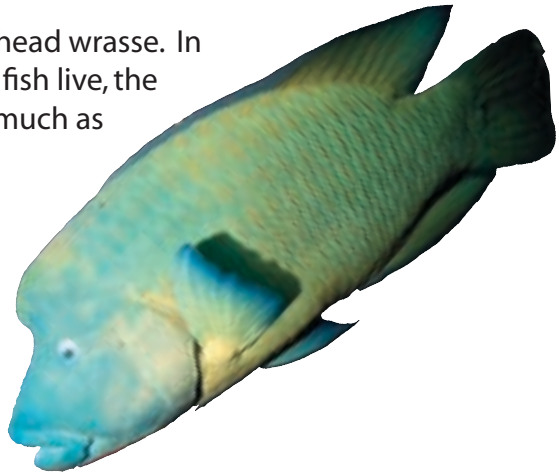
But you ought to see how it looks if another fish tries to make it into a meal!

When it's scared or disturbed, a porcupinefish can puff itself up like a balloon. Thick spikes stick out all over its body, like the spikes of a porcupine.

That's how the porcupinefish got its name. When it's puffed up, biting it would be about as much fun as biting into a pin cushion!

HUMPHEAD WRASSE

The biggest fish in the Tropical Pacific gallery is the humphead wrasse. In the Pacific waters near Malaysia, where most of these blue-green fish live, the humphead wrasse can grow up to seven feet long and weigh as much as four hundred pounds.



The humphead wrasse starts off life as a female, but turns into a male when it's older. Other wrasse and coris fish in the Tropical Pacific gallery can reverse their gender, too.

ANGELFISH

Another very pretty fish that lives in the Tropical Pacific is the angelfish. There are over seventy different kinds of angelfish around the world, and not all of them live in the Pacific. If you look in the Fish Finder, you'll see the Emperor angelfish below at right — but you won't see the angelfish at left and in the middle. They live in the Atlantic Ocean!

People look different as they get older, and angelfish do too. Baby Emperor angelfish are striped black and white. The adults are yellow, black, white and blue.

Angelfish are very popular with home aquarium owners. Maybe someday you'll have an angelfish of your own!

LORIKEETS

Behind the aquarium is Explorers Cove, an area with lots of exhibits for kids. Here you'll find some of the most brightly colored birds in the world: the lorikeets.

The lorikeets live in an aviary. The aviary is covered by a giant net. The birds can fly, but they can't escape.

Do you like to eat? If you do, maybe you're a little like a lorikeet; they spend more than half of the day eating!

Lorikeets can feed on more than thirty eucalyptus flowers per minute. They fly long distances to get food, too — as many as thirty miles in a day. That's farther than the Blue Line train ride from Los Angeles to Long Beach.

If you visit the aviary, the lorikeets may fly down to sit on your hands and shoulders — even your head!

RAYS

Would you like to live like a ray? You'd have to spend most of your life lying on your belly, eating worms from the ground! Yuck!

Most rays are bottom feeders. They rest on the ocean floor, eating worms, clams, shrimp and other creatures from the sea bed.

Rays aren't interested in hurting people, but they will defend themselves if someone steps on them.

Some rays have a very powerful sting. A few even can give electric shocks up to 200 volts. That's more powerful than the electric current in your home!

If you don't want to be electrocuted, make sure not to step on an electric ray

SHARKS

Sharks have been around for a long time. The first sharks appeared four hundred million years ago — over a hundred and fifty million years before the first dinosaurs!

Sharks look pretty scary, but most shark species aren't dangerous to people. The biggest shark in the world is the whale shark, but it only eats plankton and small fish; it would never bite a person. People kill far more sharks every year than sharks kill people.

Sharks don't have to worry about brushing their teeth, no matter what they eat. If a shark's tooth breaks off, another grows in to take its place. Some go through as many as 30,000 teeth in a lifetime.

Sharks are very good at smelling things. They can smell one drop of blood mixed with a million drops of water. Almost a third of a shark's brain is used just to sense smell. They also have a special sense to detect vibrations — like the vibrations of a wounded fish that the shark might want to eat!

If you get tired of walking during a TransitPeople trip, you should sympathize with the shark. If they don't keep swimming constantly, they'll sink! Unlike fish, sharks don't have a swim bladder to keep them afloat.

SEA TURTLES

People usually use the word *tortoise* for turtles that live on land. *Turtles* spend most of their time near or in the sea. Some can stay underwater for as long as five hours.

To lay eggs, sea turtles return to the beaches where they were born. They use their back flippers to dig deep holes, and can lay over a hundred eggs at a time.

Sea turtles have strong front flippers, and can swim over nine miles per hour — more than twice as fast as the fastest human swimmer! Some turtles migrate thousands of miles between their feeding grounds and their nesting beaches. No one really knows how they find their way.

RIDING THE BLUE LINE

You don't need a car to visit the Aquarium of the Pacific! You can ride the Blue Line. The Blue Line is a light rail train that runs from downtown Los Angeles to Long Beach. The trains run every five to twenty minutes, depending on when you're traveling. The twenty-two mile ride takes just over fifty minutes.

Blue Line trains run on electricity, like the Red Line subway — and not like locomotives, which use diesel fuel. An operator sits in the front of the train and operates the controls that make the train go. The Blue Line trains are similar to other light rail trains around the world, from the San Francisco Muni to the tramways of Europe.

The train station closest to the aquarium is the Transit Mall stop at First and Pine in Long Beach. Some people walk to the aquarium from here; others take the free Passport shuttle bus. The Passport stop is at First and Pine, too, and the buses run frequently. The ride to the aquarium only takes a few minutes.

If you ride the Blue Line with an adult, be sure that you have a ticket before you board the train. You can buy a ticket from one of the ticket machines at the train station.

You also can ride the bus to the train station, and buy a transfer from the bus driver. The transfer lets you ride on another bus or train — including the Blue Line!

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National Oceanic and Atmospheric Administration: butterflyfish, cover; whale, cover; sea turtle, cover; scorpionfish and garibaldi, pg. 4; seals, pg. 5; eel, cover and pg. 5; otter art, pg. 7; angelfish, left and center, pg. 9; art, pg. 12

NASA: cover photo of globe; globe, pg. 2

Tim Adams: cover photos of children and lorikeets; whale, pg. 3; lorikeets and rays, pg. 10; children, pg. 12

Cincinnati Enquirer/Steven M. Herppich: octopus, pg. 7