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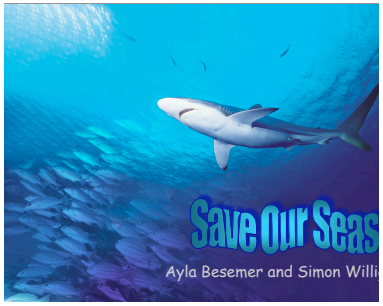


Hi! My name is _____ and I am in the _____ grade at _____ School.

I am passionate about our oceans and all that lives in them. Our oceans are in big trouble, and I know that kids like you and me can help to save them. So I present to you “Save Our Seas”, written by Ayla Besemer and Simon Willig with support from the Monterey Bay Aquarium.

To start, it’s important to remember that it’s YOUR ocean.

2

How many of you like going to the beach? Raise your hands.

What about playing in the waves? *(Encourage a show of hands.)*

Making sandcastles? *(Encourage a show of hands.)*

Watching the sunset? *(Encourage a show of hands.)*

I do too! I love to play the day away at the beach, or in lakes and rivers too.

3

I love to spend time just exploring the beach and seashore. What about you?

Who likes to go tidepooling? (Encourage a show of hands.) Isn't it amazing the number of different kinds of plants and animals you see in just one tidepool?

How about playing with hermit crabs or collecting shells and watching for dolphins?

4

It's your ocean to eat too. I know that sounds funny, but it's true. How many of you like to eat seafood like fish, sushi, or shrimp?

5

Sometimes we might think of our ocean as just a place to play, but truly it gives us so much more.

For instance, how many of you used seaweed this morning? (Wait for a show of hands. Most kids will shake their heads no, or look around confused.) Does that mean none of you brushed your teeth this morning?

1. Kelp, which is a type of seaweed, is an important ingredient in lots of products we use everyday. Algin, which is extracted from kelp, is used to thicken products like toothpaste, lotions, shampoo and many other food products.

2. In medicine, the little horseshoe crab's blood can help detect deadly bacteria in drugs before they are injected into humans.

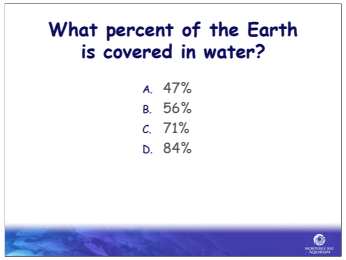
3. Do you or anyone in your family wear pearls? Those come from the ocean too.

4. And, of course the ocean acts as the worlds major highway system for transportation of products and energy all over the world. I bet most of the tennis shoes and clothes we are wearing right now traveled across the ocean to get to us.

6

Given it's your ocean… how well do you really know it? Let's test your ocean IQ. Throughout this presentation, I'll share some fun facts with you through Quiz Time. So let's get started.

7



What percent of the earth is covered with water?

A. 47%

B. 56%

C. 71%

D. 84%

How many of you think it is A? Raise your hands. B ? C? D?

(During Quiz Time you can pick different ways for kids to answer the questions, for example…

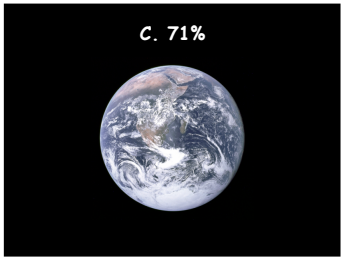
1. They can raise their hands and you can call on one person at a time.

2. You can ask for a show of hands or cheering when you read each possible answer, and see what the group thinks.

3. Let kids shout out the answer.

Mix it up to make it fun for everyone.)

8

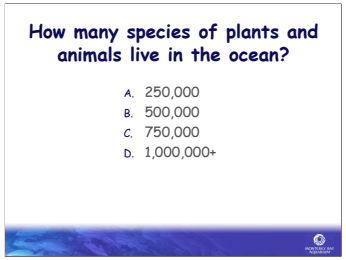


You're right. The answer is C: 71%. Did you know that the ocean is almost 2 and a half times bigger than all the continents combined? It has deeper canyons and taller mountains than any place on land.

There are five oceans. Can you name them? Shout 'em out!

(Atlantic, Pacific, Indian, Arctic, and Southern. If they don't name them all, you can give them the answer. Kids may not know about the Southern Ocean, as it was just recognized by the International Hydrographic Organization as an official ocean in 2000.)

9



How many species of plants and animals live in the ocean? Raise your hands if you think it is:

A. 250,000

B. 500,000

C. 750,000

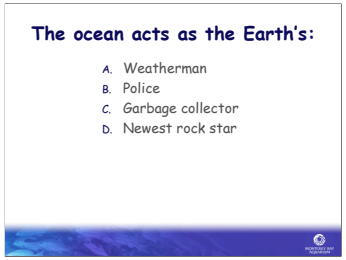
D. 1,000,000+

10

The answer is D: over 1 million. Scientists currently know of at least one million species of plants and animals that live in the ocean. From microscopic plankton, which form the base of the food chain, to the giant whale shark; from the eerie looking vampire squid, to the brilliant colors of the coral reef; from the unusual leafy sea dragon, to massive schools of tiny herring. Some scientists believe that there may be as many as 9 million other species that haven't even been discovered yet.

Even though there are so many animals and plants in the ocean, it is estimated that 20,000 species become extinct every year.

11



The ocean acts as the Earth's:

A. Weatherman

B. Police

C. Garbage collector

D. Newest rock star

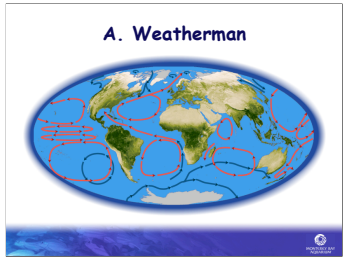
Raise your hands if you think it is A?

Who thinks it's B?

How about C?

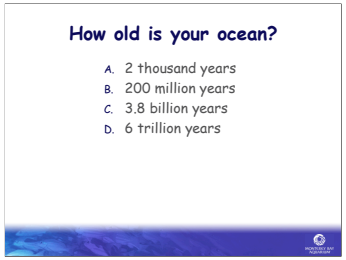
D anyone?

12



The answer is A: Weatherman. Oceans play a KEY role in controlling the Earth's weather, with water temperature being one important factor that affects floods and droughts across the world.

13



How old is your ocean? Raise your hands if you think it is:

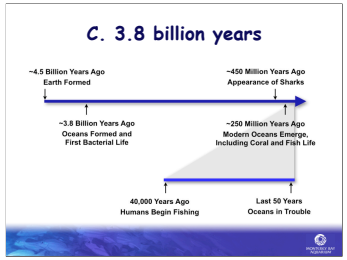
A. 2 thousand years

B. 200 million years

C. 3.8 billion years

D. 6 trillion years

14

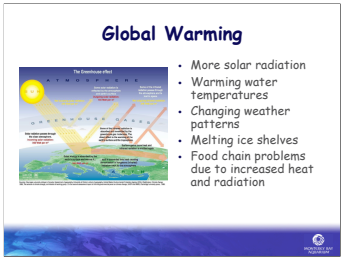


The answer is C: about 3.8 billion years old. Our oceans, and small bacterial life, started forming not long after the Earth was formed. Our modern oceans, both structure and life, started forming about 250 million years ago, with the Pacific being the oldest ocean. As you can see, the ocean has been around billions of years, but only in the last few decades are we starting to see that the ocean is becoming less healthy.

15

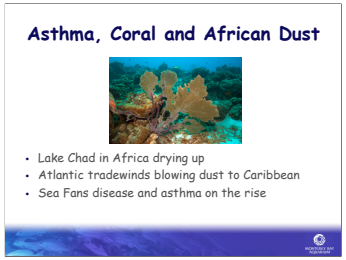
Even though the ocean seems huge and infinite, our oceans are in trouble. Why all of a sudden? It's our human impact over the last century with industry, new technologies, and population growth. We are severely damaging the ocean habitat. Let me share with you a few things that are hurting our oceans now: global warming, fishing practices, and pollution. You may have heard about these problems, but what do they really mean and how are they affecting the ocean?

16



Here are a couple of key points about the ocean and global warming. As more solar radiation is absorbed by the oceans, the oceans' temperatures are rising. In fact, the temperature of the ocean has risen on average 6/10ths of a degree in the last century. This may not seem like a lot to you and me, but it can have a devastating effect on the ocean. It is not only increasing the speed at which large glaciers and ice shelves are melting; but weather patterns across the world are changing, creating stronger storms and flooding in some places, while creating drought in others. The food chain of the ocean is changing, and could collapse in some areas because microscopic plankton can't adapt fast enough to these warmer waters. Coral reefs, which are the largest ecosystems on Earth, are stressed by warmer water temperatures. They are releasing an important algae they use for food and color, which is causing the coral to starve and weaken making it more sensitive to sunlight and disease.

17



Asthma, coral, and African dust may seem like unrelated topics, but researchers have found an important link: global warming.

-Due to increased air temperature, Lake Chad in Africa is drying up.

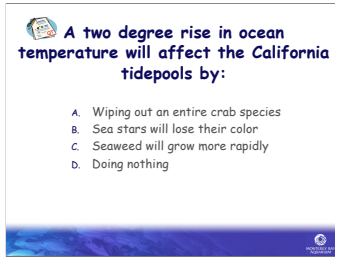
-Increased ocean temperature is causing the trade winds in the Atlantic to blow differently than before. The dust from Lake Chad and the Sahara Desert are now blowing across the Atlantic Ocean and ending up in parts of the Caribbean.

-This is causing increased levels of asthma in the children of Trinidad, and a toxic fungal disease to attack sea fans in the delicate coral reef ecosystem.

The important thing to understand here, is that our worldwide ecosystem is intertwined.

Let's take an example closer to home. You know what time it is? **Quiz Time**!

18



A two-degree rise in ocean temperature will affect the California tidepools by:

A. Wiping out an entire crab species

B. Sea stars will lose their color

C. Seaweed will grow more rapidly

D. Doing nothing

Raise your hands if you think it is A?

What about B?

Who thinks it C?

Anyone for D?

(Don't switch to next slide, give answer while looking at this slide)

The answer is A: It would wipe out the intertidal porcelain crab population, ultimately having an impact on the entire food chain in the area. There are lots of other examples linking global warming to the declining health of our oceans, but now let's look at a different problem.

19

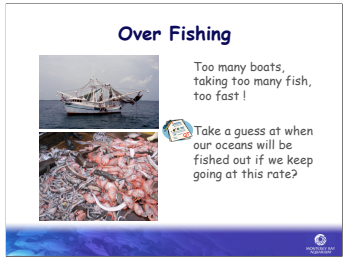
Fishing Practices: Could your fish stick dinner be destroying the oceans? Maybe yes and maybe no.

It appears humans started fishing during the Paleolithic period, about 40,000 years ago. But, only in the last 50 years have modern technologies allowed us to fish further, deeper, and more efficiently than ever before.

It is important to remember that fish are wild animals, and can only reproduce so fast. In fact, they are the last wild animals hunted for food commercially.

I'd like to share with you four key concerns about worldwide fishing practices, or how your dinner is caught.

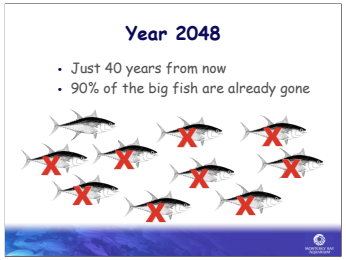
20



"Over fishing" is too many boats, taking too many fish, too fast. Each year it is estimated that more than 4.1 million boats fish our oceans, extracting about 90 million tons of fish, or 180 billion pounds. In our quest for more fish, we have fished some species to the brink of extinction. North Atlantic Cod, once used in fish sticks, are at 1% of their original population. Fish just can't reproduce fast enough. Some sharks, for instance, may not start having babies until they are 15 years old, and may only have 1 or 2 young.

Quiz Time! Take a guess at when our oceans will be completely fished out if we keep going at this rate? Raise your hands and give me a year.

21



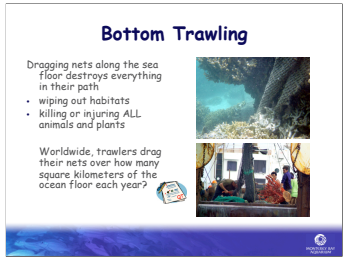
The year 2048, about 40 years from now. If we continue with business as usual there will be no more commercial fisheries in our lifetime.

How old you will be when this happens? *(Pause)* Probably about the age of your parents. That may seem old to you now, but this is OUR generation.

Some scientists believe that 90% of the large predatory fish such as shark, swordfish and cod are already gone. Think about that: If that was the number of people in this room, only 1 in 10 of you would still be alive.

(Give example based on how many people are in the room. If there are 20 people in the room, have two people stand up, while the rest remain seated and represent the less fortunate.)

22



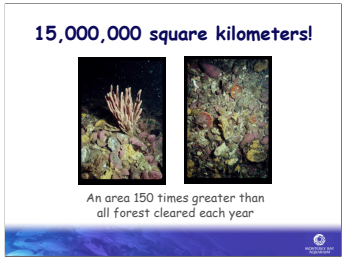
"Bottom trawling" is when a fishing boat drops a weighted net to the ocean floor and drags it along, picking up, and often destroying everything in its path. Coral reefs, which often take thousands of years to develop, can be destroyed with one drag. These are critical habitats that fish need for shelter from predators, nursery grounds for their young, and food.

That's not all: after these nets are full, they are brought back to the surface at a high speed. The animals can't change pressure levels that fast, and their internal organs explode. So whether the fishermen want all the different species caught in their nets or not doesn't make any difference— most end up dead. They just throw the dead or injured animals back into the ocean. This is called "bycatch", and we'll talk more about that in just a minute.

Quiz Time! Worldwide, trawlers drag their nets over how many square kilometers of the ocean floor each year? Any guesses?

(Encourage kids to call out numbers, and then give them direction on whether they are high or low.)

23



The answer is 15 million square kilometers—EVERY year. This is an area 150 times greater than all the forest cleared each year. And, unlike loggers, some trawlers may sweep the same areas of the ocean floor many times in a year, leaving little time for recovery.

24

Just a moment ago, we mentioned bycatch. Bycatch is when fishermen catch animals, in their fishing gear or nets, other than what they are fishing for, and discard them, often injured or dead. For example, over 350,000 tons of sharks are discarded as bycatch each year, which equates to about 55 million sharks killed and thrown away.

Quiz Time! Do you like shrimp? It's the number one seafood choice in America. For every 1 pound of shrimp, how much bycatch do you think there is? *(Take guesses from the audience.)*

The answer is 3 to 15 pounds. Look at this picture *(point to picture on slide)*: How many shrimp can you count? I count less than a dozen, and yet all these other animal were killed for a dozen shrimp.

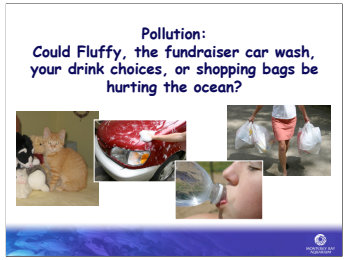
25

Our last area to take a look at in “Fishing Practices” is aquaculture. To take the pressure off of wild fish populations, there are some excellent types of fish farming. Take tilapia for example: their feed is primarily vegetarian, and their water can easily be filtered and cleaned like an aquarium.

However, other types of fish farming can be an environmental disaster. Many open net pen fish farms are releasing huge amounts of drugs and waste into the water around them. A BIG problem with this is the fact that some farms may have as many as 100,000 fish in a small area, way more fish than would naturally live in that same area. All of their waste goes directly into the water around the farm, polluting that marine environment or coastline. And it’s not just waste they are putting in the water, it’s chemicals too. When you have so many fish squished together, they are more prone to disease, so they treat all the fish with drugs and antibiotics to keep them healthy. This also spills out into the surrounding waters, plus it gets into you and me from eating these fish. One other big problem with farmed fish is that many of them are meat eaters, meaning that you have to feed them wild caught fish to get them to grow.

(Pause to transition to next area.) We’ve talked about the impact of global warming and harmful fishing practices on our oceans. Let’s cover one last area, before we talk about what you can do to help.

26



Pollution.

Could Fluffy your cat, the fundraiser car wash, your drink choices, or shopping bags be hurting the ocean? What do you think of when you think of pollution?

(Ask the audience. Depending on what they answer, you can add air pollution, car pollution, oil spills, etc.)

Those are all good answers… do you think that YOU might actually be polluting?

27

Trash = Pollution. Any trash you throw on the ground, or see but don't pick up, can easily get blown into the closest water source, or storm drain, and may eventually make it all the way to the ocean.

It's Quiz Time. There is an almost invisible mass of trash currently floating in the Pacific Ocean. Can you guess how big it is?

(Encourage kids to call out answers or raise their hands, but definitely get lots of answers.)

28

It is larger than the continental United States: over 8 million square kilometers of trash (over 3 million miles). It's called the North Pacific Trash Vortex, or the Great Pacific Garbage Patch, and it is collecting in the Pacific Ocean just north of the Hawaiian Islands. Plastics make up the largest component of this garbage patch, with more than 80% of it coming from land. If a piece of trash in the ocean doesn't end up on a beach within a few years, it will slowly make its way out to this trash vortex via different ocean currents, and get caught there in a circular pattern, and stay. The very thing that makes plastic useful to us is its durability which makes it a huge problem for the ocean, as it can take hundreds of years for it to break down.

Sea life often mistakes this trash for food in two very different ways. As plastics break down, the fragments get suspended in the water column and mimics plankton.The larger pieces of plastic which don't break down are often mistaken for plants or fish by seabirds. Look at this carcass of a decomposing albatross (a bird) found in our own Hawaiian Islands. Its stomach is filled with bottle caps and other plastic objects the albatross mistook for food. Scientist estimate that 40% of Laysan albatross chicks die from eating plastic fed to them by their parents.

Here is another example…

29

Animals are starving to death because of trash. Plastic shopping bags look like lunch to a few species of sea turtles that prey on jellies. When the turtles mistakenly eat these plastic bags, their stomachs can't digest them. They fill up on plastic, and then starve to death. This is one reason leatherback turtles, who prey exclusively on jellies, are critically endangered.

Look at this picture *(point to top picture)*. This is the plastic found in the digestive system of a dead sea turtle. The turtle died as a result of complications from eating all this plastic— it starved to death.

We produce 15 billion tons of plastic in the U.S. each year. Any idea how much of this gets recycled? *(Pause or take guesses)* Less than 7%.

30

Sea otters are endangered off the coast of California. They were almost wiped out by hunters starting in the late 1700's through the late 1800's because of their amazing fur. People have worked long and hard to protect and help rebuild the otter population. These people noticed that large numbers of sea otters began dying off due to some new disease. Here is where Fluffy comes in. *(start animation)* Your kitty is out playing, and eats a rodent. The rodent carries these parasites. Fluffy digests the rodent, and then poops it out. The eggs are now in Fluffy's poop. If you flush Fluffy's kitty litter down the toilet or let her poo outside, the disease is now on it's way to the ocean. When it reaches the ocean, clams and mussels filter the water that carries this disease. They don't get the disease; they just carry it in their flesh, in highly concentrated levels. The sea otters come along eating one of their favorite foods, and you guessed it, they are infected by this neurological disease, known as toxoplasmosis. The toxin builds up in their brains, and they begin having seizures, and many of them die.

31

Other everyday activities can also be sending poison into our oceans. Many of the pesticides and fertilizers we use to make our gardens beautiful are filled with nitrogen and phosphate. These chemicals get into ground water run-off and eventually make their way to the ocean. They eat up the oxygen in the water and create "dead zones" where it is unfit for animals to survive. Simple things, like the soap you might use to wash cars outside, can also be very toxic to marine life. We have to remember that our environment is all connected.

So remember to "Keep It Clean because we are all Downstream."

32

One last example. When you think of oil in the ocean, you most likely think of oil spills from big tankers. The largest oil spill in United States history was the Exxon Valdez in 1989 which spilled 11 million gallons of oil at Prince Edward Sound in Alaska. It's true, when this happens it has a devastating impact on marine life. But did you know that more oil ends up in our water sources every year from improperly disposed of motor oil than from tankers. Do-it-yourself mechanics who change their own oil, dump the equivalent of what the Exxon Valdez spilled every 2 - 1/2 weeks. This is like having a major oil spill every two and half weeks.

Quiz Time. How many quarts of oil does it take to make 250,000 gallons of water toxic? Give me some guesses.

1 quart! That's right! It takes just 1 quart of improperly disposed of motor oil to make 250,000 gallons of water toxic. It may not cover marine animals in a thick coat of oil, like a big oil spill, but it does make our water poisonous.

33

These are BIG problems, but the good news is that YOU can help. Starting right this minute, you can make a difference.

34

Think…OCEAN.

35

"O" for Only Eat Sustainable Seafood. *(Hold up a Seafood Watch pocket guide and explain how it works.)* Seafood Watch pocket guides are produced by the Monterey Bay Aquarium to help us make good seafood choices. The Best Choices column list fish that are caught or raised in a sustainable way, meaning it's good for the environment. The pocket guide also has an Avoid column, which lists fish that you should stay away from. These fish are over-fished, or are caught and raised in ways that are unfriendly to our oceans. There is also a Good Alternatives column, just in case you can't find something in the Best Choices area.

The really good news is that fish populations can recover if properly managed through joint efforts of: government, fishermen, and the seafood choices we make. I have a Seafood Watch pocket guide for each of you at the end of the presentation (or they can download one from www.seafoodwatch.org).

36

"C" for Conserve: Reduce. Reuse. Recycle. You and I can really help with the trash problem.

Reduce your waste by by trying to have a zero waste lunch. This means nothing gets thrown away that can't be composted or recycled.
- Instead of lunch bags, use a lunch box each day.
- Use a cloth napkin that can be washed once a week.
- Bring your sandwiches and food in reusable containers.
- Most importantly, remember to bring your drinks and water in reusable containers.

In the U.S. alone, Americans throw away 22 billion plastic water bottles each year, which equates to 167 bottles per person.

Buy reusable shopping bags, and use both sides of paper, whenever possible.

Recycle everything you can. You might be amazed by all the things you can recycle.

Certainly cans, bottles, plastic containers, and paper are a good start.
- But you can recycle lots of other things like. Can you give me some ideas of other interesting things you can recycle?
    - all types of boxes,
    - tennis shoes,
    - old electronic components, and
    - ink cartridges.

37

"E" for Educate your family and friends. That's what we're doing here today. This is something we kids are great at. Most of us like to talk, so spread the word. Remember this is our future and our oceans we are talking about.

• If you're shy, just talk to your immediate family and friends about what you heard here today. Let them see your Seafood Watch pocket guide.

• If your feeling a little more brave, get some extra Seafood Watch pocket guides and hand them out to restaurants and stores in your area, as well as to all your family and friends.

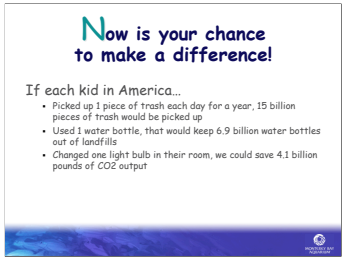
• And if you are feeling really fired up, get a copy of this presentation and give it to your class, school, Scout group, church group, or anyone who will listen.

38

"A" for Act today! I'll be giving you a Think OCEAN card at the end of this presentation that lists 15 things you can do starting today.

-Simple things like picking up a piece of trash when you see it.
- Feel free to do bigger things, like organize a beach or park clean up.
- Definitely get a reusable water bottle.
- Eat organically grown products, which helps keep toxic chemicals out of our ground water.
- Buy produce, meat, and dairy from local farmers—reducing the use of fuel to transport products.
- Remember to throw Fluffy's poop away versus flush it down the toilet; give her an outdoor litter box.
- Change the light bulb in your room from an incandescent bulb to a compact fluorescent bulb.
In the long run you will not only save money, but also more importantly save energy and help fight global warming by reducing your own CO_2 output.

39



"N" for Now is YOUR chance to make a difference. There are about 41 million kids in the U.S. between the ages of 5 and 14.

-If we each pick up one piece of trash every day for a year, we would have picked up almost 15 billion pieces of trash.

-If we each have a reusable water bottle, we will keep 6.9 billion water bottles from going into landfills.

-If we each go home and change the light bulb in our rooms to compact fluorescent, we can save 4.1 billion pounds of carbon dioxide.

These are easy things that each of us can do to make a real difference!

Let's take a minute and have you share some things you are already doing that might be helping the ocean. *(Pause. If people are shy, give them some encouragement. For instance, do you recycle? Walk to school? Pack a napkin in your lunch?)*

Thanks. These are all great ideas. Keep up the great work, and continue to share your ideas with friends.

40

Thanks for listening today. I hope you learned a little about YOUR oceans, the trouble they are in, and, more important, what YOU can do to help.

Please pick up your Seafood Watch pocket guides and Think OCEAN card as you leave.

And remember: You are the future of our oceans!!!

(Pause of applause.)

Do you have any questions?

Thanks again.