



**Journey to Planet Earth**

**Transcript for Episode 11:  
State of the Planet's Oceans**

**Abridged Version**

**Journey to Planet Earth is produced by**

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[Opening Tease]

Next on Journey To Planet Earth:

We're coming on board to conduct a marine fisheries inspection.

You got a firearm aboard?

We have a violation.

The way whales for example move back and forth. How are they going to figure out where to move when the climate changes?

We know that the temperatures have gone up but to see this rapid response has been a surprise to the science community.

If sea-level rise is three feet it will cover close to half the rice land in Bangladesh.

For the poor boundaries don't really matter. When they have to survive, they will scale any boundaries.

This place attracts whale sharks. We swim right into the school of these things so you're just looking around and it's just solid fish. It's just unbelievable.

There were dolphins flying over there and a whale shark under us. It was incredible.

**MATT DAMON (On-Camera)**

I'm Matt Damon. All this and much more as we investigate the *State of the Planet's Oceans*.

(Opening Titles)

We begin our story in a small town near the crossroads of the Atlantic and the Mediterranean. They call Aveiro the Venice of Portugal. Visitors flock here because of the picturesque location, a series of canals and bridges set against classical architecture dating back to the sixteen century. But for those who call Aveiro home, for those who treasure its traditional way of life, they know that it is famous for more than its quaint buildings and scenic canals. Four hundred years ago this was where the world's largest long-distance fishing fleet set sail for North America.

(Historical Footage)

Though aided by the navigational skills developed by early explorers, the crossing was never easy, especially when the fleet reached the treacherous waters of the North Atlantic. But when the boats finally arrived at the fishing grounds off Newfoundland and New England, what they found was the richest cod fishery in the world.

Each morning the fishermen set out in one-man dories. For the next ten hours they hand-lined for cod. Just before sundown the dorymen returned to the mothership to unload the day's catch and then spend many more hours cleaning and salting the cod. Though the work was hard, this was a proud way of life that helped feed the world for centuries.

(Modern Fleet)

As word spread about the size of the fishery, fleets from all over the world joined the hunt. Every year the size of the fleet got bigger and every year the size of the catch increased. Towards the end of the 20th century over three billion pounds of Atlantic Cod were pulled each year from the fertile waters of the North Atlantic. What happened next was unimaginable. Nets started coming up empty. It turns out that the fleet was catching cod faster than they could reproduce and by the end of the 20th century one of the largest fisheries in the world collapsed.

**MATT DAMON (On-Camera)**

Can you imagine, after feeding the world for hundreds of years, we showed our gratitude by nearly wiping cod off the face of the earth? Today the species is on the verge of extinction. And for the fishermen of Aveiro, the consequences have been devastating.

(Graveyard Of Boats)

Here along the city's commercial waterfront nearly eighty percent of Portugal's long-distance trawlers rust away in watery graves. When the cod fishery collapsed, Aveiro's economy also collapsed.

(Witch's Bar)

The locals call this "The Witch's Bar." It is a favorite spot for out of work cod fishermen. Most afternoons they gather to play cards with old friends and share stories about an unlimited bounty that suddenly disappeared.

Later in the day, perhaps after a few drinks, their thoughts become more wistful as they think about how the collapse of a fishery changed the very heart and soul of Aveiro, from a thriving seaport to nothing more than a tourist attraction -- nothing more than a city of memories. On some days the old timers may even think about relatives and friends, those who emigrated 3,000 miles to the west, to the United States, to a city called New Bedford Massachusetts.

(New Bedford Docks)

They came here by the tens of thousands and for over three centuries Portuguese whalers and cod fishermen did well. To an outsider New Bedford still looks like a thriving city. But if you take a closer look it soon becomes clear that it's anything but thriving.

(Fishermen's Club)

The members of New Bedford's United Fishermen's Club have much in common with the patrons of the Witch's bar back in Aveiro. They speak the same language and celebrate with great passion an independent way of life. Unfortunately they too are victims of the collapse of the cod fishery. Today New Bedford has one of the highest rates of unemployment in the country. Many fishermen are angry and often ask each other in frustrated candor: how could we have ever let the cod disappear?

**MATT DAMON (On-Camera)**

The loss of the Atlantic cod is also a cautionary tale for fisheries around the world, especially now that scientists have discovered that we are consuming the final ten percent of the planet's large fish. Just think about that, ninety percent of our large fish are already gone. This raises a fundamental question that is at the very heart of our investigation: is it within our power to undo the damage that we have already done?

(Aerial of Tortugas)

About 70 miles off the coast of Key West Florida, surrounding a chain of small islands called the Dry Tortugas, are the fertile waters of the only barrier reef in North America.

(Reef life)

This is an ecosystem that provides refuge to over 280 species of fish. Its lush sea grass meadows are safe feeding areas for hundreds of endangered sea turtles. Fueled by the nutrient rich ocean currents of the Atlantic and the Gulf of Mexico, the waters of the Tortugas are a dense whirlpool of biodiversity, including important spawning grounds for commercial fish species-

(Destruction of Reef)

But not very long ago the reefs all along the Florida Keys began to suffer as increased boating activities, population pressures, and over-fishing overwhelmed the health of the entire marine ecosystem.

(Scientific Surveys)

That's when scientists began studying fish populations and coral reef habitats. They soon realized that unless something was done quickly one of the richest and most biologically diverse marine ecosystems in the United States could turn into a barren wasteland. To reverse the trend in 2001 the Tortugas was declared a 200 square-mile national marine sanctuary.

**BILL EICHBAUM**

**WWF**

Marine protected areas and networks of marine protected areas are one of the most important tools that we have to protect the basic biological richness of the seas and secondly in places where that richness has been depleted, to allow opportunities for the biodiversity and the productivity to return.

(Reef Life)

And that's exactly what happened. Coral reefs and fish populations rebounded and the Tortugas became one of the most successful marine reserves in the world.

(Law Enforcement Montage)

A key element of that success is a high-speed law enforcement vessel called the Peter Gladding. Its mission is to patrol the waters of the Dry Tortugas to ensure that the sanctuary remains unharmed. Everyone on board is heavily armed.

**RAUL LOPEZ**

How are you doing captain? Nice to see you again

The crew is prepared for any situation.

**RAUL LOPEZ**

Kenny, you want to check the catch? Alright. Fish and wildlife. *Habla Español?* I got a firearm here.

**KENNY BLACKBURN**

You got a firearm?

**RAUL LOPEZ**

Hey Captain, we're going to check all this stuff back here. Send somebody.

Though they've been on patrol for only a few hours the crew has already boarded nearly a dozen boats.

(Shrimp Boat Boarding)

Protecting a marine reserve is no easy task. To succeed it takes money, lots of it, and highly skilled law enforcement personnel. Six hours into his shift the captain, Joe Scarpa, spots a commercial fishing vessel about a mile off his bow. Radar confirms that it's close to a no-fish zone. While the Peter Gladding picks up speed the crew goes into action. They know that boats often sneak into the reserve because that's where species, such as shrimp, are more plentiful. Joe pulls along side the trawler and orders a boarding.

**RAUL LOPEZ**

Do you speak English? Okay. How many people on board do you have? Three people on board. Including yourself. *Habla Español?* Is your captain sleeping? Okay, make sure you wake your captain. Wake him up and we're gonna come aboard to conduct marine fisheries inspection.

Federal agent Kenny Blackburn escorts the captain to the bridge. Kenny wants to check the on-board tracking system to find out whether the trawler ever entered the no-fish zone.

**KENNY BLACKBURN**

I'm sure you're just turning around in here but you need to stay out of this. When's the last time you had the TEDs checked at all? I've kind of looked at them and we've got a few issues we need to at least go through and address.

Kenny asks for the nets to be brought in. He wants to see whether they are fitted with federally mandated devices called TEDs that help captured turtles escape injury or death.

**KENNY BLACKBURN**

These big holes right here. You need to mend all of these net holes right here. If a turtle gets in they might get a flipper stuck in there and we might accidentally drown the turtle. When this net is being deployed it's like a funnel coming through. Whenever a turtle gets in the net it will hit the grates of this right here and it'll shoot the turtle outside these flaps.

Raul Lopez is the officer in charge of the boarding.

**RAUL LOPEZ**

We got a violation. It's a minor violation. It's gonna be a quick fix. They already have equipment to fix it on the boat and that's what they're going to do, right now.

This boarding goes smoothly.

**RAUL LOPEZ**

That means we are doing our job. That means we are policing everybody. People is getting better understanding about fishing in Tortugas area.

**JOE SCARPA**

It makes me feel like what I am doing out here is actually working. We're educating the fishermen out here by, by enforcing the law and there, they are learning their lessons, they're learning from that, and we're gaining voluntary compliance.

**MATT DAMON (On-Camera)**

Clearly marine reserves and law enforcement can go a long way towards improving the health and biodiversity of our oceans. But as we will soon learn, these efforts may just not be enough.

(Smoke Stacks and Mega-cities)

The scientific community now reports that the level of carbon dioxide in the atmosphere is higher than it's been for hundreds of thousands of years; and our planet's temperatures are rising faster than at any other time in recorded history. Today climate change is fueled more by the richer countries of the world, from mega-cities powered by global economies and by life styles that impose many times the stress on the planet than those coming from the developing world. The impact on our oceans is profound. And perhaps the most serious threat is coming from a place far from the cities and industries that are warming our planet.

(Icebergs and Glaciers)

Greenland is an island nation locked in what seems like a never changing state of deep freeze. However scientists recently discovered that this polar ecosystem is changing, and at a pace that is sounding alarm bells around the world.

(Scientists Setting Up Camp)

It happened during a recent expedition to the southeastern coast of Greenland. When their research ship arrives, glaciologists load equipment onto a helicopter and set off in search of a stable landing area to setup camp. Their destination is the Kangerdlugssuaq glacier. At almost five miles across and over three thousand feet thick this is one of Greenland's largest ice fields. When the scientists reach the glacier they install a series of GPS sensors. Their mission is to measure the movement of the glacier as it transports frozen water from the ice sheet to the ocean.

(Time Lapse of Glaciers)

Though it's almost impossible to see glacial movement with the naked eye, when time-lapse photography compresses eight hours into a few seconds it becomes more apparent.

(Scientists Aboard Research Vessel))

Once back aboard the ship the scientists begin calculating the glacier's speed.

**GORDON HAMILTON**

We processed the first set of data.

They discover that it's moving at the rate of nine miles per year, 125 feet per day. Everyone is stunned. The speed of the glacier's march to the sea has tripled in just ten years.

The implications are shocking. Once a glacier picks up speed it's almost impossible to slow it down.

(Scientists Explore Melt-Water Lakes)

But there still remains one unsolved mystery. What is causing the glaciers to speed up? Some believe the answer is tied to the melt-water lakes that form on the ice sheet during the summer months. The team begins to investigate one of the larger lakes. It's just under a mile in diameter. They decide to take a closer look. Though melt lakes forming in the warmer months is not a new phenomenon they are now developing more frequently and at higher elevations. This is clearly a sign of global warming.

The glaciologists then uncover the connection they were looking for; the relationship between the lakes and the racing behavior of the glaciers. They discover that many of the lakes empty into rivers that feed into deep cracks in the ice. From there the water falls straight down.

(Animation of Glacial Movement)

Scientists believe that when the water from the lakes reaches the bottom it lubricates the flow of the glacier over the bedrock. This speeds up the movement of the glacier, increasing the volume of ice falling into the ocean.

(Ice Falling Into Sea)

The problem is, every time glacial ice falls into the sea it contributes to global sea-level rise. If temperatures continue to rise, more and more melt-water lakes will form and more and more ice will speed its way to the sea. Scientists now estimate that one third of global sea level rise comes from the Greenland ice sheet. If the entire ice sheet should melt the oceans of the world would rise by a catastrophic 23 feet.

**MATT DAMON (On-Camera)**

Though scientists tell us that the possibility of the disappearance of Greenland's entire ice sheet is centuries away, before you breathe a sigh of relief, they also warn that at the current rate of melting within a few decades rising seas will have a profound effect on the low-lying countries of the world.

(River Activities)

Bangladesh is a place defined by water. And, at its heart is a series of rivers and streams that rise in the Himalayas and slowly make their way to the Bay of Bengal. Here in the delta the rhythms of life haven't changed in centuries.

(Monsoon)

For two months each year monsoons sweep across three quarters of Bangladesh. Though as many as twenty-five million are sometimes left homeless by the floods, the country has always managed to cope with these annual events. However there is a geographic reality that Bangladesh can never escape, most of the country is only a few feet above sea level.

(River Activity)

In the future, when sea level rise inundates the lowlands of Bangladesh, millions will be forced to seek shelter. Many will come to the country's capital, Dhaka.

(Dhaka Streets)

But the teeming streets and back alleys of Dhaka won't be able to handle the influx of migrants. Of its nine million citizens, three million already live in extreme poverty, with no electricity, no running water, no toilets.

(Riots)

In a city already prone to political violence, as food shortages put extreme pressure on the population, riots will undoubtedly break out. So once again millions of environmental migrants will be forced to find a new home.

**SCOTT DONEY****Woods Hole Oceanographic Institute**

In the end we have to reduce our emissions of carbon to the atmosphere. We either need to switch to renewable fuels or we need to somehow capture the carbon that we would normally emit say from a power plant or from a car. This is going to be really tough. Energy pervades our economy. Fossil fuels are basically the lubricant that has led to rapid development around the globe. We're making choices that future generations are going to have to live with and I don't really think it's our choice to destroy something that they are never going to get to see.

**MATT DAMON (On-Camera)**

When it comes to climate change there are no easy answers or quick fixes. It's not as if we can push a button and suddenly stop emitting carbon into the atmosphere. But when it comes to oceans, fortunately there are communities in the world that are beginning to find new ways to stop the destruction of our marine environment.

(Belize)

Forty miles off the coast of Belize, on a small Caribbean island called Laughing Bird Key, the rhythms of life are defined by natural forces, like the wind and the currents. Several months each year, during the time of the full moon, something extraordinary happens.

(Spawning)

Just below the surface of the water tens of thousands of reef fish, snapper and grouper, converge on a spot called Gladden's Spit. Their bodies are big and ripe and ready to reproduce. The mating frenzy begins when the females, in a swirling motion, suddenly release their eggs. Following behind the males release their sperm to create an underwater snowstorm. The spawning season also attracts scientists from around the world.

**WILL HEYMAN****The Nature Conservancy**

We swim right into the school of these things so you're just looking around and it's just solid fish. It's just unbelievable. Fish aggregate to spawn because the physical oceanographics are such that you get convergent currents at a reef promontory which take larvae offshore and away from the reef. It can be pretty spooky being in one of these milky spawn clouds and just looking around -- you really don't know what's coming at you.

(Whale Sharks)

What's coming at them is the largest fish on the planet. Up to 60 feet long, whale sharks come to feed on the dense cloud of eggs that the spawning fish produce.

(Fishing Boats)

Several years ago Marine biologists discovered a problem. At the start of the spawning season local fishermen were catching tons of fish before the snapper and grouper had a chance to reproduce. When the fish populations declined the whale sharks began to leave in search of more prolific spawning sites.

(Measuring Fish)

Everything changed when local officials created the Gladden Spit Marine Reserve. The catch is now carefully monitored and recorded. During the spawning season fishing is limited.

(Whale Sharks)

Within a few years the fishery rebounded. And then the whale sharks returned and with them came a new source of income -- eco-tourism. Brian Young used to be a fishermen, now he's a tour guide

**BRIAN YOUNG**

We all want to get real tight together so we can simulate the spawning. It looks like the spawning with all the bubbles going up and that will attract the shark. They are down there with the fish, swimming around waiting for the spawning to start. So if we simulate something like that, they come in for that.

The lesson learned from the success of the Gladden Spit Marine Reserve is simple. When a fishery is saved there are often unexpected benefits, like the once in a life-time opportunity to swim with the largest fish on the planet.

**FEMALE TOURIST**

Incredible. There were dolphins flying over there and a whale shark under us. It was incredible.

**BRIAN YOUNG**

There's one right on the surface right there. Right behind you.

**MALE TOURIST**

Bryan, do all your people get this excited when they see them for the first time?

**BRIAN YOUNG**

Oh man, I'm feeling excited myself.

Here in Belize the protection of a fishery not only helped the people of Laughing Bird Key, it's joined Florida's Dry Tortugas reserve as a model for marine communities around the world.

What we need now are the efforts of people everywhere, all those who are willing to find ways to strike the right balance, between what we want and what the oceans can provide.

**MATT DAMON (On-Camera)**

Though separated by distance and culture, for the six and a half billion people who draw sustenance from the rich diversity of the natural world, there are common bonds, bonds that are renewed by each generation, bringing new ideas, new attitudes, new hope for the state of the world's oceans. Planet Earth. This is our home. This is where our journey of discovery must begin.

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