



Journey to Planet Earth

**Transcript for Episode 10:
State of the Oceans Animals**

Abridged Version

Journey to Planet Earth is produced by

**Screenscope, Inc.
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(Ocean Surf)

We have always been drawn to the edge of the sea, to the rhythms of nature, the power of the surf, and the urgency of the tides. Above all, we were tempted by the mystery of the unknown. But when we finally found ways to venture into the deep, what we discovered was beyond our wildest dreams.

(Ocean Animals)

Here was an unspoiled universe of natural beauty; a living tapestry of biological diversity, a landscape overflowing with the promise of an inexhaustible resource. But contrary to what we have always believed, the abundance of ocean animals is in reality an environmental illusion. Today, our oceans are fast becoming dead zones and marine animals are telling us that something is going terribly wrong. Their mute pleas speak volumes about the unfolding drama. What was once ablaze with color is rapidly becoming a world without life.

MATT DAMON

How could this have happened? How could we have allowed so many of our ocean's animals to be on the brink of extinction?

THE KILLING MACHINES...

(Trawlers)

Stalking the world's oceans are thousands of giant 400-foot trawlers. Some people call them floating "fish factories" -- others call them "killing machines." With nine thousand foot nets sweeping up everything in their path -- these ocean monsters are literally clear-cutting the deep sea. They can catch as much as one million pounds of fish in a single day. Ironically, the commercial fishing industry calls it "the harvesting of the world's oceans."

SYLVIA EARLE

Explorer In Residence
National Geographic Society

Although we talk about harvesting the sea, it's a misuse of the word if ever there was a misuse. We don't plant fish in the ocean. We go out like hunters and gatherers, track them down, find them, extract them.

Day and night these floating factories process and freeze everything right on board. Whatever is un-saleable is discarded.

CARL SAFINA

Ecologist

About a quarter of everything that is caught in the ocean, is not wanted or not marketable or not as valuable as some of the other catch so it goes overboard.

The amount of by-catch is staggering. Each year over 50 billion pounds of fish are killed and then thrown back into the sea.

SYLVIA EARLE

In half a century we have lost on the order of 90 percent of the big fish in the ocean. I say lost, actually, we haven't lost them. We've captured them. We've consumed them. We've eaten them.

Though our fish markets may give the impression of an inexhaustible resource, what we are really seeing is the consumption of the final 10 percent of the world's fisheries. The impact on the developing world is enormous, particularly on the fisheries off the coast of Africa, in places like Senegal.

CARL SAFINA

As northern waters have been depleted some of the fishing boats from places like Europe are turned south and have started fishing very intensively off African countries

But local fishermen can't compete with mechanized trawlers from distant shores. The result, severe food shortages for those living along the coast.

ROGER PAYNE

Whale Biologist

One point eight billion people have as their principal source of animal protein fish from the sea, seafood basically and what happens if you remove from those 1.8 billion people their major source of animal protein. Well I think you have a problem.

MATT DAMON

Fortunately there are places where communities and scientists have joined forces, to find ways to co-exist with the natural world.

ANCIENT MARINERS...

(Montage of Turtles at Sea)

Like the shark, sea turtles have been wandering the oceans of the world for millions years. They have survived the extinction of the dinosaurs. But now, like most other marine species, sea turtles are desperately trying to survive the perils of the industrial age. Each year hundreds of thousands are drowned in fishing nets or killed as by-catch by the fishing industry. This has put an entire species on the brink of extinction.

(Research Boat in Lagoon)

Helping to reverse the trend is Lew Ehrhart, a biology professor at the University of Central Florida. He and a cadre of student volunteers are developing ways to monitor and protect these ancient creatures. Today their mission is to capture and study loggerhead turtles.

LLEWELLYN EHRHART
University of Central Florida

It's a little like fishing. Sometimes the fish are biting and sometimes their not. Okay. We got a loggerhead. Here we go! It's a beautiful loggerhead. Typical Indian River Lagoon loggerhead. Flip her and then get a rear flipper also Terry's got it stabilized with the front flipper. Don't let him bite you!

The loggerhead is quickly transferred to a larger boat. Then it's tagged, measured, and weighed. Before it is released, blood and skin samples are also taken.

LLEWELLYN EHRHART

The blood sample is used for DNA genetic work. We're interested in the long-term trend in marine turtle abundance. It's impossible to manage the recovery of an endangered species if you don't do that. So she weighs a little more than I thought she did. More like 140 pounds. These sea turtles don't mature until they're 25 or maybe even 30 years. They don't even start to breed and we know they breed for at least 20 years -- maybe a lot longer than that. She's a long way from being old enough to breed; probably as many as ten years before she shows up on the nearby beach.

(Quiet beach)

For thousands of years Melbourne Beach, Florida offered nesting loggerheads the security of isolation. Today the turtles must share their ancestral breeding grounds with tourists.

(Match dissolve to tourist beach)

Despite a growing population, this 20-mile stretch of sand is one of the largest sea turtle nesting areas in the world and Melbourne Beach has become an environmental success story. Scattered all along the sand dunes, even between beach chairs and blankets, are clearly marked sea turtle nesting sites, strong symbols of a community's decision to protect and coexist with an endangered species. But when day slowly turns into night, Melbourne Beach becomes the sole domain of these ancient mariners.

LLEWELLYN EHRHART

We've got a loggerhead on the beach above us here. She's just come out of the surf. She's moved up on the beach and has prepared the nest site.

That's when Lew Ehrhart's team goes back to work, measuring, tagging and counting turtles.

LLEWELLYN EHRHART

It's basic biological information that is fundamental to the conservation and management of a threatened species

Over the next thirty minutes this loggerhead will lay just over 100 eggs. Though only one in ten thousand will reach maturity, this survival rate is enough for the continuation of the local population. Along this stretch of beach, each year the loggerheads will lay over two million eggs. When the turtle is finished, she covers her clutch with sand and slowly makes her way back into the ocean.

LLEWELLYN EHRHART

Here she goes! Heading back to the water.

The good news is that in recent years the population of loggerhead turtles along Melbourne Beach has nearly doubled. However there may be an unexpected twist to the story. In 30 years, when loggerhead hatchlings return to reproduce, will the nesting beaches of Florida still be there?

DAVID GODFREY

Caribbean Conservation Corp.

One of the things that's really a concern to those of us in Florida is how sea level rise and global warming are going to impact turtle nesting beaches, and when you do things like build sea walls on the beach you're drawing a line in the sand and saying, this is where the edge of the beach can come to, and everything in front is available to turtles, but everything behind is locked up for homes or swimming pools or parking lots or roads, and that's just not going to work over the long term.

LLEWELLYN EHRHART

The sea turtle nesting habitat is between the jaws of a vice. The jaw on the right is the rising sea level, the jaw on the left is the constant effort to build higher and higher sea walls and to hold out the sea

DAVID GODFREY

I'm optimistic that people care and they're willing to do what it takes to save turtles. We just need to make sure that our politicians, our decision makers at the national, state, and local level realize that people care enough to make hard decisions to save turtles.

(Hatchlings)

Two months after the eggs are laid, loggerhead hatchlings begin their march to the sea. Once swept away by the tides, the only ones that will ever again touch land are adult females. But the question is, when they return to nest in thirty years, will Melbourne Beach be underwater?

MATT DAMON

But now scientists tell us that climate change and sea level rise could be responsible for the extinction of not only sea turtles, but thousands of other marine species, even those living in the most isolated part of the world.

MEDIA STARS...

(Scenes of Antarctic)

Covered with an endless blanket of snow and ice, the Antarctic is one of the most forbidding places on Earth. Yet this seemingly sterile polar desert is teeming with life. And no other animal symbolizes the Antarctic like the Emperor penguin. Celebrated in blockbuster movies, they have become media stars, media stars with major endorsements.

(Coca Cola commercial)

But what their fans too often over-look is that Emperor penguins are more than just loveable animals. They are the only birds hardy enough to brave the extremes of Antarctica, winter and summer. To learn more about penguins, scientists have set-up research stations near emperor nesting sites. They are studying how these birds can adapt to harsh conditions. Gerry Kooyman feels a strong bond to this place. He has been coming here for over thirty years.

GERALD KOOYMAN

Scripps Institution of Oceanography

A typical day in the Antarctic, or my favorite day anyway, is when we're in the field. The field means that we're in a remote camp which is a necessity if you work on Emperor penguins. A lot of it occurs on the colony where may be doing weights and measures of the birds or attaching instruments for remote monitoring

To study penguins underwater, electronic instrument packages are glued to their feathers. The equipment will monitor the duration and depth of each dive as well as the penguin's heart rate. When the procedure is done, the protective cover of the tent is removed and the Emperor makes its way back to the colony. Only now, this slightly awkward movie star is armed with a radio transmitter and is about to play a leading role in an important scientific investigation.

The study begins when these clumsy flightless birds enter the water and suddenly become aquanauts. Scientists constantly monitor their activities. The data reveals that by slowing their heart rate, emperors can hold their breath for up to twenty-two minutes, reach depths of over fifteen hundred feet, while swimming in the frigid waters of the Antarctic. These are extremes unmatched by any other bird on the planet. But now there is a new extreme on the horizon and it's one that the mighty Emperor penguin may not be able to handle. Global warming is beginning to melt the sea ice surrounding the Antarctic and it could lead to the extinction of the species.

GERALD KOOYMAN

Emperors have to have sea ice; they can't get along without it. They are probably the only species that may never set foot on land and that's because they don't need to.

Incapable of negotiating the rough terrain of the Antarctic's mainland, these flightless birds have no other choice than to reproduce and raise their young on sea ice. If the sea ice goes, so go the Emperors.

MATT DAMON

Though the full impact of climate change may be only decades away, there are other threats to wildlife habitats that have already surfaced.

RIVER OF DREAMS...

Shrouded in early morning fog there is a small spit of land tucked away in a remote corner of Northern California. This is where the Klamath River meets the Pacific. Working these waters are members of the Yurok Tribe, descendants of the indigenous people who thrived in this part of the world over 8,000 years ago.

Since daybreak they have been preparing their nets and traps, waiting for the salmon to begin their upstream migration, to the spawning grounds of their birth. After hours of waiting, the Yurok fishermen sense that something is wrong, something is keeping the salmon from coming home. Even the sea lions and gulls are becoming impatient. Pacing the shore is Raymond Mattz. He's a tribal elder who's fished these waters since he was a boy. Today he's concerned about the state of the local fishery.

RAYMOND MATTZ

It's really hard on the native people here. I was born and raised on this river and I fought for the fishing rights here and I seen this river, a lot of things happen in this river. A lot of things.

Once, not so very long ago, vast stands of ponderosa and redwood forests surrounded the Klamath River. Its crystal clear waters helped make this the third richest salmon river in the country. Its bounty sustained the indigenous people who fished along these shores. And until the early 1900s this was a healthy ecosystem in balance with nature.

But then government agencies started to reshape the Klamath watershed. Forests were clear-cut and wetland ecosystems were destroyed. A series of dams were built to generate electricity and to divert enormous amounts of water to help tens thousands of homesteading farmers irrigate their land. For decades there was barely enough water for agriculture and the salmon. Then in 2001 an historic two-year drought hit the Pacific Northwest with a vengeance. There was no longer enough water to satisfy everyone's needs.

MAN #1

White man is the only species being considered.

Suddenly anger and frustration broke out as farmers and Native American fishermen battled over water rights.

WOMAN #1

You're fighting for one fish.

WOMAN #2

It's about the water. If there's no water, what are we going to do?

It soon became a political issue.

MAN #2

There's a balance that needs to be reached. The federal government is ignoring our needs.

Ultimately the federal government made a decision.

MAN #2

My pain is right here. My baby's -- my baby's pain. Not being able to go out and fish.

The indigenous tribes lost the fight, the farmers got the water, and the Klamath River was reduced to a trickle.

(Dead fish)

On the morning of September 19, 2002, though there was very little water in the river, the salmon started their spawning migration. Within hours, suffocating in water sapped of oxygen, the fish started to struggle, then they started to die. Soon hundreds of salmon lined the shores. Day after day they kept washing up. Three days later as many as 80,000 fish were dead. It was one of the largest salmon die-offs in American history.

(Klamath River fishermen)

That was then -- this is now. After hours of waiting, the Yurok fishermen finally net a spawning salmon. But this is one fish that won't end up on their dinner table. Instead it is quickly turned over to a team of biologists.

JOSH STRANGE

Research Biologist

We're conducting a study of adult Chinook salmon migration in the Klamath River watershed. And what we're trying to do essentially is describe their migration patterns and understand what's driving those patterns, especially in terms of the temperature and flow of the river.

Their immediate objective is to measure, tag, and take DNA samples of the salmon, and then get it back into the river before it dies.

JOSH STRANGE

It's kind of like a two-minute drill in the NFL. We're trying to really move it along, keep it under two-minutes from the time that we get the fish to the bank to the time we let it go.

RAYMOND MATTZ

They tell me if the dams are out and we get three inches of water this river will come back to life the way it was in the early hundreds. I ain't really got any words for it any more, you know. I mean fighting, fighting here and just getting where it's I don't know we got to do something about it. I love this river. I love being here. I like to see my grand kids grow up and see what I seen. I'd like to see it before my time

MATT DAMON

However there are glimmers of hope. After years of public protest, federal agencies are finally pressing for the removal of the dams. But what happens when even a global protest may not be enough to stop the slaughter of one of our most treasured animals.

AN UNLIKELY HERO...

California's Monterey Bay overlooks one of the most diverse marine ecosystems in the world. Its waters teem with life. Each year millions of tourists thrill to the rich variety of sea mammals living or migrating through the bay. The health of Monterey Bay is a remarkable story, and it's all because of an unlikely environmental hero, the sea otter.

Small, cute, and furry, when not playing or eating, they're usually floating on their backs like aquatic teddy bears. Ironically, it was their thick soft fur that got them into trouble. Hunted to the brink of extinction, by the time it was outlawed, the otter population in Monterey Bay dropped from 16,000 to about fifty.

STEPHEN PALUMBI

Well so big deal. It turns out it is a big deal because otters are voracious predators. They eat a huge amount of their body weight per day in seafood. They eat fresh shellfish all the time. They eat abalone and sea urchins. So without the otters around, the abalone and sea urchins abounded and they destroyed the kelp forest.

But it was the kelp forest that sustained the rich biodiversity of Monterey Bay. Kelp is a giant weed stretching from the sea floor to the surface. It also provides a sanctuary for hundreds of species of fish and marine life. But when the otters were wiped out their preferred food, sea urchins and abalone, proliferated and devoured the kelp beds of Monterey.

STEPHEN PALUMBI

So along here in the early 1900s you'd see all these beautiful rocks but you wouldn't see any kelp and you wouldn't see very many of these birds and you wouldn't see a lot of the other life that's really here because the kelp forest was gone.

Thanks to federal protection laws the number of otters slowly increased to about 2,500. Their recovery had a dramatic impact on the kelp forest.

STEPHEN PALUMBI

And by 1968 only four years after the otters came back we were teaching kelp forest ecology classes on this shore. It was so vibrant and so thick.

And when the kelp forest came back the health and diversity of Monterey Bay flourished. However recent discoveries uncovered a disturbing trend: the growth of the sea otter population is slowing down.

(Hunting for sea otters)

About a half mile off the coast a team of marine scientists are racing through choppy seas on a high-speed chase to capture a sea otter.

TIM TINKER

Our shore spotter, Michelle has located a group of three otters -- one of which needs its tags replaced. So we're going to see if they're in a location where we can capture them.

Jack Ames, Brian Hatfield, and Tim Tinker are on a mission to recover electronic sensors implanted in sea otters. This may provide information about what is happening to the otter population.

TIM TINKER

One of them has a radio so it's missing a tag but it still has a working radio inside it.

The only way to safely capture otters is from below, while they're sleeping. As Jack and Brian prepare their equipment, the on-shore team discovers that the sleeping otter is not alone. It's with a young pup. Now the team must capture both animals or abort the mission.

TIM TINKER

And right now she's the farthest away of all of them. But that could change.

BRIAN HATFIELD

Neither of those have tags.

TIM TINKER

Neither of these have tags. Right. Exactly.

(Divers enter water)

When the divers enter the water they must navigate through a quarter of mile of dense kelp forest. Swimming against a heavy current and with limited visibility, a capture under these conditions is no easy task. Everyone's attention now focuses on the sleeping otter and her pup. The divers are now just below the otters. This is the most critical part of the hunt. If the otters wake, they will escape before the trap is set. Mother and pup are unharmed, though neither are very happy. Once the otters are aboard the boat, they are rushed to nearby Monterey Bay Aquarium.

(Medical facility)

That's when a team of veterinarians take over. Led by Doctor Michael Murray, their first task is to sedate the mother otter. Then they begin to gather data.

MICHAEL MURRAY

We need to collect a whole series of blood samples, urine samples, and measurements. We're trying to answer big picture questions, what is the health of the sea otter population. In this older lady you can see her teeth are in pretty rough shape. And that's pretty typical for old sea otters. She's probably 14 or 15 years old. The fact that she still has a pup is really a testimonial to her tenacity and how good a mom she is. What we've been finding over time is that there is an alarming incidence of disease. Infectious disease specifically in sea otters. So by looking at individuals like this lady we'll try and hopefully be able to answer the questions a little bit better.

Though scientists still haven't discovered what is harming the sea otters, they know it's vitally important to continue to monitor the animals.

MICHELLE STAEDLER**Monterey Bay Aquarium**

Otters are actually good indicators of what's going on in the ocean. If these animals are sick then the ocean isn't doing very well either and that also could affect us in the long run.

(Otter and other Exhibits)

Just a few feet from the operating room, the sea otter exhibit at the Aquarium draws big crowds. Though back from the brink of extinction, conservationists are keeping a close eye on them, to ensure their survival as well as the health of the kelp forest. However these highly popular animals are doing much to advance their own cause. The otters and the other star attractions of the aquarium bring in hundreds of thousands of curious visitors each year. They inspire and motivate people to learn more about the conservation of the world's oceans.

MATT DAMON

However difficult it is to protect wildlife, it's a testament to the power of human ingenuity that we are finding ways to co-exist with the animals of the natural world.

But in the end, perhaps the biggest challenge to the state of the ocean's animals is recognizing the seriousness of the problems that lie ahead.

CARL SAFINA

It's sometimes very easy to get depressed about a lot of bad news in the ocean. And the oceans are sick but they are not dying yet. They may be down but they are by no means out.

LEON PENETTA

It can happen. We can restore this resource. That's the good news. But to do that we've got to make a fundamental commitment that the ocean is important to all of us.

ROGER PAYNE

We could be the most beloved generation that ever lived or we could be the most vilified generation that ever lived because people will know that we understood the problems and didn't do anything about them.

The urgency to avoid the loss of the world's ocean animals presents us with enormous challenges. 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

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 ocean's animals. Planet Earth. This is our home. This is where our journey of discovery must begin.

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