

**SAVING THE OCEAN  
COD COMEBACK? TRANSCRIPT**

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TEASE

**Carl Safina (narration)**

On this edition of Saving the Ocean, the famous codfish.

For 500 years the cod seemed unlimited.

Then their numbers collapsed. Lives were destroyed.

**Canadian Fisherman**

...before us the fishermen.

**Carl Safina (narration)**

Can cod come back?

**Roger Woodman**

...the real deal right there.

**Carl Safina (narration)**

To find out we're searching for baby cod...

We're going deep to the sea floor...

And we're fishing with a new breed of cod fishermen.

**Ed Snell**

So that's a good bunch of cod.

**Carl Safina (narration)**

I'm Carl Safina. Join me now for Cod Comeback?

## FUNDER CREDITS

### **Announcer**

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## INTRO

### **Carl Safina**

Hi, I'm Carl Safina. No matter where I travel I always return here, to walk, feel the seasons change... I've been coming here since I was a kid.

Now I'm a marine biologist and I write books about the ocean -- that magic, majestic, two thirds of the planet that starts right there in the surf.

In my travels I see pollution, overfishing, coral reefs in trouble. But I also meet inspiring people, working to solve problems.

In this series, we visit people with solutions, and places getting better. So I hope you'll join me on these journeys. It's all about Saving the Ocean.

## **COD COMEBACK?**

### **Carl Safina (narration)**

It's early morning on Boston's fish pier. A boat's come in from the offshore banks, and it's unloading the catch – unloading the famous New England cod.

Codfish were once the foundation of New England's wealth.

Nearby in the Massachusetts state house hangs the “Sacred Cod”, as it's known, carved in 1784.

Today just 17 boats are left in Boston, overshadowed by the slick new office blocks of a modern American city.

What's happened to New England's cod?

I've come 300 miles up the coast to Frenchman Bay in Maine. We're going to look for cod.

**Carl Safina**  
Morning.

**Roger Woodman**  
Good morning, Carl.

### **Carl Safina (narration)**

This beautifully restored schooner belongs to Roger Woodman, a retired fisherman who promotes the Maine seafood industry.

There were once hundreds of schooners like Roger's in the region, working boats that went out every day for cod.

### **Carl Safina (narration)**

The boats didn't need to sail more than 20 miles out to get cod: there were rich inshore fishing grounds up and down this coast. Then in the 1920s cod began to disappear from whole areas – the fishing stopped.

**Roger Woodman**

The fish are not here. Now you don't have overfishing, you haven't had it for all this time. And historically it was here.

**Carl Safina**

Yeah. This was a very very prolific fishing ground right here.

**Carl Safina (narration)**

We'll come back to Roger's schooner, but first take a look here in this Boston suburb. It's a branch of the National Archives, holding more than 1500 logbooks from 19th century New England fishing schooners.

The Federal government paid a bounty on cod, to encourage the strategic shipbuilding industry, and because cod export duty was a key government revenue source. Captains had to submit their logs to claim the bounty.

The logbooks now provide a bounty for historians.

Here's the schooner Emeline, which sailed out of Tremont, Maine, near the mouth of Frenchman Bay.

**Carl Safina**

So this is 1864.

**Karen Alexander**

We have the names, sometimes initials, but often full names of the fishermen. And then we have what they caught that day.

**Carl Safina**

That's just amazing that they kept records per individual fisherman. I'm very impressed about that.

**Karen Alexander**

Well, that's how they were paid.

The interesting thing about this log is this wonderful picture at the back of four men fishing off the side at anchor.

**Bill Leavenworth**

They were fishing with hand lines. These fishermen could tell what kind of fish was biting and how big it was. So they would know if they had a cod on the hook.

**Carl Safina (narration)**

While the inshore boats were catching cod inshore, larger schooners were sailing hundreds of miles to the offshore banks. European boats had been fishing on these rich grounds well before the Mayflower, but in the 19th century Americans arrived in a big way. Hundreds of boats sailed regularly to the banks, mainly from Massachusetts ports.

The logbooks show that in mid-century the offshore boats were bringing back about 50,000 tons of cod a year. The inshore boats landed even more – about 70,000 tons.

If the business of New England was cod back in colonial times, a century later it still was.

But there were consequences. I asked the historians first about the fishing on the offshore banks.

**Carl Safina**

So how do you put together a picture of what happened and how things have changed?

**Karen Alexander**

Well, in terms of cod, it's pretty grim. By 1858 this fishery was already showing signs of depletion. I mean they were having to fish longer days, they were having to stay out more. They showed all the signs of overfishing that we have today. And in the logs they described the fact that they were fishing harder and they couldn't catch as many fish as they used to.

**Carl Safina (narration)**

Offshore was declining, but inshore – like the Frenchman Bay region – though they didn't know it, they were heading for disaster.

**Karen Alexander**

To me the most amazing thing we've learned is how very productive these inshore grounds were.

**Carl Safina**

And you say how productive these 'were'. When did 'were' start to falter?

**Karen Alexander**

It was a slow trend downward. During the civil war, the period when we have these logs, there doesn't appear to be any decline in this inshore fishery. But by the 1870s, 1880s they were already talking about the decadence of the cod fishery.

**Bill Leavenworth**

There are grounds around the coast of Maine that produced a good catch of cod every year through the 19th and the first two, three decades of the 20th century, in which you will not find a cod today.

**Carl Safina (narration)**

It may be a fool's errand, but we're going to look for cod in Frenchman Bay. There's been no cod fishing here for almost a hundred years.

We'll be looking in different parts of the Bay, using various methods.

First, a net called a Scottish seine, that we lay out in a big loop, then quickly pull in. It should catch pretty much everything here.

We tried several casts of the net in different spots, and our catch...

**Carl Safina**

We got one small flat fish which I think is probably a black-back flounder or winter flounder.

**Carl Safina (narration)**

Well that makes sense – young fish are what you'd expect to find in this sheltered bay. But no cod

Now we're trying a baited longline, which fishermen adopted at the end of the 19th century. You have to watch out not to catch yourself.

**Roger Woodman**

That was the old-fashioned way, with a stick.

**Carl Safina (narration)**

Brian Tarbox, a local fisheries biologist, went down to check out our line. But all he could see was crabs eating our bait.

Even so, when we hauled in the line a couple of hours later, like all fishermen we were optimists.

**Roger Woodman**

Oh my god! It's a goddamn codfish!

**Carl Safina**

It's a codfish

**Roger Woodman**

No. Is it?

**Carl Safina**

Wow look at that. No actually, that's a pollock.

**Roger Woodman**

Is that a pollock?

**Carl Safina**

Signs of life in Frenchman Bay.

**Carl Safina (narration)**

It was still a good sign – a young pollock, a kind of fish that hangs out near the bottom, like cod.

In fact the bottom of the Bay looks pretty good, with healthy eelgrass beds in the sandy areas, and thick forests of seaweeds on the rocky parts.

Young fish love this kind of habitat, but here it's eerily empty – left to the crabs and lobsters, it seems.

**Jeff Bolster**

The throat's got to be ahead of the peak, Bill.

**Carl Safina (narration)**

Day two of our quixotic quest for cod, and we're joined by the historians who analysed the old cod fishing logbooks.

The idea is to look for cod where the 19th century boats always caught fish. We'll try an undersea peak they called "Cod Ledge".

**Carl Safina**

Down it goes.

**Carl Safina (narration)**

I'm using a modern rod and lures, but I'll do what the 19th century guys did with their handlines – jigging the lure up and down to attract the fish. The difference is we're the only boat out here.

**Jeff Bolster**

In the middle of the 19th century you'd have a boat maybe this size, could be smaller, not very many guys -- 5, 6 -- sometimes it'd be an old man or a boy but they'd each be tending one or two lines, each of which line had two hooks typically.

**Karen Alexander**

You would see sail all around. There would be a whole community of sail.

**Carl Safina**

How many boats made a living in this bay?

**Karen Alexander**

Well, probably in this bay, several hundred.

**Carl Safina (narration)**

I did start catching fish – mackerel, that also were caught in large numbers in the 19th century. But it's almost unimaginable what the two or three hundred cod schooners were pulling out of the water – around 100,000 fish a day, just in this 50-mile stretch of coast.

You don't need big boats and high-tech, industrial fishing to overfish.

**Carl Safina**

Bye bye.

**Carl Safina (narration)**

We decided to resort to some of that technology ourselves.

**Carl Safina**

So you saw some marks on the sonar?

**Roger Woodman**

Yeah.

**Carl Safina (narration)**

Roger was running the boat across the ledge, watching the sonar for dark blobs like this, a few feet off the bottom. They could be cod.

**Jeff Bolster**

The guys who were fishing here in the 19th century were getting big catches. They had an anchor, a compass, a lead line.

**Carl Safina**

After seeing the log books, I was hearing their voices in my head and thinking how astonished they would be to see things like sonar fish finders and GPS and even the engine and the radar and all this stuff, but I wonder if they would be more astonished that aren't any fish here right now.

**Carl Safina (narration)**

Tired of jigging and not catching cod, I gave the rod to Jeff.

**Carl Safina**

Oh! Look at that!

**Jeff Bolster**

Pollock. Look at that!

**Carl Safina**

That's a cod. We got a baby cod.

**Jeff Bolster**

We got a baby cod.

**Roger Woodman**

Oh my god! Have we?

**Jeff Bolster**

The red race here.

**Carl Safina**

Look at that. That is really something.

**Carl Safina (narration)**

Our baby cod is quite reddish – some biologists think it's a local, inshore strain. One theory is that all cod are split into separate, localised groups.

**Carl Safina**

The really funny thing is for all the fishing I've done, I've never caught a cod, and that would have been my first one if I hadn't handed the rod to you.

**Carl Safina (narration)**

But finally I was to be rewarded.

**Carl Safina**

We have caught... a cod.

**Roger Woodman**

That's a decent one. Yeah, alright Carl! That's the real deal right there. That's the real deal.

**Carl Safina**

I'm not sure I would say that much.

**Carl Safina (narration)**

My cod was more golden – maybe a different strain from the red one.

So we found cod in Frenchman Bay -- a very few. The cod that were abundant close inshore in New England have not recovered in a hundred years. We may have simply wiped out the inshore groups, and they might never come back.

**Canadian fishermen**

[Yelling]

**Carl Safina (narration)**

If ever we needed a reminder that cod are a way of life, the 1990s provided it. Catastrophe hit cod fishing up and down the Northeast US and Canada.

**Canadian fisherman**

He should appear before us, the fishermen.

**Carl Safina (narration)**

Canadian fisheries minister John Crosbie announced a total shutdown of Newfoundland cod fishing.

**Reporter**

Mr Crosbie, did you expect this kind of reaction when you brought this announcement down?

**John Crosbie**

I'm not doing this because I think it's fun and games or whatever. I'm making a decision based on the desire to ensure that the northern cod survives as a species.

**Carl Safina (narration)**

Other closures followed like dominoes. Within two years some of the world's most famous fishing grounds – fished for 500 years – had no boats on them: the Grand Banks, the Scotian Shelf, Georges Bank, the Gulf of Maine – closed.

What had gone wrong?

What happened was industrial fishing arrived. The steam trawler -- invented in Britain in the 1880s and soon adopted everywhere – had the power to drag a large net over the bottom.

People could deplete a fishery with hook and line, and even wipe out some inshore groups, but trawlers could go everywhere and catch everything.

Highly wasteful fishing became a standard practice – discarding small fish and less saleable species, all dead.

Trawlers became bigger, more powerful, with better navigation, fish-finding sonar...

Catches on the offshore banks and in the Gulf of Maine went way up. In the 1960s, over 100,000 tons a year of the desirable cod, haddock and flounder were caught just on Georges Bank.

It was a gold rush. Foreign factory ships joined in, were kicked out in the 70s, but then US and Canadian domestic fleets were greatly expanded.

The result: fish numbers dropped to a few percent of their historic levels. Here's an amazing statistic. The total amount of cod living in the Gulf of Maine today is about the same as the schooners caught in a single year, a hundred and fifty years ago.

But trawling does more than just catch a lot of fish.

These massive doors hold the net mouth open. They and the bottom of the net crash along the sea floor, stirring things up and smashing everything in the way.

You can't do this for decades and not have an impact.

This is a sea floor that's been trawled, filmed with a remotely operated vehicle 500 feet down in the Gulf of Maine. There's not much life, the rocks have been stirred up, there's not much living on them.

Now look at this: same depth, a rare untrawled Gulf of Maine area. There are sponges, anemones, lots of baby fish. It's a rich habitat that fish thrive in.

In these cold depths it takes a long time – maybe 20 years – for a sponge or anemone to grow a few inches. The good news is we're now seeing new growth in some of the areas closed in the 1990s. So in those areas the cod and other bottom species could come back.

Here's another piece of good news, something Canadian scientists have seen on the Scotian Shelf. It's been closed to fishing since 1993.

This is the main way scientists keep track of what's going on in the closed areas. It's a Canadian government survey boat, working on the Scotian Shelf. They do regular trawl surveys, returning to the same spots a couple of times a year, and trawling in the same exact way.

Below decks a team of biologists analyses every catch.

Large catch, small catch – it doesn't matter much. The important thing is to watch the trends.

They sort, they measure, they weigh, they look at stomach contents, they even take out the little ear bones that are used to find a fish's age.

The Scotian Shelf surveys saw the collapse of the bottom fish like cod in the 1990s. At the time, scientists thought cod would bounce back in a couple of years, but for 10 years numbers remained low. Then a slow increase began, and now they're sure it's here to stay.

The trawl surveys showed what happened. When the cod collapsed, the small prey fish cod eat, like herring, exploded in numbers. The herring live on tiny plankton, and they also eat cod eggs and baby cod too. The herring ate everything around. Then with nothing left to eat, the herring and other prey fish collapsed in turn. That gave the cod a window to begin to build up in numbers.

These ecosystem upheavals are taking years to play out, but the Scotian Shelf recovery is a great sign for cod everywhere.

We've come to Portland, Maine to meet Ed Snell. Ed's one of a new breed of small scale commercial fishermen.

The fact that he exists, plus the results of the fishing adventure we're about to embark on, are to me another great sign for the recovery of cod.

Ed's idea is to go back to less damaging hook-and-line fishing. Yesterday's catch was about 400 pounds.

**Carl Safina**

How long did it take you to catch these fish?

**Ed Snell**

Maybe six hours. This is a cod right here, market cod.

**Carl Safina (narration)**

Like any industry, commercial fishing is about balancing costs and market prices. Ed still doesn't know if he can make this work.

In part, it's going to depend on whether consumers will pay a premium price for top quality fish. The jury's still out.

But Ed's success also depends on the high-value fish, like cod, being out there.

**Carl Safina**

What makes Jeffreys a good place to fish?

**Ed Snell**

Well, it's kind of like an underwater ridge or almost like a mountain. You know all around it's six or seven hundred feet deep, up on top of Jeffreys Ledge it's 160 feet deep. So that causes upwelling and you get all the nutrients.

**Carl Safina**

The way I think of it is it concentrates all the food for everybody.

**Ed Snell**

Exactly!

**Carl Safina (narration)**

We're heading for a once-rich part of the Gulf of Maine that was heavily fished, first by the schooners, then the trawlers. It was closed in 1994, and never re-opened.

**Carl Safina**

Alright here we go!

**Carl Safina (narration)**

Today we're not fishing commercially, so we're allowed inside the closed area, and our catch limit is 10 fish each.

**Carl Safina**

Do you bounce this right on the bottom or you lift up a little?

**Ed Snell**

Yup. Especially if you're targeting cod, yeah.

**Carl Safina**

I just had a shot. Just had a fish.

Yes well, you know what they say about fishing? Jerk on one end waiting for a jerk on the other.

**Ed Snell.**

I've heard that, yeah.

Oh! There you go! You got one on there.

**Carl Safina**

Fish on!

**Carl Safina (narration)**

Like the schooner fishermen, everyone has a line over the side.

**Carl Safina**

It must be getting...

**Ed Snell**

There it is. That is a codfish.

**Carl Safina**

Very good. Look at that. Cod number 1.

**Ed Snell**

Oh, he's not a keeper. He's got to be 24 inches today but... here we go.

**Carl Safina**

And that took about 5 minutes. Impressive.

Okay. Is this a release?

**Ed Snell**

Yeah, but give his belly a squeeze for the pressure change. Kind of get the air out. Hear it go out, and then he'll go back in.

**Carl Safina**

Here we go. That was just about instantaneous, as soon as we got here. Of course, it was me fishing. You see the captain hasn't caught one yet.

**Ed Snell**

Matt's into one.

**Carl Safina (narration)**

Matt Mueller is Ed's crew. To keep costs down, there are never more than two crew on board.

**Matt Mueller**

Short cod. He's not a proper size.

**Carl Safina**

Really pretty fish. Real nice.

**Ed Snell**

Nice fish, Matt!

**Carl Safina**

Oh, beauty! Wow.

**Carl Safina (narration)**

Matt gets our first keeper.

**Carl Safina**

This is a Frenchman Bay quality cod here, winched up from 300 feet of water I might add.

Alright, a little comparison in size there. This one could probably eat that one. I'm going to let this one go. Oh, that's a nice one. Very nice.

**Ed Snell**

I think he might be a keeper actually.

**Carl Safina (narration)**

So if the cod do come back, should we fish differently in the future?

**Carl Safina**

Do you think that fishing could ever go back to fishing with hooks and lines, rods and reels?

**Ed Snell**

It's possible. I think you need to have a real serious kind of conversation as a, I don't know, as people on Earth as to what types of fish lend themselves to being commodities and what types of fish don't.

**Carl Safina**

What do you mean by that?

**Ed Snell**

Codfish, for a really long time was a commodity. It was fish, just generic fish, available for everybody real cheap, and I feel that's maybe a role that's better filled by fish that can be effectively farmed like tilapia or something like that. Not so much wild caught fish. I think the wild caught fish might serve more of a specialty market purpose where it's kind of a special occasion, to either get it or to go to a restaurant.

Oh wow!

**Carl Safina**

Oh fish wow! That didn't take long at all. Holy smokes. Wow!

**Ed Snell**

I'm hooked up.

**Carl Safina**

Triple header. Triple header

**Ed Snell**

What you got Matt? Nice cod.

**Carl Safina**

Oh! Nice cod.

**Matt**

Here comes Carl's.

**Ed Snell**

That's a nice cod.

**Carl Safina**

That's a whale cod

**Ed Snell**

I don't know about that. That's over 50 pounds. That one's probably...

**Carl Safina**

He says it's over 50 pounds!

**Ed Snell**

No, I said that one's probably 9 pounds.

Nice market cod.

**Carl Safina**

That's a nice fish. Very nice.

**Ed Snell**

And Carl's is the biggest. How did we get the host to get the biggest fish?

**Carl Safina**

Fabulosity! Look at that.

**Carl Safina (narration)**

I was truly surprised at how many cod were on Jeffreys Ledge.

**Carl Safina**

Still a little excitable.

**Ed Snell**

Like herding cats. Alright. So that's a good bunch of cod.

**Carl Safina (narration)**

This is not in the US, and not in Canada. These are cod in Iceland, which has a flourishing cod fishery, the best managed in the world.

These fish have gathered for spawning in a protected area. You can see how they like a sea floor with plenty of growth and structure.

Of course our expedition to Jeffreys Ledge was not a scientific survey – it could have been luck that we did so well. But scientists have seen sea floor organisms beginning to re-grow in the closed area we

were in. That, coupled with the start of cod recovery the Canadians have found on the closed Scotian Shelf, tells me that in closed areas the cod can come back.

But to keep a recovery going, we may have to have closed areas for ever. We could so easily go right back to overfishing. Fortunately there seems to be a spill-over effect -- already the fishing is improving around the edges of the closed areas.

Inside or outside areas closed to commercial fishing, we're going to have to be a whole lot more careful about how we fish. That's a real challenge, but I'm glad that people like Ed Snell are thinking about it.

For Saving the Ocean, I'm Carl Safina.

**Carl Safina**

OK. You can go now.

## **PRODUCTION CREDITS**

Host:

Carl Safina

Written, Produced & Directed by:

John Angier

Edited by:

David Berenson

Camera:

Dan Lyons

Additional Camera:

Ken Willinger

Underwater Camera:

Brian Tarbox

Location Sound:

John Garrett

Jason O'Neill

Sound Mix:

Richard Bock

Online Editor:

Bill Kenney

Kenton VanNatten

Maps, Animation & Series Title:

Jeremy Angier

Music:

Randy Roos

Associate Producers:

Maggie Villiger  
Anne-Marie Boyer

Special Thanks:

Diane LeBlanc, Priscilla Foley, National Archives Boston  
Tory Bramante, Atlantic Coast Seafood  
No Name Restaurant, Boston Fish Pier  
Roger Woodman, schooner "Alert"  
Mount Desert Island Biological Lab.  
Heather Kelsey, Connecticut Public Broadcasting  
Suzanne Taylor, Fisheries and Oceans Canada  
Massachusetts State House  
Massport

Footage and Stills:

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Erlendur Bogason  
Les Watling, Darling Marine Center University of Maine,  
University of Hawaii  
Trawl survey video by Don Clark, Fisheries and Oceans  
Canada  
Historic fishing grounds map courtesy Ted Ames

Executive Producers:

Carl Safina  
John Angier

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