

**SAVING THE OCEAN**  
**SHARK REEF TRANSCRIPT**

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TEASE

**Carl Safina (narration)**

On this edition of SAVING THE OCEAN, we're shark hunting.

**Demian Chapman**

If they get hold of you, the arm's probably coming out of the socket.

**Carl Safina (narration)**

And we're catching some magnificent monsters.

**Carl Safina**

That's a beast. Wow, wow, wow.

**Carl Safina (narration)**

Because of the trade in shark fins, sharks all over the world are in big trouble.

**Demian Chapman**

How much would you sell this for?

**Trader**

About 50 to 40.

**Carl Safina (narration)**

But here on Glover's Reef in Belize they're in great shape.

We'll find out why.

**Carl Safina**

I'm Carl Safina. Join me now for Shark Reef.

## FUNDER CREDITS

### **Announcer**

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The Kendeda Fund -- furthering the values that contribute to a healthy planet.

And by Okeanos -- foundation for the sea.

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

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

## **SHARK REEF**

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

We've come to the Central American country of Belize. It's a small country of less than 300,000 people, and it's blessed with rich ocean life.

But like many places, Belize struggles with over-fishing, and recently that's taken on a worrying new aspect. You can see it here in the market -- there are sharks for sale. That's why we're here.

### **Carl Safina**

We're on our way out to Glover's Reef, and we're going out to try to catch sharks, see if we can track them and learn a little bit about where they're going and what their home range is.

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

I'm with shark researchers who've been working at Glover's Reef for years. To get there we have to thread our way 50 miles out through reefs and channels.

That's Norlan Lamb, who's taking our camera equipment.

It looks like we're heading into some decidedly un-vacation-friendly weather.

Glover's Reef is an isolated offshore coral atoll. To get there we aim through a cut in the barrier reef, and out to face open ocean -- just as a storm comes in.

Three uncomfortable hours later, inside the sheltered lagoon at Glover's, all is calm.

### **Carl Safina**

We're here. We made it.

**Carl Safina (narration)**

The Belize coast is a magical place -- a maze of hundreds of islands, or cayes as they call them, mixed with patches of coral, all floating in an azure sea.

About 15 miles offshore there's a barrier reef, that forms the central core of a reef system stretching 700 miles from Mexico in the north to Honduras in the south. It's the world's second largest coral reef, after Australia's Great Barrier Reef.

Beyond the Belize barrier reef, isolated in the Caribbean Sea, lie three atolls -- rings of coral, enclosing shallow lagoons. One atoll -- 19 miles long by 7 wide -- is a marine reserve.

Outside the atoll is deep ocean, and inside is a shallow lagoon with hundreds of patch corals, as they're called.

Here's where the shark research is based, on a tiny caye at the edge of the atoll.

The entire atoll is a reserve, with restricted fishing, so it's a great place to study marine life in an undisturbed state.

Ellen Pikitch and Demian Chapman came here eight years ago to study sharks.

Last night's storm is still lingering, but that's not stopping us from going shark fishing.

We're inside the atoll, in the lagoon's sea grass beds. Three hours ago the researchers put out a longline, with about 20 baited hooks.

**Demian Chapman**

We have a shark. Nurse shark. You have to be real careful of these sharks because they bite, they're very, very strong, and if they get hold of you you're going over. OK. If you can grab its dorsal fin, Carl and then... What we try to do is be real gentle, so they almost don't know.

**Ellen Pikitch**

OK we've got to get it all the way up here. Hold the dorsal.

**Carl Safina**

Got the dorsal.

**Ellen Pikitch**

OK.

**Carl Safina (narration)**

Over the years Demian and Ellen have caught, tagged, and released about 800 sharks around the atoll, so now they often meet old friends.

**Ellen Pikitch**

I'm going to clean it up, so we can read the tag number.

**Carl Safina**

That number is 0556.

**Demian Chapman**

Tagged that last year.

**Carl Safina (narration)**

And now, shark surgery.

**Demian Chapman**

OK so this is a small, coded acoustic pinger. Though we can't hear it, it's sending out an acoustic signal about once every minute and a half.

**Carl Safina**

A beep in other words.

**Demian Chapman**

A beep.

**Carl Safina (narration)**

The shark is turned upside down, and it becomes immobile. It's a kind of defensive reaction.

**Demian Chapman**

So Ellen's going to hold the shark asleep.

**Carl Safina**  
OK.

**Demian Chapman**  
And you want to make an incision...

**Carl Safina**  
Right here?

**Demian Chapman**  
Right around there.

**Carl Safina**  
OK.

**Carl Safina (narration)**

We're going to implant the acoustic pinger, and I'm allowed to start the surgery -- under Demian's watchful eye.

**Demian Chapman**  
A little bit more.

**Carl Safina**  
A little more?

**Demian Chapman**  
Yeah. Very, very carefully, keeping the knife pretty shallow.

**Carl Safina**  
OK.

**Demian Chapman**  
And that looks good. If you just slide that in there.

**Carl Safina**  
Does it matter what direction it goes in?

**Demian Chapman**  
No. Slip it in the hole. Don't worry about the blood, it's just a little vein.

**Carl Safina**  
Yeah. Alright. It's going in.



**Demian Chapman**

OK now just push it straight down

**Carl Safina**

Yeah. It's in.

**Carl Safina (narration)**

I don't get to do the hard part. The tough shark skin is a challenge even for Demian, who's done this many times.

**Demian Chapman**

So we just broke a suture. So we're moving up a gauge, so about a five foot nurse shark takes the same suture as a horse or an elephant.

**Carl Safina**

That's amazing.

**Demian Chapman**

The suture will be absorbed, and, er, this heals... we've actually caught nurse sharks two days after surgery and this has sealed up. They have really good healing powers.

**Carl Safina (narration)**

The sharks are caught on thick stainless steel hooks, but the release is easy -- you simply cut off the barb, then back the hook out.

**Demian Chapman**

Good. OK, wait. Keep the hook in. OK. Good. Are you ready to swim, girl? Are you ready to swim?

**Carl Safina (narration)**

After surgery, our shark's in good shape, as are all the sharks around Glover's Reef. But elsewhere in Belize, and in much of the world, it's a different story.

Only one percent of Belize's rich fishing areas is in reserves. Some species are in decline, especially the most valuable ones like conch and lobster.

Big fish, once common, are a rarity in the market.

**Demian Chapman**

It's a big grouper.

**Carl Safina**

I wasn't expecting to see such big fish. That's an impressive fish.

**Carl Safina (narration)**

But less of a rarity in recent years have been sharks.

**Carl Safina**

... table full of jacks mainly, and a couple of sharks. Now without the heads I can't see what sort of sharks those might be. They're quite small, obviously. What do you think they are?

**Demian Chapman**

Um, this one, these two, I would say would be Caribbean sharpnose.

**Carl Safina**

Caribbean sharpnose, huh?

**Demian Chapman**

Yeah, they're a small species and so they're fishing the adults. This one is a juvenile. This is almost certainly a Caribbean reef shark. So what kind of shark is this right here?

**Fish seller**

This one is a blacktip.

**Carl Safina (narration)**

The locals have always eaten some shark meat.

**Carl Safina**

What about this little, this yellow...

**Fish seller**

This? This is a nurse shark

**Carl Safina**

Oh nurse shark. I can see by the tail now, yes.

**Demian Chapman**

Nurse sharks we've only seen in the market recently.

**Carl Safina**

Why do you think they've just come in? Is it anything to do with scarcity, or just changing tastes?

**Demian Chapman**

It very well could be to do with scarcity.

**Carl Safina**

What do you like to eat better? The nurse sharks or the blacktip sharks?

**Fish seller**

It doesn't matter to me. I eat any one of them.

**Carl Safina (narration)**

Now shark fins are in demand.

**Demian Chapman**

Can you sell the fins of the shark? Like to the...

**Fish seller**

The chinaman?

**Demian Chapman**

The chinaman. They buy the fins?

**Fish seller**

Yeah buy the fins, and fix it to their own soup.

**Demian Chapman**

They make it into soup. Yeah.

**Fish seller**

Soup, yeah soup.

**Carl Safina (narration)**

A skyrocketing demand for shark fins has reached every corner of the world. There's even a specialist fin trader here in the market.

**Demian Chapman**

How's it going?

**Carl Safina**

Good morning.

**Demian Chapman**

Hi. This is Carl.

**Trader**

You're welcome.

**Demian Chapman**

Do you have some shark fins for us?

**Trader**

That's right.

**Carl Safina**

Wow.

**Demian Chapman**

Hey, wow.

**Carl Safina (narration)**

The fearsome shark jaws and teeth make good tourist souvenirs. But here's the real business -- bags of dried fins. The trader keeps one bag just for Damian.

**Demian Chapman**

Each one of these is a different individual shark.

**Carl Safina (narration)**

These small fins have no market value, and Damian uses them to track shark catches.

**Demian Chapman**

This one here would be a very large animal, probably ten, twelve feet, something like that.

**Carl Safina**

Wow.

**Demian Chapman**

Whereas something like this one is obviously a much smaller animal.

**Carl Safina**

And how many different kinds of sharks does this represent, likely?

**Demian Chapman**

I would say we'd probably have about a dozen species here.

**Carl Safina (narration)**

DNA analysis will give an exact count, but probably every shark species in Belize is now being fished.

And here are the valuable fins. It took a dozen large sharks to fill this one bag.

**Carl Safina**

The thing that they actually make the soup out of is these, what they call the needles, which is the cartilage that supports the fin. And then they use these actually as a thickener in the soup. So the soup is often made out of beef stock or chicken stock, but it's thickened with these. And the fact that the sharks are big and strong and fierce is what gives it the appeal, right?

**Demian**

The prestige factor of eating a man-eater or a giant, magnificent creature. That's exactly right. So how much would this fin be worth? How much would you sell this for?

**Trader**

About 50 to 40, 40 to 50 dollars a pound.

**Demian Chapman**

40 to 50 dollars a pound?

**Trader**

That's right.

**Carl Safina (narration)**

Prices like this are driving a global trade of staggering proportions.

**Demian Chapman**

The estimates of how many sharks are taken for the fin trade is now somewhere between 22 to 75 million sharks annually are taken for the fin trade. Do you think there's more sharks now, or fewer sharks?

**Trader**

Right now I feel like sharks are more fewer right now.

**Demian Chapman**

There's more fewer?

**Trader**

Yeah.

**Demian Chapman**

So you think there's too much fishing on the sharks?

**Trader**

Well people have to go to fishing for a living, no?

**Demian Chapman**

Yes.

**Carl Safina (narration)**

We're back at Glover's Reef Reserve. You can't blame fishermen for making a living, but all over the world sharks now need protection, and that's what they get here.

The weather's cleared and we're heading out through a cut in the reef to the open sea.

The area out here is still part of the reserve.

Sharks like to hunt along the outer wall of the atoll, which drops off steeply into deep water. That's where we're setting our longline.

Survey fishing like this, repeated year after year, has allowed Demian and Ellen to build up an accurate picture of the Glover's Reef sharks, and how their numbers might be changing.

For the researchers, the catch on the longline was going to be just another data point. But for me it was going to be an absolute revelation. Sharks, and everything else in the reserve, are doing really well -- just the kind of story we focus on in this series.

**Demian Chapman**

We're going to check it, check this...

**Carl Safina (narration)**

Our first catch showed that sharks are breeding in the reserve.

**Demian Chapman**

It's a little wee reef shark. It's a little one.

**Carl Safina**

What a cute puppy. We're just going to put a little tag in its back, so he'll be identified for life. Hopefully a long life. Hopefully it'll get a lot bigger.

**Demian Chapman**

Push it. There you go. This one was probably born in July, so he's probably less than six months.

**Carl Safina**

Wow.

**Demian Chapman**

So it's just a fully functional little predator, and if I put my finger by his mouth he would bite me pretty hard.

**Carl Safina**

Yes.

**Demian Chapman**

Just give him a good push and then get your hands out of there.

**Carl Safina**

Right. Good luck buddy.

**Demian Chapman**

Alright. Oh yeah.

**Carl Safina**

It's a nice one.

**Demian Chapman**

Oh yeah, yeah, yeah. Ah, nice. Beautiful.

**Carl Safina (narration)**

Shark number two.

**Demian Chapman**

This is an adult male Caribbean reef shark

**Carl Safina**

That is one gorgeous animal.

**Demian Chapman**

And this one can take a hand, no problem. So...

**Carl Safina**

So let's all give him a big hand.

**Demian Chapman**

...just be real careful. Carl, will you put this shark to sleep for me?

**Carl Safina**

All I need to do is turn him upside down, right?

**Demian Chapman**

Yeah, and you hold both fins like that.

**Carl Safina**

OK.

**Demian Chapman**

And never take your eyes off the mouth. If it looks like it's going to bite you, let it go because it doesn't matter.

**Carl Safina (narration)**

This guy's getting a pinger implant.

Reef sharks are delicate...

**Demian Chapman**

Transmitter's on...

**Carl Safina (narration)**

...so this calls for Demian's speed. He hasn't lost a shark yet.



**Demian Chapman**

Transmitter's in the body. He's probably the terror of barracuda and grouper on this reef. This is like trying to do needlepoint and ride a bucking bronco at the same time. Tag's in. OK.

**Carl Safina (narration)**

Next, another very young reef shark.

**Carl Safina**

Alright ready.

**Carl Safina (narration)**

And they just kept coming.

**Demian Chapman**

Nice.

**Carl Safina**

Really nice shark

**Demian**

This is a recapture, of a Caribbean reef shark.

**Carl Safina (narration)**

Another recapture, like the nurse shark we caught earlier in the lagoon. It seems some of these sharks live here on the atoll for long periods. That's a key to protecting them, as we'll see later.

**Carl Safina**

Ready for the bolt cutters. Here we go.

**Demian Chapman**

You want to grab the dorsal fin? And watch out, this one is a bit of a biter. OK the hook is loose.

**Carl Safina**

Hook is out. Alright.

**Demian Chapman**

OK, one two, three. Bat out of hell.

**Carl Safina (narration)**

And in this case it was almost the shark from hell. Watch this, as it spots our underwater cameraman.

The shark bit the camera, fortunately for Rick. But it wouldn't let go.

**Rick Rosenthal**

This is a first.

**Carl Safina (narration)**

Rick surfaced with the shark still attached.

**Rick Rosenthal**

Just trying to get a shot, and he came right for the camera and bit it. Just trying not to get bit myself. Bit right on the handle. I couldn't get him off.

**Carl Safina (narration)**

We'd been giving Rick a hard time about the size of his camera, but he had the last laugh -- he could have been badly hurt.

**Rick Rosenthal**

That's why I want a big camera. I gotta get a bigger camera.

**Carl Safina (narration)**

Here's our next customer -- a large nurse shark, over seven feet long, two hundred pounds, fifteen years old.

**Carl Safina**

That's a beast. Wow. Wow, wow, wow.

**Demian Chapman**

That's what we call the Glover's Reef whale shark.

**Carl Safina (narration)**

Nurse sharks are not as aggressive as the reef shark that went for Rick, but they can still bite, and we're giving it plenty of reason to.

**Demian Chapman**

If he grabs you, it's curtains. If this thing gets hold of you, Carl, it'll roll and it'll rip your arm right out of the socket.

**Carl Safina**

Starting to twist a little.

**Demian Chapman**

Yeah, he's not liking it, but we'll do it real quick. I wonder if she's pregnant.

**Carl Safina**

Big female, with a big belly.

**Demian Chapman**

Yeah. This is a giant female ... whoa!

**Carl Safina (narration)**

We didn't want to mess with a pregnant female, and we didn't want her messing with us either. So it's a quick tag ...

**Demian Chapman**

Nice.

**Carl Safina (narration)**

... and go.

**Demian Chapman**

Watch out you're going to get slapped in the head.

**Carl Safina**

That is one big mama.

**Demian Chapman**

This is quite a long-term recapture right here.

**Carl Safina (narration)**

Finally, our sixth catch, another powerful nurse shark, and another long-term resident -- first tagged eight years ago, right at the start of the study.

**Demian Chapman**

Here you go, that's the perfect way. Got it.

**Carl Safina (narration)**

Again, it's a quick re-tag, then release.

Over the time they've been doing this tag and release work...

**Carl Safina**

Cut.

**Carl Safina (narration)**

...the researchers have found that, unlike so many places in the world, shark numbers in the atoll are stable. The question is, why?

That's what the other part of the research is about, using those acoustic pingers we've been implanting in the sharks.

Norlan Lamb and I are getting ready to replace one of the receivers that picks up signals from the pingers.

**Norlan Lamb**

Carl, you want to take this?

**Carl Safina (narration)**

Belize has been very smart with reserve design. Glover's Reef Reserve covers the entire atoll, but when the reserve was set up in 1993, fishermen weren't just banned from the whole place. In two-thirds of the atoll fishing is still allowed, but it's limited -- no destructive methods like big nets.

The acoustic pingers have revealed why that design has been good for the sharks.

We've found the anchor cable for the receiver, one of 21 spread around the atoll.

They just hang there in the water, recording hits from the pingers in the sharks every time one passes nearby.

Every six months the receivers are switched, so the hits can be downloaded.

**Demian Chapman**

Let's see what's in this.

**Carl Safina**

Very interested to see how this works.

**Demian Chapman**

OK just plug it in, off to the side...

**Carl Safina (narration)**

In fact this receiver had over half a million hits in six months, but most from just a few sharks. Like pinger number 4607, for example, which made all except one hit on this page.

**Demian Chapman**

We get some sharks that just pass by really quickly.

**Carl Safina**

Uhuh.

**Demian Chapman**

And we also get periods where they spend a lot of time in the range of the receiver.

**Carl Safina**

So this one hung around from 18.03 -- six pm, to nine o'clock, it looked like, in the evening.

**Demian Chapman**

I can actually tell from the codes who's who, because I tagged all these sharks, they're like my babies. So I know who's who, and that's an adult male. They usually spend their daytime down at about 300 to 1000 feet, down the bottom of the wall, and then they come up at night. So they seem to like to hunt in twilight.

**Carl Safina (narration)**

What they also like to do is stay in one place, and that's a key discovery. Take a look at the hits recorded by three receivers bordering the triangular no-fishing zone.

Here's one shark -- shark blue. It spent most of its time in the area near the middle receiver, with occasional trips around the atoll.

Shark yellow hung out around the left-hand receiver, with a few excursions.

And shark red preferred the right-hand area. These sharks basically live here, and the ban on shark-killing fishing gear means the whole atoll is safe for them.

**Demian Chapman**

The great thing about the design of this marine reserve is that, if you just had this area, where there's no fishing allowed...

**Carl Safina**

They'd get caught every time they went here, here and here. Even though they almost never go there, they'd only go once and not come back.

**Demian Chapman**

Yeah.

**Carl Safina**

We have a crab.

**Carl Safina (narration)**

We've left the Glover's Reef Reserve and we're now twenty miles away, in an area where all fishing is allowed.

The fishermen are pulling their net. It's about a quarter-mile long, and it's been out overnight.

**Carl Safina**

How long have you been fishing? How many years?

**Fisherman**

Thirty five.

**Carl Safina**

Thirty five years? Do you think that there's as many fish now as there was thirty five years ago? Or more, or less?

**Fisherman**

Not more.

**Carl Safina**

It's dropped a lot?

**Carl Safina (narration)**

Gillnets, as they're called, are very effective. They'll catch everything that comes through, sharks included. We just wanted to film a gillnet in action, but we -- and the fishermen -- were out of luck.

**Carl Safina**

It was shocking that a net that long, half a kilometre of net -- not one fish. That amazed me.

**Demian Chapman**

It's an enormous area. Those gillnets are just like vacuum cleaners, they just suck all the fish out of an area.

**Carl Safina**

The contrast between here and the reserve was so stark.

**Carl Safina (narration)**

Glover's Reef Reserve works, but most of the world's ocean is not in reserves. Shark protection will have to start on land.

Hong Kong -- hub of the global shark fin trade -- is one of China's increasingly prosperous cities. Shark fin soup -- once the food of lords and emperors -- has become just another affordable luxury, in demand all over China.

But Hong Kong is not typical of the rest of China. It's an independent-minded place, and that's where I find hope for the world's sharks. Take a look at this.

**Campaign video**

I pledge... not to eat shark fin soup. (Repeated)

**Carl Safina (narration)**

To avoid having the appetite for soup driving sharks to extinction, people are going to have to change, and in Hong Kong -- thanks to campaigns like this -- it's beginning to happen.

I don't know whether it's a result of this campaign, but shark fin soup consumption is down in Hong Kong -- though it's still increasing in mainland China. So maybe it's a start....

...and maybe the world's scary, aggressive, beautiful and vulnerable sharks won't just be confined to places like Glover's Reef Reserve.

For SAVING THE OCEAN, I'm Carl Safina.



## FUNDER CREDITS

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