Interview with Dr. Carl Safina

BILL MOYERS

How did you come to devote your life, as a scientist, to conservation?

CARL SAFINA

I grew up along the coast and my heart really opened there. I have wonderful memories as a child, of being in shallow water with my father holding one hand and me holding a butterfly net in the other hand, and catching minnows and putting them in buckets. I have a very specific memory of my mother taking me to the edge of a place where gulls were nesting on the south shore of Long Island, and holding her hat down in the wind, and these birds that seemed to me as enormous as condors, swooping in over their nests. And I was very frightened and she was squeezing my hand and we proceeded.

And then suddenly, there in front of me, was this nest. And I see it very vividly in my mind, this nest with these thick reeds and pieces of straw and these astonishing, large, brown speckled eggs, and the adult birds screaming and my mother just wanted me to see that. And we turned away and walked away. And it etched itself in my mind.

And then a little later on I went to graduate school to try to stay near the coast and develop an adult life that was meshed with animals and nature. And I studied sea birds and the relationship between sea birds and fish. And I always did a lot of recreational fishing. I just enjoyed being out.

But the woodlands that I had grown up near were being bulldozed for houses. And so I was sort of driven from the land, driven toward the coast as sort of a refugee. So I might have been a forest ecologist otherwise. But the nature that was left for us was that strip along the coast. And I got more and more involved in boats, messing around in boats as they say in *Wind in the Willows*, and I loved fishing.

BILL MOYERS

When did the ocean start sending you messages about what was happening?

CARL SAFINA

The trajectory of my experiences in fishing were sort of two-fold. One was this opening up of my life and the world around me because the greatest characteristic of water is its fluidity. And so each year the spring and summer and fall literally flows and ebbs around you as the water temperatures change, the new sea birds come in, the fish come in, and then they withdraw for the winter. So that was one experience. But the other experience was that over time, it

seemed that the world was closing down, because the fish that had been so abundant were declining. And it seemed that species after species everywhere you turned, things were diminishing. I started to run my boat farther and farther off shore following the sea birds I was studying, and running into animals I had never personally seen before, big sharks, giant sunfish, sea turtles, whales, tuna. And it seemed like this incredible untouched wilderness out there at first. I didn't know that we were already on the slope of a declining trajectory because it was my first interaction with it. But subsequent years showed that what was happening out there in this incredibly enlivened wilderness that I had discovered were the same things that were happening in shore. It seems like the world starts when you get someplace and then the clock starts to tick. The clock continues running, but now you're there. And that's what happened to me. So the tuna were declining and the marlin were declining and the turtles that we would see running off shore, we would see two or three turtles on average. Now, a hundred years ago you probably would have seen a hundred turtles. And I know many people who talk about counting the fins of a hundred sharks before lunchtime when they were young in the fifties. But I arrived in the eighties and we saw a few sharks at the surface and a few turtles. And then we saw fewer and then we saw none. And those were the messages that the ocean was sending me. I thought maybe we were having a few bad years. But when I started to take what I had learned as a scientist, which is where information sources lie, and I walked out of the bird literature and started flipping the pages on the fish literature in a different section in the library, I started to see that the reports were the same from all over. So, the question was, to me: why aren't people who think of themselves as wildlife conservationists aware that we have a crisis that wildlife are undergoing as soon as you step off the beach?

BILL MOYERS

What are the hard facts that disturb you about what's happening to the ocean? I mean, what are the specific things that are happening that curdle your spirit?

CARL SAFINA

There are mainly two categories that they fall into. One is that the wildlife is being diminished because we've caught it faster than it can reproduce. So, instead of living off the interest, we have mined the capital account of the oceans.

BILL MOYERS

What do you mean?

CARL SAFINA

We could approach the oceans. The oceans are very, very productive and if we want seafood and we want other products, we can approach the oceans by trying to figure out how much is produced that we could take without diminishing the part that's producing it, like you manage a bank account. You leave the principal and you live off the interest if you're responsible about it and you have a long term view.

If you know you only have a few years to live you might want to pace your spending so that right on the day you die you spend your last penny. Unfortunately we're acting as though we only have a few years to live. And yet we aren't terminal cases, at least not yet.

BILL MOYERS

You mean we're taking out fish faster than the oceans can sustain us if we keep doing it?

CARL SAFINA

We're taking fish much faster than the fish reproduce, in many cases. In at least a third of the important commercial fisheries, the fish that people like to eat and need to eat are depleted. We are ruining those. About another half are right at the very precipice of that slide toward ruin.

And some people say, well the glass is half empty and some people say the glass is half full. But the trend is not a stable one. It's not that the glass is half empty, it's that there's a hole in the bottom of glass, and that hole is the increasing pressure of more and more people. If we could say those fish are at their limit the way we're using them now, but we don't anticipate any increase in demand, we won't want more of them, well then, okay, fine. They're at their limit but it won't get worse.

BILL MOYERS

Talk about coral reefs for a moment. I think of them as beautiful pieces of art. Why are they so important to us?

CARL SAFINA

Coral reefs are important because they are the source for about half of all the fish that people consume. That's the most practical sense in which coral reefs are important to people. They also surround many low lying coasts and low lying islands and they shelter the shore line. They also are sources of animals from which we're finding increasing uses for medicinal purposes or in products like cosmetics, those sorts of uses. We also have mined the coral itself for building material. We enjoy it as ornamentation. We put it in fish tanks and we like to look at it. But that's the human use approach to it. And I think that it's because we only look at it in terms of what we can get out of it and we don't see a two way relationship or a sense of responsibility or an extension of community to encompass the living world around us that we rely on that we've gotten in so much trouble right now.

BILL MOYERS

So you're saying that coral is like the womb of the ocean. Life is nurtured there?

CARL SAFINA

Well in a broad band around the warmer part of the earth corals are little animals and they excrete these skeletons, they build habitat. It's a very unusual thing. It's analogous to the way that trees build a forest that other animals live in. Corals are animals that build a coral forest, in a sense, that other animals live in. And one of the animals that lives there is people. A tremendous number of people, millions of people in the warm parts of the world turn to the sea near shore. And those are mainly coral habitats. Once they get just a little ways away from land, it's fish from coral reefs that they need to survive.

BILL MOYERS

And what are we doing to the coral reefs?

CARL SAFINA

We're doing all kinds of things to coral reefs and almost none of it is good for corals or for people in the long run. We are mining corals, we are cutting forests and sending the silt down rivers and the silt is clogging the corals and killing it. We are polluting rivers with chemicals. We are warming the atmosphere in a way that's killing corals on an unprecedented scale.

In fact, the death of corals and the decline of coral reefs around the world is the first and only instance so far of an entire kind of ecosystem that is being sickened and is beginning to die because of the warming of the earth.

BILL MOYERS

I read in one of your articles that at current rates we'll lose 70 percent of the coral reef in the world in our lifetime.

CARL SAFINA

At current rates. If trends continue.

BILL MOYERS

Seventy percent. What would that mean to the earth?

CARL SAFINA

It will mean that a lot of people who live along the coast will lose their homes. And it will mean that a lot of people will go hungry. Not us in the United States. And this, I think, is one of the problems that we are buffered from feeling the problems that other people are faced with in a very imminent way. And a lot of those problems we are causing for them. I find that troubling.

BILL MOYERS

I saw a U.N. report that says 15 of the world's major ocean fisheries are depleted or overexploited. Does that strike you as reasonable, as sound?

CARL SAFINA

When it says 15 of the ocean fisheries, it means in 15 of the geographic areas that the U.N. fairly arbitrarily carves the ocean into. I think a better way of looking at it is 80 percent of the world's actual fisheries, not just the U.N. geographic sections, but 80 percent of the world's fisheries are either at their very limit of what they can produce without going into major long term decline, or are already in major decline, or depleted.

We've seen what was for 500 years the most important fishery in the world, in New England and maritime Canada, the fishery for cod that fueled the settlement of North America, it fed a large part of Europe, it fed the growth of the Caribbean, because of the exports of fish. For 500 years it was the most important fishery in the world, and it has collapsed. It's a shadow of what it once was. And that collapse has happened only in the last 20 or 30 years.

BILL MOYERS

What do you mean when you say it's collapsed? It's hard for me to imagine a fishing area collapsing. What do you mean?

CARL SAFINA

For about 30 years we fished so hard on that area that we caught most of the fish. Many of the major populations declined by 80 or 90 percent and boats when out of business in large numbers. People who had thought of themselves as fishermen or members of fishing families for generations saw their children leave town and look for other kinds of work. People were no longer able to understand who they were. That ... that's what I mean by collapse. We ate our way through that resource and it couldn't feed us any longer.

BILL MOYERS

So it's not just a matter of conservation you're talking about, it's economic. It's livelihood. It's the way people live and how we make our income.

CARL SAFINA

That's the effect of a lack of conservation. Those are some of the consequences. There are many ways to value natural resources. You can value them as inspiring. You can see them as other living things to which we have an ethical responsibility. Or you could just see it as meat that you want to convert into cash.

But no matter how you value it, your interests are better served by good stewardship and very poorly served by depletion. And so there are ecological and ethical and economic and social reasons for stewardship and conservation. Those things are fairly interchangeable.

BILL MOYERS

What if I don't eat fish? Are the oceans still essential to my survival?

CARL SAFINA

The oceans are essential to survival on planet earth. We could not have life without the oceans. We would not have the atmosphere we have. We would not have breathable oxygen without the oceans. The oceans buffer us from climatic effects that would be lethal. The oceans are what makes life possible. It's where life arose and it's what makes life possible. It doesn't matter whether you like to eat fish.

BILL MOYERS

And are the oceans are a kind of early warning to what's happening to the earth's environment?

CARL SAFINA

There were plenty of early warnings. I think we're pretty well into the warning phase now. I hear buzzers going off all around me.

BILL MOYERS

What kind of buzzers?

CARL SAFINA

The buzzers from the changes in atmosphere, what we've done to forests, the loss of biodiversity, the decline of ocean fish, the deterioration of coastal habitats, the increasing press of people and people and people who all want what people everywhere want. They want dignity, they want a little security, they seek education. You can't do that without resources.

BILL MOYERS

It's hard to imagine the ocean being exhaustible. You just think if it as teeming with life as the old cliché goes. So fish move from here to there and they may disappear for a while, but they always come back. That's not right, is it?

CARL SAFINA

No, it's completely unequivocal and it's just a fact that there were, a generation ago, vastly more fish than there are now. Many fish are very rare compared to what they were. People who were alive in the 1950's, people who were adults in the 1950's lived a very different experience. They were they were in a very different world with regard to all of our resources globally, the oceans as well.

There were fish right off the coast of New York here that were common. People caught swordfish. People made a living catching swordfish here by going out in the morning and coming back and having dinner with their families. Those fish are gone. They are gone from this coast.

Now if you want to make a living catching swordfish, you have to equip a boat that can stay at sea for a month, that can go anywhere from a hundred to a thousand miles, that can not just look for them with their fins out at the surface of the sea so that you can harpoon them, but you have to set thousands of hooks under water every night to catch about the same amount.

BILL MOYERS

You spend a lot of time with those fishermen. Can't they see the harm they're doing when they fish that way?

CARL SAFINA

Some people see the harm and others are actually too young to really see the trends. There are people who are 30-year-old fishermen who will say, I've been fishing for ten years and there's as many now as there ever were. Well, maybe in the last ten years that might be true. But talk to anybody who is 40 or 50 or 60 and they'll tell you about an ocean that you can scarcely imagine, really.

BILL MOYERS

Is it too late? Are we on the brink of extinction?

CARL SAFINA

No, I think in the sea it's not too late. On land, most of the problems that we've caused for wildlife have been that we've occupied their territory. So they just can't be there anymore. In the ocean, most of what we've done so far is to kill them. The place where they live is still there. And, to a large extent, they could recover. Now we've also deteriorated the habitat. A lot of our fishing practices hurt the habitat. When you drag these bottom trolls over the bottom it destroys a lot of the habitat that allows fish to live there. But that's very different than paving it or putting a farm there or putting a shopping mall or housing. It's still an open area that fish and other wildlife can re-colonize. And we have seen when you leave them alone they generally can come back, not in all cases that we've seen so far. And we haven't given very many of them a chance.

There are a few cases where we've left them alone and they've come back. In some cases they've come back really spectacularly. And I sometimes tell people that, what you were told the first time anyone ever took you fishing is all you need to really know about managing fishing. You were told, we'll throw back the little ones and we'll leave some for tomorrow. And that's all we really need to know in fishing.

If we want to affect climate change and stabilize what's happening with the climate, that's a very complicated problem. You have to change civilization's approach to using energy, and that is very complicated. But if you want fish to come back because you caught too many of them, all you need to do is have a minimum size so that the females can spawn a couple of times. And you have to have quotas that allow enough fish to produce the next generation.

We have applied that thinking in a couple of cases and we've seen fish that were very depleted come back pretty quickly, very quickly really, in 15 years, back from a point of depletion to a period of abundance, where people can actually catch them, more than they were catching when they were at the bottom.

BILL MOYERS

How does this situation in coastal Brazil compare to other parts of the world?

CARL SAFINA

It's very similar to what you find in the tropical areas around the world. It's very different from what you find in the temperate areas around the world. The main difference is that the scale of use there, you see a lot of these small fishermen, they bring up a trap, it's got a couple of fish in it. If you go to the cooler oceans and the deeper areas where people are fishing, you would find giant trawlers, absolutely the most sophisticated machinery and electronics that the space age and the industrial age could possibly bring to bear. With one pull of a net, bringing up 20 tons of fish. And then shoveling about a quarter of it back overboard. So those are some of the big differences. In fact, some of those people, the small-scale people, in some places, are very much feeling the effect of those bigger boats that are working off shore.

BILL MOYERS

These people are experimenting with letting their area rest and recover and then they come back and fish it. Is that practical for larger fishing grounds around the world?

CARL SAFINA

Yes, it's practical. Is it being done? Not yet.

BILL MOYERS

Why?

CARL SAFINA

I think the realization that it's needed is late in coming, and the denial that it will be useful is the first reaction. The first reaction is, we've been doing something, so don't let us change it. There is a discussion now about setting aside parts of the United States coast in these marine reserves. Everything we know about them is that they work. Everything we know about them is that if you let an area recover it produces benefits for people in addition to the other benefits. But, there's already a bill in the U.S. Congress to inhibit or make it impossible to declare certain places off limits to fishing, even though all the data shows that it works, for the ecosystem and for people. And a common theme in human myth and parable is the goose that laid the golden egg, right? We have this incredibly valuable thing. It gives us what we want and it gives us what we need. And we can't just leave it that way. It's really working but we kill the goose that lays the golden egg.

BILL MOYERS

Are we human beings just plain bad at thinking in the long term?

CARL SAFINA

Yes, I think so. We're certainly bad at acting like we think in the long term. And there are a lot of people who don't seem to want to think in the long term. Their lives are too immediate or they think the trends are too up and down and too static. They don't really see a trend. They'll say, "well yes, sure it's been bad the last few years, but before that there were always good years and bad years." But most of them are wrong.

BILL MOYERS

Why don't we act on what you scientists are telling us, because you seem to be in remarkable agreement, most of the scientific community, about the early warning signs that are happening? And then you can tell us about the cod fishing grounds off Massachusetts and other examples of...why don't we take the knowledge that you're producing in your research and acting on it?

CARL SAFINA

I think it's because we have a hard time acting on the long term. I think it's really just that simple. You know, they say an ounce of prevention is worth a pound of cure. Why do they have to tell us that? Because it's not our normal tendency.

BILL MOYERS

Well then there's the market, of course, which is driving returns, whether it's the return on

investments or the return on fish. How do we cope with that very real principal in human activity?

CARL SAFINA

Oh well, the interesting thing about that is that if we let the market work it would solve some of our problems, actually a substantial amount of our problems. In a lot of cases, with large-scale natural resource destruction a lot of it is driven, not by the market, but by subsidies that disrupt the force of the market for other reasons. Government helps farmers ruin the soil by giving them subsidies for practices that we know are harmful. Government gives fishermen subsidies for the kinds of boats that we know fish in ways that cannot be sustained in the long term. The United Nations calculated that to catch 70 billion dollars worth of fish around the world, the fishing enterprise spends 124 billion dollars to go fishing. That is not something that is scaled to the market. That is scaled to this reign of subsidization that is propping it up.

BILL MOYERS

Governments are subsidizing the difference between what it costs and what they earn.

CARL SAFINA

That's exactly right. Those things would be financially not viable if you just let the market work. Now I'm not saying that will solve all our problems, but it creates a very substantial percentage of the problems and it creates a lot of this problem of having the scale all out of whack, the scale of the enterprise to the scale of the resources and the rate at which the resources rejuvenate.

BILL MOYERS

How do you get a fisherman here to say and a fisherman there to say, hey, we're taking too much and we'll cut back, because we're doing too much damage to the ocean, when others won't?

CARL SAFINA

In some cases I think we've seen that when people do cut back they wind up getting more later on. It's a belt tightening enterprise. If you let it get to the stage where things are so marginal that any cutback means you're out of the game, it becomes very difficult. I think the problem is that before that point a lot of people remain in denial.

There are two ways to combat denial, one is by an infusion of information that you can really only infuse of you have the trust of people and if you work with them and you show that what you're saying is true, that you want to work with them for a better future while we still have options. The other option, the option of last resort, is to say we have this information and we have authority to manage activities in a certain way and what you're doing is harming the greater good. It's even harming your own good in the long term, so we'll make that illegal or we'll apply a quota to say that there's a limit to this now. You didn't have a limit when you started, when you were young. The sea seemed endless, you could catch as much as you want. But now we have to apply limits. And that's a civilized and accepted way of doing things. We apply limits to almost everything that we do. We have this feeling that we're a free society. We're free in some ways. We have the important freedoms, freedom of speech and things like that, but there are certain things that you can't do. Slavery is illegal. It's bad, you shouldn't do it.

There are a lot of people who said, I have to have slaves. I'll go bankrupt if I don't have slaves. Well, we said life will have to change. We don't want that anymore, it's bad for people.

That's not the civilization that we require to fulfill our potential as human beings. In natural resources it is very much the same. The reason we don't see it that way is that we have extended our sense of human community to include those people who were once thought of as non-human people who were slaves and property. We don't accept that view anymore. Now people are people. But with other living things, we don't extend a view of community to them. We see them as commodities. We don't see them as having any sort of rights to existence. We don't see them as having a role in our own existence, except that we just feel that we should be able to use them the way that we want. But we don't see that use entails certain responsibilities. Those responsibilities are ultimately to ourselves. Slavery was dehumanizing to slave owners as well as to the people. And the way that we treat natural resources now is harmful to the human enterprise and to our potential as human beings. But we don't really see it that way because we haven't extended a sense of community to encompass the living world and to say this is our community. This is what feeds us. This is what nurtures our imaginations. If you go into a child's room, what do parents paint on the walls? They paint pictures of animals. If you go into a hotel room, look at the art in hotel rooms, it's natural scenery. But there for some reason this is an unconscious thing that we do.

BILL MOYERS

Your analogy is very poignant. It does seem to me to break down on this point, which is that we don't eat other people for protein and sustenance. We do eat fish and, as you say, wildlife. So there's a need, we seem to have this need for those commodities.

CARL SAFINA

I'm not against using the oceans. And I'm not against using the world around us. I'm against using it up. We couldn't possibly have evolved without drawing from the resources around us. Plants draw nutrients, animals draw plants, some animals draw plants and animals. This is what we are. But we have to realize that this is what we are. We can't just mine through it all. And we think as though people are somehow very different and very separate.

We are unique in a lot of ways. There's nothing quite like people on earth, just like there's nothing quite like elephants on earth. But you wouldn't think that an elephant can live and survive for millions of years without a place to live. And so much of our life is so completely of our making that we have a very skewed view of where we fit. There was a time when everything that people made was very old. If you fashioned an ax handle out of a stone you were using something that was probably billions of years old. Now we use cars and computers. We use things that didn't exist 20 years ago. And we tend to think that everything is like that around us, that everything is just commodities and stuff that we make and stuff that we produce. We can go to a restaurant and we can order fish, or we can go to a place and buy a mahogany table. We have no relationship with the forest that the mahogany came out of, or with the ocean that the fish came out of.

People have even a more intimate relationship with birds because you can hang a bird feeder out the window and you can admire birds. But you can't put a fish feeder outside your window and admire fish. You have no relationship with them. You see them only as a slab of meat. It's as though our whole relationship with birds was the experience of being in the poultry section of the supermarket.

BILL MOYERS

What do I do as a consumer? I mean, if I walk into the fish market, how do I know that the fish I want to buy has been sustainably produced?

CARL SAFINA

Up until very recently I would say it was impossible to know. And very recently there were several, very new initiatives, just in the last two years, of people trying to provide information to consumers so that people can vote with their wallets. We have a failure of fishery management in many cases. There's not enough management, the management is too manipulated by the fishing industry that it needs to be regulating. So some people are now turning to consumers. And consumers are turning to other sources of information. And they're saying, we're concerned, tell us. When I lecture, usually the first question is, okay, so what's okay to eat? And this is very similar to what you just asked. And in fact in the program that I work on we just produced a book called *The Seafood Lover's Almanac*. And we have this little initiative we call the just ask campaign. The idea is to get people who eat fish and buy fish and the people who sell fish to have the same information so that consumers can just ask and the purveyors and they can then inform people. And that maybe by our choices we can develop markets that are for better produced, better managed, more humanly run fisheries that are more sustainable. And I wish there was a better word than sustainable. It captures the concept but it's perhaps the deadest word in the English language.

BILL MOYERS

Is it possible for a whole fishing ground to collapse?

CARL SAFINA

It's happened. That's how we know it's possible. One of the most spectacular collapses is the New England and Canadian Maritimes, those waters which had populations of cod, halibut, haddock, several kinds of flounders, and for 500 years those fisheries were conducted in a way that was self sustaining. And in the last 20 or 30 years we destroyed them. We fished too hard for too long and we caught too many fish. We caught them much faster than they could breed and reproduce themselves.

BILL MOYERS

Are we facing more collapses like that?

CARL SAFINA

We're seeing more of that kind of thing, yeah, in a lot of places around the world, unfortunately.

BILL MOYERS

Are we hitting what some scientists call the ecosystem threshold, in the oceans?

CARL SAFINA

Well the coral reefs are obviously on an ecosystem threshold because throughout the range of

coral reefs, this whole broad band of the earth, the equatorial and warm water regions, coral reefs are in decline. In other areas I would say that the effect is more just the accumulation of a lot of local efforts. You could recover New England by fixing how people approach fishing in the waters off New England. And although it's the same ecosystem that is found in northern Europe and the North Sea, fixing New England would not help the North Sea. So those are more localized things. But the coral is more of an environmentally induced problem as well as a problem with the actions of people, because a lot of the problems for coral has to do with changing water temperature now, on top of the localized stresses of the silt running out of rivers from deforestation and bad farming and bad road building. The press of people fishing with traps and nets, the mining of coral, those are localized effects. But then you have this environmental thing with the change in water temperature.

BILL MOYERS

If you had to grade the world's oceans, what grade would you give it?

CARL SAFINA

I'd give it a C. There's a lot of life left. There are incredibly beautiful vibrant things. There's plenty left to save. And it's really worth spending a lot of energy saving it. But in the comments section of the report card, I would say, needs a lot of remedial action to prevent failure.

BILL MOYERS

You know, there's so much scary news about the environment, people in denial seem to want to retreat from it. They don't want to face the hard facts. Do you find that the case?

CARL SAFINA

I find that the case, but I think that what's perplexing is that there's a lot of really scary news and horrible news that people are riveted to. Any time you see bloody bodies in the streets people can't tear their eyes away. You hear about terrible atrocities that are committed and it...and it's big news and everybody is hungry to feed on it in some way. But with the environment people turn away from that. But I think the difference is that with the environment it implies that you should be doing something yourself. It implies some sense of responsibility. And I think that that's what makes people's eyes glaze over and they say it's too depressing. But I'm not really sure that the problem is that it's too depressing. I think that it's the implied responsibility that's too daunting to people.

BILL MOYERS

So where do you come out about the class's ability to improve? Are you an optimist or a pessimist about what's going to happen in the immediate future?

CARL SAFINA

I've learned to avoid asking myself the question of whether I'm an optimist or a pessimist. I'll answer you, but I think that the real question is how do we find our place in making solutions and changing what happens in future. So I'm optimistic that we will do that. And I'm working to try to do that myself.