Jennifer Stock: Today I'm thrilled to welcome Bob Schmieder to the KWMR studio. Bob is the founder and expedition leader of Cordell Expeditions, a nonprofit research group he founded in 1977 to explore and document the remote offshore hidden, dangerously accessible, deep granitic bank fondly named Cordell Bank.

I met Bob about nine years ago when I started working for the Cordell Bank Sanctuary. And every time we meet and talk, I am in awe of the significance of this expedition, his team, his vision, and the outcomes of his work. Bob, your story is unique in that your actions led to a significant act of conservation for the marine environment off our coast. I would love to welcome you to Ocean Currents. Thanks for joining me today.

Bob Schmieder: *[Inaudible Comment]*

Jennifer Stock: Bob, your background is in science, but predominantly in physics and nuclear science. How and why did you get interested in exploring this place called Cordell Bank?

Bob Schmieder: Mm-mhmm. Well, like many people, I sort of am two persons in one. My day job was as a physicist, but that was sort of my left-brain activity. The right brain activity always has been environmental concerns, exploration, especially to places that are undocumented and remote. When Cordell Bank became a possibility for me, it was very much in line with what I had been thinking about and doing for many years already.

Jennifer Stock: How did you determine Cordell Bank? I mean it's a big mystery to most Bay area residents, so how did you know about it?

Bob Schmieder: I was a sport diver for about five years. I got certified as a scuba diver, and I was enjoying the sport. But eventually, I wanted to do a project. I am a project person, and so I wanted to find something that would carry me through a year or two or more, and that maybe I could accomplish something by doing something useful. So I was ready to learn about something that could be done off the California coast that would be of long-term interest.

By coincidence in 1977, there was publicity about the radioactive wastes that we're dumped near the Farallon Islands. So I investigated those stories which were first published in *the Oakland Tribune*. And as I was doing that, I looked at a chart of the depth contours off the coast in Northern California, and there was Cordell Bank. And so I was fascinated by what I saw there. There was one depth that was potentially diveable with ordinary

scuba depth, and so I started asking about it. And to my surprise, I found that almost no one knew anything at all about it. So it was really quite easy to slip into that project and adopt it as a target we were gonna go and find out what was there and why was it there.

Jennifer Stock: I can see the interest that was blooming. Whereabouts exactly is Cordell Bank, for listeners that may not know, in relationship to the coastline also the Farallon Islands?

Bob Schmieder: Well, the easiest way to visualize this, if you stand at the lighthouse at Point Reyes, and you look exactly due west, 20 miles out is the horizon. And right there is where Cordell Bank is. Now if you look exactly due south, 20 miles is the Southeast Farallon Islands, and you look exactly due north, 20 miles again, it's Bodega Bay. So it's easily identified with Point Reyes light is smack in the center of those three 20-miles spokes.

Jennifer Stock: I've always told people that if they go to the lighthouse and they look where the curvature of the earth ends, that's where Cordell Bank begins. So that's great – right in the center there.

So in the early days of planning for this expedition, what type of information did you find to plan it? Today, in 2009, we've just recently received – or went out to get high-scale bathymetric information that shows us what the sea floor is like, but how did you plan for a dive not really knowing what the habitat was like? You've had an idea that there were some shallow peaks, but how did you plan for that?

Bob Schmieder: Well, there were really two aspects to that. One was knowing that there were depths of 20 fathoms, of 120 feet, and knowing that just from basic geological knowledge, this is a hard-rock surface. So it's a hard-rock offshore bank, and it's going to support a lot of life. That was obvious to me from just basic almost common knowledge.

What was perhaps more important in all of this was what was not known, what I could not learn. I went to all of the local and important institutions, the California Academy of Sciences, UC Berkeley, Bodega Marine Lab, and so on, inquiring what did they know about Cordell Bank. And the usual answer was they didn't know anything. There had been some samples of the mud dredged by Dallas Hanna at the California Academy of Sciences in the 1940s, and those samples still existed, and probably still do, at the academy.

Beyond that, there was absolutely no information about Cordell Bank. And as I progressed month after month getting no information, it became more and more fascinating, and more and more important that we go there and find out what's there and document it.

Jennifer Stock: So you say "we," and you were the initiator of this project. How did you gather your teammates?

Bob Schmieder: Oh boy.

Jennifer Stock: *(Laughs)*

Bob Schmieder: What I did as I – I was active member of the Sierra Club then, as now. And we had a dive section called the Loma Prieta dive section of the Sierra Club. It was mostly Peninsula people. So I went to one of those meetings and announced that I was going to form an expedition and I was looking for people participate. From that, we set up a meeting – I got some volunteers then, and we sat up a meeting at the US Geological Survey in Menlo Park.

It was attended by 40 people. This was all just word of mouth – 40 people. And before that night was over, all 40 had put in a check for $40.00 as a war chest, it turns out to be woefully inadequate, but that was the initial team that we started with, and that's how it came about, just by word of mouth.

Jennifer Stock: Excellent. So did they have any idea what they were getting in to as far as the depths that they were going to be diving?

Bob Schmieder: Yes, because we knew it was going to be deep. In fact, people – some professional biologists had told me that it would be deep and dark and so on. Of course, we knew it would be deep just because of the depth contours. The minimum water or minimum depth was indicated on the chart at 20 fathoms, 120 feet. We knew we would be between 120 and maybe 180 feet. Beyond that, we didn't think that we could use ordinary scuba, and we didn't have access to any kind of professional dive gear or surface support to do that.

So we all knew that we would be diving to 120 to 150 feet. Now that's normally beyond the sport diving range, and so we knew that we had a project in front of us to organize, plan, and carry this out safely, but beyond the sport diving limit, and that's what took a lot of time.

Jennifer Stock: A lot of planning for safety on that.

Bob Schmieder: Yeah.

Jennifer Stock: Tell me about your first dive, personally, on Cordell Bank.

Bob Schmieder: Oh, my gosh. Let's see. With your permission, I'll back just up one trip.

Jennifer Stock: Yes, please.

Bob Schmieder: We went out six weeks before to try and locate this 20-fathom point, and we only knew where it was within plus or minus about a mile on the chart. So I felt that we had to go out there ahead of time, put a marker on it so that when the team came back, we could actually just go down, and dive. So we went out on a survey trip, which ultimately we did many such surveys. Bu ton that particular trip we did finally find this 20-fathom mark and we dropped a marker on it. But six weeks later, when we came back – finally, we were able to come back because of weather – that marker was long since swept away. So we had to search for the place again.

Jennifer Stock: What was the marker? What's the marker?

Bob Schmieder: Oh, it was just an anchor. It was an anchor with a thin piece of line and a bottle. It was floating on the surface. *(Laughs)* And in our naïveté, we thought that that might still be there six weeks later. How silly?

Jennifer Stock: This is pre-National Marine Sanctuary designation, pre-regulations.

Bob Schmieder: Pre-experience.

Jennifer Stock: Pre-experience. Okay, keep going.

Bob Schmieder: That's right. So we did – we searched for this 20-fathom mark, again, a second time. This was on October 20, 1978. And actually using some birds that were clustered in a certain area, we followed the birds. And, sure enough, there was the shallow point, the 20-fathom mark, and we dropped an anchor with a descent line. And I and one other person made the very first dive. So now I'm ready to answer your question.

As I descended, I was aware that there was a year of preparation behind us, lots and lots of meetings, practice dives, all to of debate/discussion/argument, and so on. That's what I was thinking

about. And I was wondering would this be sufficient? Because we were far off short in deep water. And I felt very vulnerable, very extended out there.

As I went down, what I saw was what seemed to be weeds below me. But as I descended I found that they were rockfish. They were clouds and clouds of rockfish. And I slowly descended among them, and they slowly parted. And as they parted, I suddenly saw the bottom. The bottom was, to my astonishment, colorful. Where orange and white and red colors, and it looked like a garden. It looks like a picture from a *Sunset Magazine Garden Edition*. And I was so amazed. Even though I expected it, the visual impression was so overwhelming I just turned to my buddy and opened and closed my arms in a gesture saying, "Can you believe what we are seeing?"

And so we spent only about 15 minutes bottom time total. Collected a bag of specimens. We didn't have any camera. As I moved around, I was amazed at the roughness of the bottom, the cover – the density of the cover. It's more than 100 percent, which means there are plants and animals living on other plants and animals – and mostly how beautiful it was, visually beautiful. Of course, for pure science, beauty is not a criterion. What lives there, lives there, and we were there just to simply document it. But it was overwhelmingly beautiful, stunning.

And as we came back to the surface, it was a feeling of triumph, of completion, of satisfaction, also a little vindication that what I had said for so long and bragged about having not seen it yet, was that this is going to be an incredibly lush, colorful, interesting environment. As I broke the surface, I knew instantly I would be back there year after year after year, and I was.

Jennifer Stock: That's a wonderful story. I love the way you described that, like it was just yesterday. And I bet you your teammates were just astounded and excited to get down there as well.

Bob Schmieder: We had – by that time, out of that first group of 40, there was only 1 person left. That was me. All of the others had given up. We had worked – we had come to Bodega Bay and loaded up a boat 19 times. It was the 19th trip when we finally got out there and succeeded in diving. In fact, one of the divers on the day we did succeed, had just joined the group the night before.

I considered five divers and absolute threshold for doing anything. I wouldn't have done it with four. We had five. We had two

teams, myself and one other person, and then I put the other three in and they did their dive also successfully.

Jennifer Stock: Sounds like you had a lot of trips that we getting ready to go and they were probably aborted due to the weather out of Bodega, correct?

Bob Schmieder: That's correct.

Jennifer Stock: So that's how you lost people 'cause they got tired of waiting? *(Laughs)*

Bob Schmieder: *(Laughs)* That's right. The phrase, "This doesn't look like fun," was very commonly used. Yeah.

Jennifer Stock: We say that every once in a while now, too, trying to do research.

Bob Schmieder: Actually, I'm suitably calibrated on this. We turned around sometimes – later, with experience, we would not have turned around. But we would load up the boat and we would go out and we would see some waves and we would say, "Well, this doesn't look like fun," and we would turn around. But now, with experience, I know that about half the time, even if it doesn't look like fun, you can sail out and it may be roaring on the coast and it'll be flat as glass on Cordell Bank.

Jennifer Stock: I've experienced that before.

Bob Schmieder: Have you?

Jennifer Stock: Yeah.

Bob Schmieder: Okay.

Jennifer Stock: It's amazing. No one would believe it and you always take that risk to do that. For those tuning in, I'm talking with Bob Schmieder, and he is the leader and founder of Cordell Expeditions, a nonprofit group that explored Cordell Bank from 1977 on. Their efforts were extremely instrumental in the designation of Cordell Bank as a national marine sanctuary. I should also mention Bob is the captain of the Cordell Explorer, the vessel that was used to explore this area.

Bob, as far as the diving goes, one of the things I've always been curious about and you've probably experienced physically yourself is what are the currents like under water? I've been down there in

the submersible and I've heard other folks that have dove on Cordell Bank talk about how when they've dove in a submersible, the submersible, they can feel the current. Have you felt that current underwater at Cordell?

Bob Schmieder: Oh, yeah, absolutely. I have to explain. We've done all of our diving just during the months of September, October, and November, mostly in October. And there's real good reason for that. The weather is calmest in October. And the winds and the currents are lowest. So we haven't really attempted to be there, say, in February, which would be very, very difficult.

The currents are well-documented though, or have been well-known since the days of Edward Cordell, 1869. They will rush past at a knot or knots. And as you know, a knot current for a scuba diver is a very, very difficult current to work in.

So we've experienced conditions at Cordell Bank where there's absolutely zero current, where there might be visibility of almost 100 feet, where the water temperature is the standard 55 or maybe 57 or 58 degrees. All of that would make for a very comfortable dive.

We've also experienced visibility down at 20 feet, mostly because of plankton bloom, currents up to a knot or so, and temperatures that were significantly colder. And when the conditions are like that, the dive is more difficult. We have to be more careful. And in some cases, I just would cancel the diving and we wouldn't attempt it.

Jennifer Stock: Mm-mhmm. Were there any interesting personalities that stand out in your memory as far as your experiences with Cordell Bank?

Bob Schmieder: Well, of course, everyone has a personality. We had a core team, myself, Don Dvorak, Bill Kruse, Tom Santalina, Sue Estey. We're the ones who were there sort of year after year. And a number of other people came and might have worked with us for several years and then moved onto some other interest. One group from Sacramento, four divers – we called them the Sacto Team. These were very tough, durable, enthusiastic, innovative, resourceful divers. And so they had a personality, and they had a lot of fun, and created a lot of fun.

Once in a while, we would get a person who didn't quite understand the philosophy. This is opportunistic diving. This is not sport diving. It's not science diving in the sense of systematic

collection of specimens according to a prearranged plan. We had to be versatile. We had to be adaptable, because the conditions would change and we wouldn't know exactly what we were getting into. So we had to be opportunistic, collect specimens, take photographs when and where we could in order to maximize the information.

Now and then, we would get a person on the team who didn't quite get that, and that would be a little awkward sometimes.

Jennifer Stock: I can imagine. So one of the things that you've done in addition to the follow-up with the sanctuary, but you wrote a book about Cordell Bank called *Ecology of an Underwater Island*. And it was published in 1991. This is the only book written about this unique ecological area. And in your book you coin Cordell Bank as a long lost underwater island. Yet, is an isolated somewhat series of rocks in this underwater bank, but what did that term "underwater island" mean for you?

Bob Schmieder: Well, island, as a generic term – most people think of island as being a place like Hawaii, some rocks that stick out of the ocean with a lot of plants on them. But a generic meaning of island is an isolated place. So you could have an island, say, on land as long as it's isolated. A game preserve, for instance, could be considered an island.

On real islands, emerged islands, if any animal, say, a fox, tried to go off of the island, he would die. Here on Cordell Bank, it's like a mountain. It's shaped like a mountain, but it's completely under water. But what lives on that mountain, if those things tried to leave, they would also die. So functionally, Cordell Bank is and island. It's insular, and the things that live there are stuck there.

Jennifer Stock: That's true. I never thought of it that way. Was it truly an island though, historically? Geologically speaking, how did Cordell Bank form? Was it ever an island?

Bob Schmieder: Yeah, it really was an island. It was a true, real emerged island. You know that the level of the ocean has gone up and down over geological time. It goes in oscillations. Right now it's rather high, about 20,000-18,000 years ago, it was about almost 100 meters lower than it is now. So San Francisco Bay was a valley. You could walk around in there. The Fairlawns were part of a chain, a long peninsula very much like the San Francisco peninsula is now. So Cordell Bank was emerged as an island. Then there was a deeper part, and then the Fairland Islands were emerged and

actually connected.

The Fairlawns and Cordell Bank and a number of other places are all part of a granite or granitic block called the Salinian Block. And the eastern boundary of that block is the San Andreas Fault. So that block slides along. That's when we have movement on the San Andreas Fault, that block slides. Cordell Bank moves about three to five centimeters north every year.

Jennifer Stock: I know. We're gonna have to move our office in a couple years.

Bob Schmieder: Yeah, that's right. *(Laughs)*

Jennifer Stock: Now I think some other parts of the Salinian Block are Bodega Head.

Bob Schmieder: Mm-mhmm.

Jennifer Stock: Point Arena, parts of Point Arena maybe?

Bob Schmieder: I don't so far up. I think Cordell Bank is actually the northern most known limit of that Salinian Block.

Jennifer Stock: I think also down to Pinnacles National Monument. I've read that in some other – maybe it was even in your book, just to get an idea of where this is all spread out. And, of course, there's been other geological movements after that.

Bob Schmieder: Yeah. And Salinas. It's named after Salinas.

Jennifer Stock: Right, which is in that general area.

Bob Schmieder: It outcrops down there.

Jennifer Stock: Very interesting. Wonderful. So I want to ask you a question. I'm hoping we have enough time for this. How did Cordell Bank get its name?

Bob Schmieder: Well, that's a story I discovered in the national archives as well as some local archives, including the Bancroft Library at Berkeley, and San Francisco State Library, and other places. Edward Cordell was born in Germany in 1828, and came to America. There was a revolution Europe in 1849, and he and a lot of other people escaped. Cordell came to the United States and came to work as a draftsman for the US Coast Survey. He was so good at his job that he was eventually sent to the west coast and given charge of a ship

called the Marcy, a sailing ship. He went out on the ship with assistants and would measure the depths up and down the coasts, and also the Sacrament San Joaquin Rivers.

In those days, 1865 through 1870 or so and other years, the surveying on the west coast was under the authority of George Davidson who was very famous, Mount Davidson, Davidson Glazier –

Jennifer Stock: Davidson Sea Mount, yeah.

Bob Schmieder: Davidson Sea Mount, Davidson Current. Davidson had returned from Alaska in preparation for purchase of Alaska, and was coming down the coast and made a cast of the land off Point Reyes and came up with a very shallow depth, 20 fathoms, and he remembered that. But that was in 1853. In 1869, 13 years later, he sent Edward Cordell out to search for this shoal west of Point Reyes.

Cordell went out in June of 1869, found it, mapped it, wrote his report, and sent it to Washington. But Davidson thought that it oughta be named Davidson Bank. So Davidson did not do the normal thing of just immediately recommend to the coat survey office that they name it Cordell Bank.

Six months later, Cordell died accidentally, prematurely, age of 41. And a year or two after that, Davidson sort of relented. The Coast Survey named it Cordell Bank in Edward Cordell's honor.

Jennifer Stock: Wonderful. That's a wonderful description. Now Edward Cordell also was a surveyor on the east coast. I understand he mapped Stellwagen Bank, which is also part of the National Marine Sanctuary program.

Bob Schmieder: Yeah, it's a wonderful connection. Stellwagen also was from Germany. There are many aspects of their lives that are in common. Their handwriting is almost indistinguishable. Stellwagen was – I'm sorry. Cordell was Stellwagen's draftsman when Stellwagen discovered what is now called Stellwagen Bank, which is also a National Marine Sanctuary.

Stellwagen Bank lies outside of Boston Harbor. Cordell Bank lies outside of San Francisco Bay. Stellwagen Bank and Cordell Bank are about the same size, and about the same depth, and oriented about the same way.

Jennifer Stock: Yeah, a lot of similarities.

Bob Schmieder: So a lot of similarities.

Jennifer Stock: Wonderful. Well, we'll keep talking, but we are coming up just about on the half hour break here. We've been talking with Bob Schmieder, the leader and founder of Cordell Expeditions, the group that explored Cordell Bank before it became a National Marine Sanctuary, and through their work, actually was very instrumental in designation of the sanctuary.

So we'll be back in just a few moments with *Ocean Currents*. My name is Jennifer Stock. Stay with us.

We're back. This is Jennifer Stock and you're listening *Ocean Currents*. On today's show, I have with me Bob Schmieder, the founder and leader of Cordell Expeditions, a nonprofit research group that dove on Cordell Bank on scuba starting in 1977. And their work was instrumental in the designation as a National Marine Sanctuary.

So, Bob, you have done what many other people haven't, or may have attempted to do. Have other people contacted you about how to dive scuba at Cordell Bank?

Bob Schmieder: Yes, not too often. But now and then I get an inquiry. It would be one of two things. The first way would be someone says, "I would like to dive there," and my usual response is, "Okay. And I would like to go with you," not for the pleasure of it, although it would be pleasure, but because of the safety of it. Cordell Bank is not an easy dive. It's not a place you go and just say, "I'm going today to dive there." It's a project. You have to prepare; otherwise, it would be very dangerous.

Jennifer Stock: We get a lot of questions – not a lot, but every once in a while. And it's a tough answer because there's new regulations that do not allow anchoring on Cordell Bank right now or there's no take of specimens and whatnot. And there's just so many unknowns and the danger of it, so we really discourage people to dive there ourselves.

Bob Schmieder: The other kind of inquiry I get – the second kind of inquiry is the following. "Oh, yeah. I've dived on Cordell Bank." And I say, "Really? Well, how deep did you dive?" "Oh, we were really deep. We were more than 50 feet deep," and I knew that they were

confusing it with someplace else because Cordell Bank is more than 120 feet deep and you're not going to make that mistake.

Jennifer Stock: I've had people tell me a Cortez Bank.

Bob Schmieder: Mm-mhmm.

Jennifer Stock: And I think they get them confused. But I don't know if you can dive at Cortez. Can you?

Bob Schmieder: Yes, I have dived at Cortez Bank.

Jennifer Stock: Oh, really?

Bob Schmieder: Yes.

Jennifer Stock: I know it's a surf spot and a big swell there because it is really shallow.

Bob Schmieder: Yep.

Jennifer Stock: So very different.

Bob Schmieder: Well, it has some of the same species. It has the California hydrocoral and a lot of algae that are in common. But, of course, every place is unique.

Jennifer Stock: Bob, I understand recently or in the last few years, a very special person contacted you about diving on Cordell Bank. Did you follow up with them and participate in this dive?

Bob Schmieder: It's Jean-Michel Cousteau, the son of Jacques Cousteau. I've own Jean-Michel for quite some years. And in 2005, his organization contacted me and indicated their interest in diving at Cordell Bank because they were generating a program involving all of the National Marine Sanctuaries and they were going to every single one diving and capturing the experience and the environment in their video program.

So, of course, I was pleased and I was certainly available. And so Jean-Michel and his team did come in 2005. We went out to Cordell Bank. It took us two days. The first day to find the place and put an anchor – a descent line down, the second day to wait for the weather, the third day to wait for the weather, and the fourth day to go out again. And their team did dive and I was able to put them on exactly the shallowest point which I could see in their

video was very familiar to me because I've seen it numerous times when I've dived there.

So they were very pleased. They described it as a very difficult dive. The conditions were difficult. They said it was the most difficult of all of their dives and were complementary to my team, which I passed onto my team and with, "Thank you very much." Cousteau people did eventually put together the program called *America's Underwater Treasures*. They also published a very gorgeous book with very handsome photographs about that program. And that book is available, and the DVD of that program is available through the Cousteau organization in Santa Barbara.

Jennifer Stock: I think it's also available through KQED, right?

Bob Schmieder: That's right.

Jennifer Stock: Yeah. It was showing on KQED. So people can go there. We were involved 'cause there was teacher workshops going on coincidentally with that, with KQED. So we were doing some workshops with that as well.

Your initial interest in exploring this area was to discover what lived there and document it. When did you start talking to the National Marine Sanctuary program in NOAA, or when did they start talking to you?

Bob Schmieder: That was in 1981. I was only vaguely aware of the National Marine Sanctuary program, and there weren't as many sanctuaries designated at that time, of course. But someone, and I've forgotten who now, suggested that I contact them and tell them that we were in the process of exploring and describing Cordell Bank. So I did. And their response seemed to be enthusiastic.

They responded with great interest, wanted to know more. I compiled a preliminary report of species that we had identified and the shallow places, the maps, and the logs of what we had done. And pretty soon, the sanctuary programs office said, "We would like you to nominate Cordell Bank to be a National Marine Sanctuary." This is a procedural issue.

And I said, "No, I can't do that. We don't know enough about it yet. It would be premature to do that." And so I was able to put them off for maybe a year, almost, and they came back with a vengeance and said, "You must – you will nominate Cordell Bank to be a sanctuary." And I said, "Well, I can only do that if we can

learn more about it," and they said, "We would like to give you some money to help you –"

Jennifer Stock: Wow, you're pretty smart.

Bob Schmieder: *(Laughs)* Well, I didn't do it with purpose, but it was effective, never the less.

Jennifer Stock: It doesn't work that way for us. *(Laughs)*

Bob Schmieder: They did support us, not extensively, but it was important to us, financial support. It enabled us to assure the boat and the equipment that we needed. Of course, no one in my group ever took any money. There was no salaries, no payments of any kind. This was a 100-percent complete volunteer activity. So the money went to things like buying fuel and buying chemicals to preserve the specimens, jars, things like that.

But with that support, we were able to get to a point where I felt if not totally comfortable, at last accepting of the request to nominate it, which I did with a letter, and that's how it got started.

Jennifer Stock: So once it was nominated, who did you nominate it to?

Bob Schmieder: Well, there was a regular a sanctuary programs office, and there was a director of the sanctuary programs division. So I wrote a letter –

Jennifer Stock: Oh, to the program itself.

Bob Schmieder: – to the sanctuary programs division.

Jennifer Stock: Now also during this expedition time, you had a lot of media coverage. You've had – there's newspaper clippings, and your book, and a couple years ago we got to see some of the video footage that you compiled from TV coverage. How did that get initiated?

Bob Schmieder: Well, we were very lucky. The man who had written the articles about the radioactive waste off the Fairlawns, a man named Fred Garretson, who worked for *the Oakland Tribune* – he was their science writer. I contacted him to learn more about those radioactive wastes and whatever else is known on the California coast, and we became friends. So as our project progressed, he was aware, and then he wrote the very first articles. In fact, the first article was published before we did our first dive, and it was

called something like *Voyage to an Underwater Island*, something like that.

And then he wrote a follow-up article. And those articles were then picked up by other newspapers an distributed. And so we had an ongoing publicity during those years.

Jennifer Stock: That's excellent. Now did you think that helped build support for the designation of the sanctuary?

Bob Schmieder: I don't really know. The sanctuary – I think the sanctuary program was feeling starved during the entire two years – two administrations, the Reagan administration in eight years, there was not a single sanctuary designated. And Cordell Bank was a very non-controversial candidate for a sanctuary. There were other candidates that were more controversial and would have struggled more I think to get through the administration.

But Cordell Bank had no problem at all. Even so, the administration didn't progress on it, and eventually the US Congress took it up – Barbara Boxer, Dianne Feinstein, Doug Bosco, and others – created an act of congress. And when President George Bush, Sr., became president, his signature signed it into law, the very first environmental action that he did as president.

Jennifer Stock: How did you feel when that happened?

Bob Schmieder: Very proud. Yeah. And I continue to be proud. The sanctuary is protected by an act of congress. All other sanctuaries are protected by regulation within the sanctuary programs division. So I feel confident that not only is it protected legally statutorily, but now, of course, it's in the wonderful hands of the manager and yourself and others who are taking care of it and bringing it forward in a wonderful way.

Jennifer Stock: That's very nice of you. It's amazing, when I came on, there was only one – no, two staff. And now we have about eight staff. I always forget exactly how many 'cause we have a couple part-time folks. But it's been amazing to see it grow.

Bob Schmieder: It's amazing to me – it's not amazing in the sense that it wasn't foreseen. I foresaw all of this. But so many things we try don't work. This one worked. And so it's exciting every time I think of it, that it actually happened and it is happening. And we can look

back and say something we did helped save a piece of this world, and that's what we were after.

Jennifer Stock: Amazing. I hope people can take lessons of that, that small acts can actually turn into really big acts through the work that you did.

What were some of the protections that you wanted to see designated as National Marine Sanctuary from your observations? You've had a unique experience that hardly anyone has of actually seeing this place. You must have a personal association of what you wanted to see protected.

Bob Schmieder: Yeah, I did. And it doesn't agree exactly with other people or other groups' desires, or even necessarily with the management plan. But here is my personal perspective. I've seen what lives on the bottom, and I've seen how fragile it is. So I was concerned from the very beginning, from the very first dive when I saw a lot of broken California hydrocoral that grows so slowly, and so many other organisms live on and depend and are even obligate commensals with the California hydrocoral.

I was concerned with the practice that fishermen have or had of dropping heavy weights on the bottom to feel for the bottom to get their bait on the bottom. That's terribly destructive. So that was the No. 1 concern that I had.

I was not so concerned about oil exploration because there is no oil on Cordell Bank. It's a granite rock. And so protection from mechanical damage like anchoring and dropping lead weights on the bottom that would damage the benthic organisms there, that was my principle concern. And I'm thrilled that that is now protected on the sanctuary.

Jennifer Stock: Yeah. Through the recent management plan, they saw a lot of evidence through the submersible dives that fishing gear and – now in the 50-fathom area, the shallowest part of Cordell Bank, it's only hook and line and allowed, no long lines and whatnot. But I think you bring up a good point that it may not be enough.

Bob Schmieder: Well, the other group or other aspect that concerned us was the fish, of course. And we saw changes – significant changes in numbers of fish over the time that – toward the last years that we were diving there, we saw far fewer fish. That was the 1984-85. But I sort of left that in the hands of wise managers. They have means for sampling the fish, for managing the stocks. And I knew

that that would be taken care of. My concern was for God's little creatures.

Jennifer Stock: That habitat, yeah. It's vital for the rest of those animals.

Bob Schmieder: Yeah.

Jennifer Stock: Absolutely. Now you also did some diving outside of Cordell Bank. And I've heard you talk about diving at some of the Fairlawn Islands. Can you talk about that a little bit? Was that part of this expedition time?

Bob Schmieder: It was actually in the early part. The very first – we carried out some practice dives. And so this was also in conjunction with the herbarium at UC Berkeley. Dr. Paul Silva is the curator of algae there at Berkeley. I became lifelong personal friends with him. And he pointed out that there was no collection of algae from Southeast Fairlawn, Middle Fairlawn, or North Fairlawns.

Jennifer Stock: Subtitle algae?

Bob Schmieder: That's correct, subtitle. So it was kind of obvious we would go there and we'd call it –

Jennifer Stock: *jokes/laughs*.

Bob Schmieder: That's right. *(Laughs)* Call it a practice dive or whatever. Call it an expeditions. But we went to all of those places, especially including North Farallon, which is an absolutely fascinating place. We wet there multiple times, collected algae. And apparently, the first subtitled algae collections. At North Farallons, we also discovered a tunnel that is completely cut from one side of one of the large rocks to the other. We – it's completely underwater, and apparently as unknown before. We swam in one end, and 100 feet later swam out to the other end to our absolute astonishment.

Jennifer Stock: That must have been fun.

Bob Schmieder: *(Laughs)*

Jennifer Stock: I can't even imagine what the invertebrates incrusted on these rocks must have looked like. This is an area untouched by humans.

Bob Schmieder: The dominant visual impression or reaction that you have is the color. The reason the color is there, which you normally would not

se at depth, you wouldn't see the red and yellow color, because there is no red or yellow light at that depth. What happens – and we had to explain this was you have lots blue light and the light causes fluorescence. So organisms like corynactis, the little anemone –

Jennifer Stock: The strawberry anemones?

Bob Schmieder: The strawberry anemones, will take in blue light and put out red light. And so there they are glowing sort of like minerals under a black light. And it's exactly the same process. It's fluorescence.

So even at 150 feet, you'll see what looks like just intense colors. Now it's actually kind of muted, and divers are usually a little bit narced with the nitrogen, so their perception is enhanced, shall we say. But that's the visual impression you have with all these colors.

Jennifer Stock: That's amazing. This year was pretty significant for you. You transferred all of your samples to the California Academy of Sciences. What was the significance of hits transfer for you?

Bob Schmieder: Well, that was certainly a very satisfying event. I am deeply grateful to the people who arranged or this to happen. Over all those years, we had collected specimens and documented thoroughly, giving each one a unique number, sorting them into taxonomic classes. I would distribute the specimens to professional biologist in various places, LA County Museum, Cal Academy, the National Museum in Washington and so on.

But I retained custody/possession of the bulk of the specimens that we collected with the hope and expectation that someday they should be accessioned into some permanent collection because they do represent an important historical collection as well as potential for research. And so through the good efforts of the sanctuary management as well as Bob Van Syoc at Cal Academy, we were able to transfer all of them to the academy who will now have them forever. And they have the best possible home they could have.

Jennifer Stock: That's really exciting. I know that our science team is really thrilled because we're – it's hard to protect something you don't know a lot about. And we haven't had the opportunity to really sample the invertebrates of Cordell Bank. So you can only identify so much with photographs and video footages, so I know they are thrilled to assemble a species list.

Bob Schmieder: Well, even if sampling continues or is expanded, even if the current collection is eclipsed by future sampling, the current collection is historically important because relative abundances, even species types, the historical collection is very important to anyone who wants to understand the ecology of a place like Cordell Bank.

Jennifer Stock: And understanding how it could change over time.

Bob Schmieder: That's right.

Jennifer Stock: I know one of our biggest concerns at Cordell is the threat of invasive species, like – there's invasive tunicates that are along the coast here, Didemnum sp. I believe is the species. And it acts like pancake batter, just smothers habitat. And if you can imagine Cordell Bank smothered in one animal –

Bob Schmieder: I don't want to imagine that.

Jennifer Stock: It's pretty scary. And so I think having voucher specimens of what lives there now and what lived there in 1977 on is really important. And that's just one of the things we're trying to protect against is any type of effluent being dumped there or any type of cruise ship dumping. That's no longer allowed in the sanctuary waters, to help prevent against that. So that's exciting.

Why do you think it's important for people to know about places like Cordell Bank, and why do you think they should care?

Bob Schmieder: Cordell Bank is very much like a museum that you might be familiar with. Why would have a museum on land, a place that you would go to, to see things? We have these museums because they are a protected environment, a managed environment, as well as a source of knowledge. When they're studied, they're systematized, interpreted. Cordell Bank is very much like a museum, but it's remote. It's not access to the public, and that's why the sanctuary management team, the office, and the public relations and the interpretative programs are so critical because the are the portal for public to get access to this resource.

Cordell Bank is as diverse, as interesting as any museum anywhere on land. It's just more difficult to get to. And probably you won't go there personally, but you could go there with the media that we have available. And now with the staff able to present it and interpret it, that makes it feasible.

Jennifer Stock: That's great. We have a new video coming out called *Cordell Bank: Blue Water Oasis* of which you're featured in as part of that. And that will be on exhibit at the Bear Valley Visitor Center at Point Reye's National Seashore in the next few months. I hope we'll also have it on DVD available for people to get. And we'll be distributing that to schools and other visitor centers… trying to spread the word about that beautiful place.

It's been a long journey creating that video. Are there any last words you have in regards to what you hope to see Cordell Bank like in the next 20 years? This year marks the 20th anniversary of the designation of it what do you hope the next 20 years will be like for Cordell Bank?

Bob Schmieder: I would like to see the management sufficiently supported to not only continue, but expand the kind of work they've already done. We need publications. We need research program. There is a research manager. We need research program. Cordell Bank is sufficiently special that it deserves to be studied, a body of data accumulated. We started that. It should be continued. There should be resources to interpret that. Cordell Bank is only one of the National Marine Sanctuaries. They all deserve similar activities.

And I would be very happy – it would feel like fulfillment to me if that continues. I assume the protection will continue into the future. It's not a question of whether Cordell Bank will be a National Marine Sanctuary. What I would be very happy about is if the resources available to Cordell Bank and the other sanctuaries, Cordell Bank as my particular interest were sufficient to extend and expand the research in the area.

The whales and birds are a critical part of this environment, as well as the invertebrates that are my favorites so that maybe 20 years from now we could see another book or less time – ten years, 5 years, maybe, another book about Cordell Bank, more extensive than mine, and containing a lot more images and information about it.

That would be wonderful.

Jennifer Stock: That's exciting. Well, for some of those, there are ways people can get involved regarding how to help support that. Certainly the National Marine Sanctuaries Act needs to be reauthorized e so many years. And that's a pretty significant piece of legislation to

authorize the National Marine Sanctuary program to exist. So keeping an eye on that being supportive of our sanctuaries and that is important. Also, we have a National Marine Sanctuary Foundation, and they are really working hard to help raise the elevation of the importance of these areas to bring in funds. So writing to your National Marine Sanctuary Foundation and finding out if there's way you can help, but be another way table help keep Cordell Bank on the map, and expanding in those things that we can provide, and keeping it healthy.

This year marks the 20th anniversary of sanctuary's designation. And, Bob, it is so gratifying to sit with you and talk with you, and I just want to thank you for all your work in the designation of the sanctuary and prior, and keeping in touch with us today with all your owner volunteer divers and collaborators. It's just such a neat story to continue to share, and I'm so thrilled to share this on *Ocean Current*, this radio program. So thank you for coming today.

Bob Schmieder: Well, it's my great pleasure. Thank you.

[End of Audio]