Deep-water corals of Cordell Bank

[Cassandra Brooks]

This is the Natural Laboratory, a podcast exploring science for Bay Area National Parks. I'm Cassandra Brooks.

Much of the ocean is a desert, dark depths devoid of life with muddy bottoms where animals scour for food and mates.

But in the midst of these muddy bottoms, rocky banks rise from the continental shelf providing structure for life to grow and flourish. Cordell Bank, just 20 miles off the Point Reyes Seashore, is one such place. A world bursting with creatures beyond our wildest imaginations.

[Lisa Etherington]

The overwhelming colors and diversity of life that are associated with these corals and other animals on the bank is breathtaking. It's like nothing you've seen before.

[Dan Howard]

Because of where the bank is situated and because of our local oceanography, it's a very very productive place, both on the bank and around the bank. So it really is an oasis of life out there, its just spectacular.

[Cassandra Brooks]

That's Lisa Etherington, Research Coordinator at the Cordell Bank National Marine Sanctuary and Dan Howard, the sanctuary's Superintendent.

A key component of this biological wonderland are deepwater corals. Unlike shallow water reefs, these corals thrive in dark water anywhere from just below the surface down to two thousand meters. All over the world, from the Arctic to Antarctica, researchers have found deep-water corals, and each new community they find supports an incredible assemblage of life.

[Lisa Etherington]

I do know that some deep coral communities have been show to have diversity levels of the associated animals with the corals to be similar with tropic reef systems. So people think of shallow reef communities as being the most lush on earth, but deep-water communities can rival that in some areas as well.

They provide a 3D structure, so a lot of organisms will use them as habitat, either for refuge from predation, areas of feeding, areas where they will spawn or nursery areas where young individuals can grow up.

[Cassandra Brooks]

And I wonder was Cordell Bank designated as a sanctuary because of the presence of corals?

[Dan Howard]

Although Cordell Bank was designated as a sanctuary because of the biological productivity; I don't think when the sanctuary was designated in 1989 that many people other than the fishermen understood the deep coral communities. I don't think anyone really understood it.

[Cassandra Brooks]

And I know there are still a lot of things we don't know about deep-sea corals, but in terms of what we do know, I understand they're really slow growing and pretty vulnerable.

[Lisa Etherington]

Right. I think it's been documented that some individuals will only grow 1-2 cm per year, so it takes them awhile to get to a substantial height. And some of these will be 10-15 meters high, you can have some really large colonies or individuals and some form reef systems.

[Cassandra Brooks]

So how old are those that are 10-15 meters high?

[Lisa Etherington]

I know they've been documented as over 1500 years old, so one of the longest-lived organisms on the earth.

[Cassandra Brooks]

As our knowledge of deep-sea corals has grown, so has our desire to protect them. Acres of coral communities have already been destroyed by trawl fishing, but many countries, including the United States, have banned trawling over seamounts or other rocky habitats where deep-sea corals live. The hope is to protect the remaining communities, though a new threat is on the horizon, one that is far harder to manage.

[Lisa Etherington]

I think for deep-sea corals one of the big concerns right now is the changing acidity of the ocean. So as we are putting more carbon dioxide into the atmosphere the ocean is taking up more carbon dioxide which reduces the ph or increases the acidity of the ocean and that causes some potential detrimental impacts o the corals which use calcium carbonate to build their skeletons. So if we have a more acidic ocean environment then it's harder for animals to build their skeletons and it also could dissolve their skeletons in some cases.

[Dan Howard]

You know we have so much to learn, but as a sanctuary the one thing we can do is try to protect these habitats and keep them in as close to a natural state as we can so they have the best chance possible to survive or be resilient in a changing environment.

[Cassandra Brooks]

With the pacific coast science and learning center, I'm Cassandra Brooks.