Hunting for living fossils in Indonesian waters

March 30 2015, by Augy Syaihailatua

Credit: cottonbro studio from Pexels

The Coelacanth (*Latimeria menadoensis*) was thought to be extinct for more than 60 million years and took the science world by storm in 1938 when it was re-discovered living in South Africa. This fish has retained

its features for 400 million years. Parts of its body, such as its back and belly fins, have an additional structure that resemble amphibian feet.

The fish, which has been spotted in the waters of East Africa, including South Africa, Madagascar, Comoros and Tanzania, also lives in Indonesian waters.

But to the Minahasan people of Indonesia, it used to be considered just an unusual member of grouper fish family. They call it "oil grouper".

The Indonesian Institute of Sciences (LIPI) with the Japanese Aquamarine Fukushima are planning to build a centre for Coelacanth research in Bitung, North Sulawesi.

We chose this location because fishermen often accidentally catch the Coelacanth in the Sulawesi waters. Now that they know how extraordinary this fish is, they have started to tell us when they accidentally catch one. We hope that by working with fishermen, when they do catch a Coelacanth, together we will be able to do more to keep it alive and return it to its habitat.

As researchers, we are curious to learn more about Coelacanth's reproductive system, feeding habits, growth, genetics and migration, because all that information can reveal more about the evolution of living species.

From a fish market to museums

Credit: cottonbro studio from Pexels

A University of California scientist Mark Erdman and his wife first sighted the fish in Indonesia in 1997. They found it dead at the the Bersehati market in Manado. They took a picture and tagged it as specimen number CCC 174.

A year later, on July 30th 1998, Lameh Sonathan, a fisherman from the Manadua Tua island accidentally caught another Coelacanth. That second specimen is tagged CCC 175.

The Bogor Zoology Museum holds the specimen at LIPI's Cibinong Science Centre. By the end of 2014, Indonesia had seven Coelacanth

specimens located in various parts of the country.

Where to find the Coelacanth in Indonesia

Recent research shows that the Coelacanth inhabits the waters in North Sulawesi and Papua.

In the last 15 years, research on Coelacanth in Indonesia has been focused on the area of North Sulawesi and its surroundings. In 1999, Max Planck Institute and LIPI worked together to record sightings of Coelacanth using a submersible called "Jago", which translates as "cockerel" in Indonesian. The research recorded sightings of two Coelacanth in the Sulawesi Sea at 145 metres deep.

In 2006, LIPI's research team and the Japanese Fukushima Aquamarine and Sam Ratulangi University recorded six Coelacanth sightings also in Sulawesi Sea 150 meters deep. A year later, the same team recorded nine Coelacanth sightings at Talise waters in North Sulawesi. In 2011, the research team sighted the fish in Biak waters in Papua.

Researchers believe it is probable that the fish lives in other areas of east Indonesia. The topography and the oceanographic conditions there are similar to Papua and North Sulawesi: rocky, steep and full of caves. Coelacanth live in deep waters of at least 150 metres, with temperature between 14 and 18 degrees Celsius. Their habitat are caves of rock structures in the bottom of the ocean.

There are still questions about the relationship between the Coelacanth in the East Africa coast and Indonesia. Researchers are trying to find answers through DNA testing.

By looking at its form, shape and structure, we can study how evolution happens, and how long the process of morphology changes occur. One of

the ways to study the morphology is by examining x-ray photographs of the Coelacanth.

The study of the Coelacanth takes a long time, because of the very few specimens available. Intensive research is needed to find where significant numbers of Coelacanth live to ensure effective research and aid conservation.

Source: The Conversation