FISHING HOLES—Fishery biologist Jeffrey J. Polovina believes these coils will enhance fish production on Penguin Bank. —Star-Bulletin Photo by Craig T. Kojima.

Artificial Reef

By Helen Altonn
Star-Bulletin Writer

A 13-ton artificial reef from Japan will be dropped onto the sandy plains of Penguin Bank in the deep waters off Molokai within the next few weeks.

It's hoped that the huge fiberglass reef will provide a home for commercially valuable fish to gather and reproduce, fishery biologist Jeffrey J. Polovina said in an interview.

Polovina is leader of the artificial reef program at the Honolulu Laboratory of the Southwest Fisheries Center, which is part of the National Marine Fisheries Service.

Car bodies and concrete pipes have been dumped in Island waters in the past to create artificial reefs. But there has been concern whether they were "biologically appropriate," Polovina said.

His project is the first of its type here. He made several trips to Japan to find the right reef module for Hawaii's ocean conditions and marine animals.

It was purchased for about $10,000.

"We felt rather than spend a lifetime engineering our own modules that we should take something proven . . . and put that on Penguin Bank as the first step to see what biological marine community would develop."

THE FIXINGS for the artificial reef — 10 fiberglass-reinforced plastic cylinders — were brought here from Japan on the Honolulu Laboratory's research vessel Townsend Cromwell. They were assembled at the University of Hawaii marine center at Sand Island and two blocks of concrete were added to the structure to hold it down in the surge.

The finished product is 23 by 20 feet and 16 feet high. It has an enclosed volume of 3,800 cubic feet for fish to congregate and feed.

It won't have any environmental effects because it will be about 240 feet deep, Polovina said.

Getting it out to Penguin Banks has posed some engineering problems, but it isn't that big compared with artificial reefs used elsewhere, he said. Japan, for example, is putting out some reefs like the one being tested here that have a volume totaling 500 modules.

Japan also has been spending $50 million a year for the past 10 years to develop artificial reefs and another $50 million to stock coastal environments with young fish.

PENGUIN BANK was chosen for an exploratory artificial reef project after explorations of the area with the UH submersible Makali'i, Polovina said. "It is a very interesting volcanic feature," he said.

It is the largest submarine shelf near the main Hawaiian Islands, with sheer cliffs on the sides. The dropoff is very sharp, from 150 feet to 1,800 feet, Povolina said. The top also is very long, extending 40 miles from the edge of Molokai, he said.

"We've just been amazed," he said, describing the bank as a large, flat and barren area — about 400 to 500 square nautical miles — that is nearly devoid of fish.

He said little lobsters may be seen in holes. "But it's like driving on the beach. There are no outcrops — nothing to give relief or provide fish a place to burrow or gather around. It's just a large sandy plain."

However, he said the richest bottomfish grounds in Hawaii are around the ledges of Penguin Bank. Bottomfish include opakapaka, onaga and other valuable species of snappers and groupers.

BASED ON WHAT he saw in the Makali'i, Povolina said he believes a habitat will increase bottom-dwelling resources on the shelf. But he said, "We want to make sure we're enhancing production and not merely drawing fish from the steep slopes."

Nine smaller reef modules — each with six concrete pipes — will be dropped on the bank to help build up the lobster population, he said.

He said he will monitor Penguin Bank with quarterly dives in the Makali'i, starting in October or November, and he'll do some handline fishing to see if the artificial reef produces any fish.

There are many basic questions about factors limiting or increasing fish production which the reef studies hopefully will answer, Polovina said.

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to Be Tested Off Penguin Bank