MUSSEL RAFTS OF CHILOÉ

Photo: Oscar Chaparro

Mussel rafts—and profits—in the making. The use of locally available wood makes the raft design affordable for the residents of Chiloé.

OSCAR CHAPARRO

"The estuary doesn't yield much any more," says Sigifredo Lehuin, a mussel producer in Yaldad on the southern Chilean island of Chiloé. "There used to be natural beds of mussels everywhere, but now people who want to earn a living from the sea have to farm it."

Mr Lehuin and four other families are working with a research team from the Austral University's Institute of Marine Research to set up mussel culture facilities in the area.

"The only solution left for us is to build mussel-growing rafts," says Mr Lehuin. The five families now have two rafts in place, which annually produce 20 to 24 tonnes of mussels for each family. Their results have encouraged other fishermen to follow their example—in 1987, 15 other local families joined the project.

The island of Chiloé has always been renowned for its seafood. Its clear waters and numerous protected bays have traditionally been very productive. Some years ago, though, several processing plants were set up on the island but overharvesting soon wiped out this natural resource.

In 1984, with IDRC's assistance, the Institute of Marine Research started work on "choritos", a local name for the mussel known scientifically as *Mytilus chilensis*. The team also studied giant mussels *(Choromytilus chorus),* known locally as "choro zapato", as well as oysters.

At a small research station in Yaldad, biologists are discovering how these organisms grow and reproduce. In mussels, reproduction occurs in the water when "gametes" (mature germ cells) fuse, thereby producing larvae. The larvae then swim about for three or four weeks before attaching themselves permanently to an object.

Researchers examined the behaviour of this mollusc in great detail and attempted to answer various questions. Where and when are larvae to be found? How long do they swim about? When and to what do they usually attach themselves? The researchers also looked into aspects of mussel marketing.

Using their results, Yaldad has become the largest producer of spats (mussel embryos) in the country. In fact, production increased from 30 tonnes in 1984-85 to over 1000 tonnes in 1988-89.

Rafts made from local materials

On Chiloé, suspension rafts seemed to be the best production method. Similar rafts are found in many mussel operations throughout the world, so the technique for building them was not new in itself. But the researchers improved the rafts by using local materials (including wood). This cut the costs so that artisanal fishermen and farmers in the region could afford them.

The local community gradually began to express a desire to participate in the

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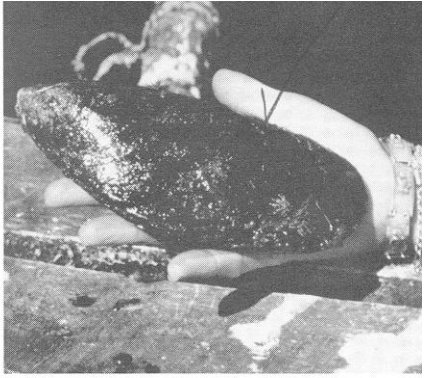
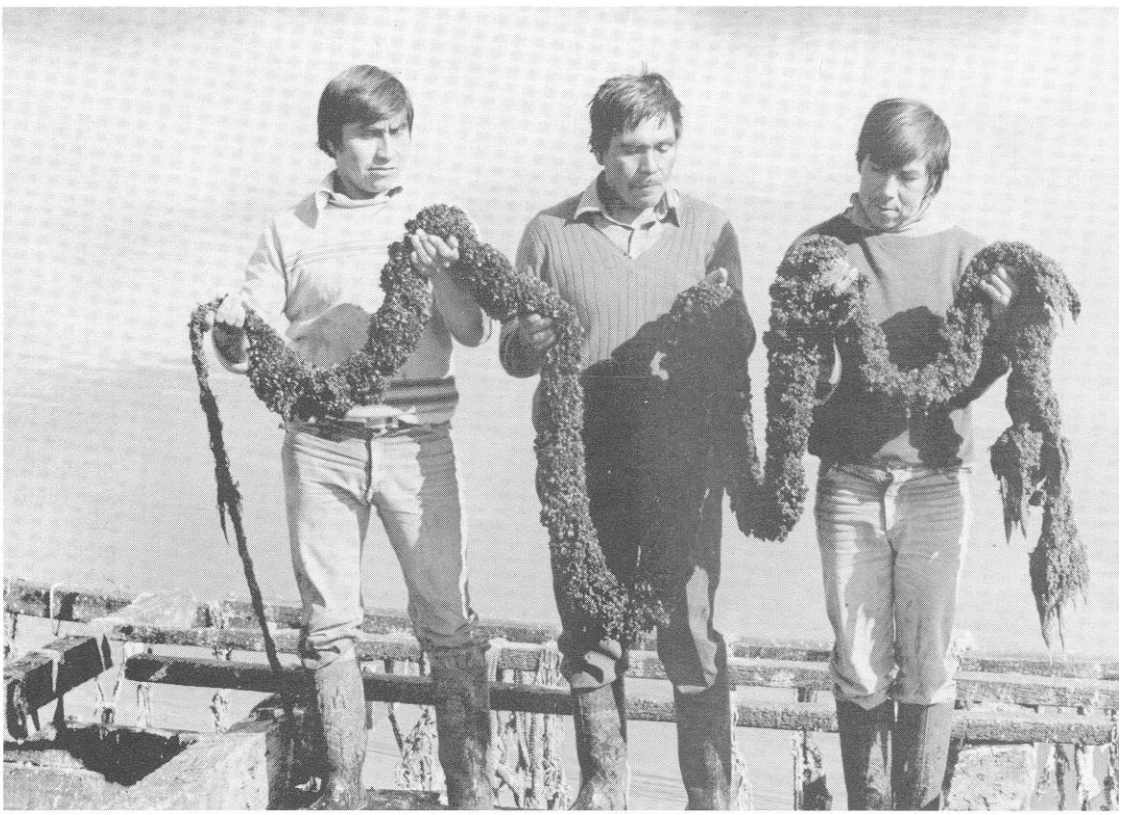


Photo: Sergio Sanchez

Right, workers display a string of young mussels known as spats. A rope hanging in the water below the raft serves as a point of attachment. Above left, mussel harvest on Chiloé Island. Above right, adult giant mussel locally known as "choro zapato".



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project. Several artisanal fishermen who had been helping out the researchers were interested in their technological success and said they themselves were prepared to try mariculture.

The researchers waited until they had completed all their biological studies and had gathered all the necessary information before involving the local population. Even then, the technology was introduced slowly.

In 1986 five families were selected to participate in the experiment. "They were chosen for their sense of responsibility and serious attitude," says project director Jürgen Winter, of the Austral University in Valdivia, Chile. "This was important because the future of our efforts to disseminate the technology depended on these families. If we had failed with them, no one would have wanted to get into mussel culture."

The families visited the Yaldad station to learn mussel culture techniques. Station staff also showed them how to assemble the all-important rafts. A year later, the families were able to harvest the fruit of their labour—splendid mussels that would be quickly snapped up on the market. The money earned was re-invested by the families in a second raft.

News of the success of these families spread quickly and there are now 19 small family enterprises producing mussels in the region. Heads of families were all trained at the Yaldad station as part of the project.

Seed for all

Besides helping families living near the Yaldad station, the project also stimulated the establishment of other mussel culture ventures by supplying local entrepreneurs with the spats needed to start their own operations.

Yaldad Bay is still a preferred site for gathering spats. Twenty-four mussel culture enterprises have set up their collectors in the bay. The harvest of spats is sent to other sites where the mussels are raised to market size. The hope is that some of these sites will in turn become spat suppliers in the near future.

Visitors from various South American countries have visited the Chiloé installations and are considering how the technology might be applied in their regions.

Dr Winter himself is surprised at the results. "Initially, we thought convincing the local people would be the hardest part. But in the end it happened all by itself. Our experimental raft aroused the interest of the first families, who had no difficulty in convincing their neighbours."

The researchers are now working on other molluscs to diversify local production and prevent market saturation. ■

Biologist Oscar Chaparro works at the Institute of Marine Research of the Austral University of Chile. Some of the interviews for this article were conducted by Sergio Sanchez Bahamode, a journalist in Santiago.