

**FEATURE-Eritrea's mangroves show way to fight hunger**

**By Andrew Cawthorne**

Wed May 21, 2008 3:04am EDT

HIRGIGO, Eritrea, May 21 (Reuters) - Fisherman Ali Osman grins as he hauls a large, yellow-and-silver emperor fish out of the shallow Red Sea waters off Eritrea. A minute later, his friend pulls out a baby shark, sweating in the heat as he chucks it on the rocks. Other fish flop on the sea's flat surface as four young fishermen waded through the high tide to take back an impressive haul to their village, Hirgigo. "If it wasn't for the mangroves, there wouldn't be so many fish," Ali says, pointing at a thick tree-line marking the border of desert and sea. The forest of newly planted mangrove trees has given fish, crabs and oysters vital shelter to feed and breed in an area where there were previously only arid mud flats.

Marine life, and their human hunters, are not the only beneficiaries of an eco-project in this Horn of Africa village that has won global awards as a model for reducing poverty and feeding the hungry. Led by U.S. scientist and humanitarian Gordon Sato, the project has transformed the landscape in an area where there is not enough fresh water to support conventional agriculture.

Leaves from the trees -- there are around a million mangroves in a six km (four mile) swathe from Hirgigo -- provide fodder for livestock. That means villagers no longer have to trek into distant highlands to feed their sheep and goats. In a further benefit of the decade-old "Manzanar" project's low-tech, self-sustaining cycle, ground fishmeal and dried mangrove seeds are also fed to protein-hungry animals.

"I was given three sheep, now I have 15. I was a poor man, now I am rich," said Salih Mohamud, a 60-year-old father of four, contentedly watching his animals eat.

**SATO'S SCHEME**

Now 80, Sato first came to Eritrea in the 1980s, when war and hunger were devastating its people. Wondering how agriculture could be stimulated on the barren coastline, Sato noted that mangroves would grow in thin bands along some sections of the shore. He and his team established that the mangroves were growing in areas where rain water was washing into the sea. The rain was providing nitrogen, phosphorous and iron -- elements lacking in sea water.

By burying the seeds with a piece of iron and a punctured bag of fertiliser rich in nitrogen and phosphorous, the mangroves flourished. Desertification was reversed, and the life of the community was transformed. "With simple experiments we are able to produce food and money for poor people where it did not seem possible. We can convert barren mud flats into mangrove forests and use these to provide the bulk of food for livestock," Sato said.

"In a few short years, poverty should be eradicated in this village," he told a newspaper. The project was named Manzanar after the California desert

internment camp where Sato and his family spent World War Two with thousands of other Japanese Americans. Then a young teenager, Sato created his own garden in the dusty earth.

## "RAINFORESTS" OF THE SEA

The Eritrean project has attracted attention abroad, picking up several development awards. Its proponents believe it can be a model for other poor nations with similar coastal geography -- such as Mauritania, Somalia, Peru or Haiti. "This is a low-tech solution to hunger and poverty. In these times of food price rises and global warming, it is just what the world needs," Manzanar project manager Ammanuel Yemane, of Eritrea's Fisheries Ministry, said at the site.

"Ours is a small and little-known country, but we have a unique project here that can serve as a model to the world." The majority of workers on the project, planting trees and collecting the leaves, are women, who draw a monthly salary of 600 nakfa (\$40), for the first time in their lives. Hirgigo was chosen due to its extreme poverty, exacerbated by two devastating attacks by the Ethiopian army. In one of the world's hottest areas, rain seldom falls, temperatures pass 40 degrees Celsius, and the humidity drains visitors. Its coastline, once stripped bare to provide leaves for camels and firewood, now has a profusion of vegetation and is teeming with sea-life: no wonder mangrove plantations are known as the "rainforests" of the sea.

Back in the water, fisherman Ali prepares to go out again in a makeshift raft. "In my father's day, the fishing here was so poor, but now look! I have enough to take home for my family to eat, and to sell to my neighbours." (Editing by Jack Kimball and Keith Weir) (For full Reuters Africa coverage and to have your say on the top issues, visit: [africa.reuters.com/](http://africa.reuters.com/) )

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