

## Peru's marine life losing out to fishfarms

"The Galapagos would be nothing compared to the coast of Peru as it was in the 1950s," says Patricia Majluf, who has been studying the impact of fisheries on Peru's seabirds and mammals for 27 years.

Instrumental in setting up the 54 ha Punta San Juan reserve, where 75% of Peru's Humboldt Penguins *Spheniscus humboldti* breed, Majluf received the £60,000 (US\$ 109,000) Whitley Gold Award in May this year. "We hope the award will help Dr Majluf in her fight to bring an end to unsustainable fishing practices along this globally important coastline," said Edward Whitley, founder and chairman of the Whitley Fund for Nature. "As El Niño events become stronger as a result of climate change, it is feared that Peru's marine wildlife will decline even further."

Peruvian coastal waters have the highest level of productivity of any ecosystem on the planet. But they are also the world epicentre for El Niño events. Populations of sea mammals and birds have always crashed following El Niños, when the huge shoals of anchovies on which they feed head for deeper, cooler water. But until the 1970s, the populations always bounced back within around five years.

Those populations included up to 30 million "guano birds", including Guanay Cormorants *Phalacrocorax bougainvillii*, Peruvian Boobies *Sula variegata* and Humboldt's Penguins, the source of the phosphate-rich crust of bird droppings which formed another of Peru's harvestable resources, until over-exploitation exhausted the reserves and threatened the birds which produced it.

After the 1997–8 El Niño, the longest and most severe of the 20th century, the guano birds, already reduced to 8 million before the event, dropped to just 1.2 million. The Humboldt's Penguins at Punta San Juan fell from 5,000 to just 50 in May 1998; there are currently around 2,000. Fur seals

and sea lions fell to 10–20% of pre-El Niño populations; eight years on, they have barely doubled these historic low numbers.

"It's taking them much longer to recover—and the guano birds will never reach 30 million again," she says. The reason, she believes, is over-fishing of the anchovy shoals which sea mammals, seabirds and carnivorous fish like bass and grouper depend on.

Peru has the largest fishery on the planet, equivalent to 10% of the entire world's catch. But the anchovies are not for human consumption: they are processed into fishmeal, which goes to the developed world, and increasingly China, where it is used as fish food. "So we're using 10% of the world's fisheries catch to feed farmed fish," Majluf says.

The fishery takes up to 85% of the anchovies in Peru's waters. Although it generates around US\$1.7 billion a year for the Peruvian economy, the fishery brings few other benefits, and is doing real social and environmental harm. More and bigger boats join the fleet every

year, so the annual quota is met in less and less time. "They can now catch their quota in less than a month, and the factories will work just 60 days this year, down from 200 just five years ago."

Recent recruits to the anchovy fleet include artisanal fishermen, who traditionally depended on bass, grouper and other large fish no longer found in sufficient numbers to provide a livelihood. Exempt from the regulations governing the industrial fleet, they can take anchovy within the 5 km coastal limit; alternatively, they fish farther out, but lacking refrigeration equipment, bring rotting cargoes home.

As stocks fall, fishermen have gone after juvenile fish; and during the El Niño event itself, they pursued the shoals that took refuge in the deeper and cooler waters round Punta San Juan, which another marine ecologist has likened to "eating the seed corn".

Effluent from the fish processing factories is discharged into the bays which form the main breeding grounds for fish

and marine invertebrates, turning the water anoxic and causing "red tides" of toxic algae. Sulphur and other pollutants damage the health of human communities. "The industry pays less than one percent in taxes, so all these costs are externalised," Majluf says.

Studies have shown that halving the quotas to 4–5 million tonnes, which would still put Peru among the world's largest fisheries, would provide a sustainable future for industrial processors, artisanal fishermen, seals, guano birds and penguins. The World Bank, which once helped fund the expansion of Peru's fishing fleet, is now looking into stronger protection measures for the fishery and the wildlife, and Majluf is working with them.

She remains extremely hopeful. "Peruvian marine wildlife is adapted to living in an unpredictable environment, fluctuating between El Niños and the richest marine system in the world. Once the right measures are in place, the Peruvian coastal zone is so rich that it will quickly recover" ■

**"Guano birds" like Peruvian Booby *Sula variegata* are failing to recover after the last El Niño event, because of overfishing of the anchovies they feed on (Paul Goriup)**

