



**Waterworld:** The endangered manatee is the only herbivorous aquatic mammal on earth, and feeds on the reeds that grow beneath the banks of the Kwanza river.

# ANGOLA

## PRESERVATION ORDER

Angola is set to become a major world oil producer and by 2012 will represent 10% of BP's global production. Africa's sixth largest country, Angola also enjoys a rich natural heritage, which BP is helping to preserve through the introduction of a biodiversity action plan. GREG GOODALE reports from Luanda.

PHOTOGRAPHY PER-ANDERS PETTERSSON





A light breeze stirs the hot and humid morning air with patches of white cloud around a small bay in the mouth of the Kwanza river. The tranquillity of the area is a welcome contrast to the dusty, bustling streets of Angola's capital, Luanda, which lies only 60 kilometres (37 miles) to the north.

On one side of the river, a colourful menagerie of animal sounds emerges from a dense mangrove forest that teems with wildlife. On the opposite bank, four men lower a motorboat into the still waters of the bay and stock it with cans of fuel, binoculars, cameras and satellite navigation devices. They are preparing for a patrol that will take them on a 90-kilometre (56-mile) round trip up the river to investigate an elusive quarry.

Miguel Morais, a biologist at Luanda's Agostinho Neto University, and his crew are searching for signs of the African manatee, known locally as Dikunji, which inhabits the rivers of the West African coast on the stretch from Senegal to Angola. Morais aims to pinpoint areas of the river favoured by manatees, to determine their numbers and the impacts and pressures on their population.

"This project is my personal dream," says Morais as he helps two of his

students to clamber aboard. "You have to take into account that there has never been a study of the manatee in Angola."

Measuring up to four metres (13 feet) in length and resembling a giant seal equipped with short arms and legs, manatees are shy animals, seldom surfacing from their underwater home, and Morais admits that sightings are rare. As the only herbivorous aquatic mammal on earth, manatees feed on the reeds that grow beneath the banks of the Kwanza, and on this healthy diet, an adult can weigh as much as 500kg (1,102 pounds).

Surrounded largely by open plains of

savannah, the Kwanza river is also a habitat for many bird species, including the hamerkop, squacco heron, goliath heron, African fish eagle, palm nut vulture and great egret.

The retiring Dikunji is among many species, including the hippopotamus, crocodile, giraffe and zebra, struggling to survive in Angola. The country's three decades of devastating civil war have continued to weigh heavily on the Angolan people, and also on the country's natural heritage, since the ceasefire of 2002.

The war has led to the degradation and destruction of many animal habitats, and the country's resulting economic hardship means that poaching is rife in the country and even occurs within major reserves, such as the Kissama National Park, which lies along the southern bank of the Kwanza. Poaching is a major threat that is very difficult to control.

Food shortages caused by the war meant that manatees began to be hunted for bush food in recent decades, a practice which has continued since the ceasefire as living conditions in rural areas have been slow to improve. It has already drastically

"We truly believe that peace is here to stay. This is the basic foundation for the development of Angola." **José Patrício**



**Out of Africa: Clockwise from left, A fisherman on the Kwanza river; the capital city of Luanda; selling the catch of the day; Angola’s coastal waters are a habitat for whales.**

reduced the Kwanza’s population of hippopotami and conservationists fear that the manatee faces a similar threat.

For José Patrício, president of BP Angola, the end of the war will increasingly allow Angola to harness its natural resources on the road to development with attention to biodiversity.

“The great achievement of the last ten years was peace, because the country’s civil war destroyed the social fabric and infrastructure of the country,” Patrício says. “We truly believe that peace is here to stay. This is the basic foundation for the development of Angola.”

The boat speeds up, slipping between dense clumps of water hyacinth, and the mangrove forest slowly gives way to

scattered palm trees, papyrus and small settlements whose inhabitants live mainly from the Kwanza’s rich fish stocks.

Morais’ team makes stops along the route to talk to fishermen, gradually building up a map of manatee sightings and where they might be hunted. Over the next six months Morais and 12 staff will regularly patrol a 200-kilometre (124-mile) stretch of the Kwanza river from the sea to the Kambambe dam.

The collected data will allow Miguel and his team to estimate and monitor manatee numbers – essential groundwork for future conservation efforts, including educational programmes for local fishermen.

“Before you can protect a species, you have to be able to understand the species

you’re protecting. At the moment there’s absolutely no data on the manatees in Angolan rivers,” says Anne-Marie McLaughlin, HSE advisor at BP Angola.

Support for Miguel’s project is part of BP’s biodiversity action plan, which aims to ensure that the company’s growing local presence will not harm the environment and its benefits will extend beyond Angola’s economy to make a measurable contribution to protecting and enhancing the country’s rich natural heritage.

“We can now show what we do for the environment and biodiversity, how we’re measuring it and how we are progressing from year to year,” McLaughlin adds. “It’s about conducting responsible operations. We need to know where we’re having an impact and to understand that impact. We need to know how we can use our operations to enhance biodiversity as much as possible.”

As BP produces oil in Angola from offshore deposits, the biodiversity action plan focuses on understanding and protecting the biodiversity of the Angolan coast and the Atlantic ocean.

Angola’s coastal waters form part of the migratory route of many rare and endangered marine mammals, including



**Winging it: The Kwanza river is home to many bird species including the great white egret and the little egret.**

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sperm whales, killer whales, humpback whales, bottle-nosed dolphins and humpback dolphins. From October to February the Angolan coast is the nesting ground for five species of marine turtle, of which the loggerhead, green, hawksbill and leatherback are classified as endangered,

To protect the marine ecosystem, each of BP's seismic vessels carries a marine mammal observer who ensures that BP's work has no adverse effect on wildlife. The observers also contribute to the scientific study of aquatic biodiversity by identifying

and recording sea mammals, sharks, turtles and bird species in the area of operations.

The biodiversity action plan monitors the effects of BP's oil production, which uses the latest technology designed to minimise environmental impact. By incorporating some sophisticated cleaning equipment and environmentally friendly synthetic fluids, modern oil platforms can safely return treated drill-cuttings to the seabed.

"In Angola the water is more than 1500 metres (4,921 feet) deep and with strong currents the cuttings settle into a thin

layer on the seabed where residual oil readily biodegrades." explains Ronnie Gallagher, environmental team leader at BP Angola.

BP will also reduce its atmospheric impact by re-injecting gas that is produced along with the oil into its reservoirs. Prior to global warming becoming a recognised phenomenon the oil industry often simply burned off the gas, so leading to greenhouse gas (GHG) emissions. BP has since made a significant stance to reduce its GHG emissions worldwide. From 2010, all gas produced by BP offshore Angola will be transported to shore and liquefied for international transport. A liquefied natural gas (LNG) plant is planned near the port of Soyo at the mouth of the Congo river.

Under the biodiversity action plan BP's remotely operated vehicles (ROVs), used for inspecting underwater installations, work overtime in capturing samples of deepwater marine life as part of research into deepwater species. ROV operators are being trained in biology and have enthusiastically agreed to use downtime to study the largely unknown biodiversity in the marine depths. The research which is in →



**Working to plan:** The control deck of the Jack Ryan drilling vessel, which collects samples of deepwater marine life, left; a game of basketball on the streets of Luanda.





Seeds of success: Land has been cleared and will be ready to farm later this year, benefiting 80 farmers including 30 women.

## Mabuia: Cooperative takes root

**S**imeão Silvestre, a market gardener from the village of Mabuia, is getting used to dealing with disbelief from his neighbours. He belongs to a fledgling farmers' cooperative which is receiving vital irrigation systems, farmland and training under a joint investment programme operated by BP and the Cooperative League of the USA (Clusa).

"People from neighbouring villages can't believe that [the project] is for small growers like us," Silvestre says. "They think we will be working for a big plantation, they can't believe that it's all for us, that we'll actually own it."

Mabuia sits amidst a large plane of farmland, scattered with the giant trunks of baobab trees, 60 kilometres (37 miles) north of Luanda. The village has all the ingredients needed to become a successful farming community: it has fertile land, a river to provide water and experienced farmers. Yet despite these assets, it has also faced some insurmountable barriers.

Rainfall is unpredictable most of the year, and in the dry season it is virtually impossible to grow anything without irrigation equipment. The river here is a reliable water supply, but to use it farmers need water pumps and piping, says Clusa agribusiness advisor Filomena Nogueira.

To address the problem, BP is helping to build two irrigation tanks, which will hold 7,000 cubic metres of water,

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two pumps and nearly three kilometres (1.8 miles) of piping to take the water to the tanks and out to the fields.

The irrigation system will allow farmers like Silvestre to grow high value crops like cabbages, bell peppers, tomatoes and eventually expand into permanent production by planting fruit trees like banana, lemon, mango and papaya.

Clusa has prepared the ground by training the community to work as a farmers' cooperative, by building solidarity and providing business skills, allowing the cooperative to balance the books and find markets for its products.

The cooperative has established a Service Centre that links Mabuia farmers to much needed supplies such as fertilizers, pesticides and farming equipment. With this new source of supplies, farmers can get what they need at lower cost and closer to home.

The need to pay rent on farmland has also hindered the community, but the Angolan government agreed to donate the land for the project. With BP's help, the 66 hectares (163 acres) of land has been cleared and will be ready to farm later this year, benefiting 80 farmers including 30 women. Project staff are studying the feasibility of digging drainage canals to prevent flooding of lowland fields.

According to Nogueira, the project is not designed as a typical donation but more like a loan. Beneficiaries will repay the direct costs of the project into a revolving loan fund with which the cooperative will support future production activities in the community. Part of their repayment will be used to establish a maintenance fund for upkeep of the irrigation system.

For the Mabuia community the success of the cooperative will mean a chance to improve living conditions, to build robust homes and invest in the next generation.

"[The project] will help us to improve our working conditions, buy a tractor, get our children through school, and buy vehicles for transport," Silvestre says. "And we will not be going to sleep with hunger."

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its initial stages has led to the discovery of a species of the *Paracallisoma* amphipod (a shrimp-like crustacean), which will be named *palas* to commemorate its discovery at the Palas-1 well.

By sponsoring projects such as these, BP is also helping to develop a local pool of scientists capable of monitoring and protecting Angola's biodiversity during the rapid expansion of the domestic oil industry, which it is estimated will receive around \$35 billion in investment by the end of the decade.

Although oil was first discovered onshore Angola in the Kwanza area in 1955, major exploration and development of the country's substantial offshore oil deposits did not begin until the 1990s, and while production has only recently reached one million barrels a day, it is set to double before the end of the decade.

Today, BP is among a handful of international companies working with the Angolan government to develop the country's offshore oil deposits and is operator of two large deepwater areas north-west of Luanda, known as Block 18 and Block 31.

The oil found by BP in Block 18, which is currently being prepared for production, and the potential of Block 31, where

exploration is continuing, will make BP the biggest oil producer in Angola by 2012, says Mary Schafer-Malicki, chief operating officer of BP Angola.

"The first milestone for us will be in 2007 when we get first oil from the first BP operated field – Greater Plutonio," Shafer-Malicki says. "By the end of the decade, BP will be producing at a sustainable rate of more than 400,000 barrels a day. At that time this will represent almost 10% of BP's global production. Angola will be a very prominent contributor to the group's results."

By 2012 BP Angola's workforce will swell from 500 to 1,600 and the company plans that by then at least 70% of its employees will be Angolans.

"You would be challenged anywhere in the world to grow a company to that extent, and at the pace we are planning, given the way the industry is chasing oil and gas right now," says BP Angola chief executive, Bill Schrader. "We are trying to do it not only in this industry but we want to do it in

Angola predominantly with Angolans."

This demand for employees calls on BP to actively promote the local development of industrial skills as well as qualifications in science and engineering.

"We're getting involved with the local university, helping with their infrastructure, curriculum, teacher training and scholarships," Shafer-Malicki says. "Rather than just saying 'let's go recruit' we have to ask 'where are our recruits coming from?'"

As well as providing jobs, BP's work with local businesses is helping to develop local skills and enterprise, a growing contribution to the Angolan economy, says Graham Evans, sustainable development manager at BP Angola. "Last year BP spent about \$199 million in Angola, which was over 20% of our total expenditure – and we expect this to increase as local industry grows," Evans says.

Patrício is confident that BP's growth in Angola will mirror a period of rapid development in the country, helping to heal its society and restore its biodiversity. "If you look at where the country has come from and at BP's plans for the future," Patrício says, "in terms of life cycle, BP and Angola are aligned like twin brothers, both growing together." **BPM**

**Setting the scene: Clockwise from top left, the Luanda shoreline; helping to develop local skills; fishing on the Kwanza river; traders set up their stalls.**

