



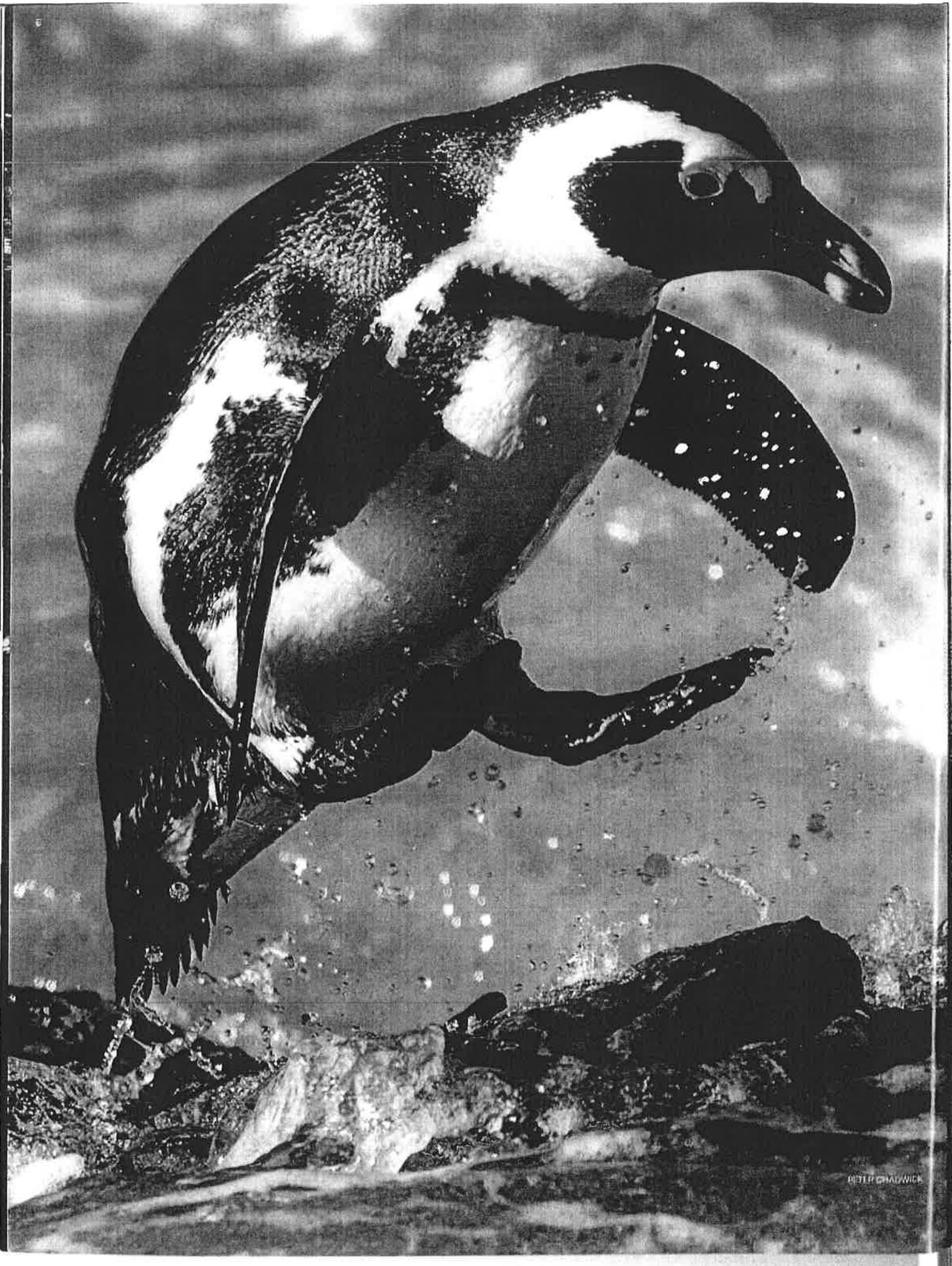
CONSERVATION

penguins

PASSION,
PRESSURE
& POLITICS

TEXT JOHN YELD

FOR MANY OF US, extinction is something that happened to the dinosaurs and the Dodo. We just don't believe it's possible that one of South Africa's most iconic and best-loved creatures – for which the country has a special responsibility of stewardship – could disappear from our oceans and coasts, possibly even within our own lifetimes. Unfortunately, we could be mistaken. And although intensive conservation efforts are under way to try and ensure the survival in the wild of the African Penguin *Spheniscus demersus*, one of just 18 extant penguin species and a southern African endemic, its future is not guaranteed. >



PETER CHADWICK



CHRIS FALLOWS

THE DAMNING figures speak for themselves. No one knows exactly how many African Penguins graced the coastline between roughly the northern Namib Desert and the Eastern Cape in pre-colonial times. There may have been several million birds, because by the beginning of the 20th century there were about one million penguins just on Dassen Island, off the West Coast. But by the time the first formal penguin census was conducted in 1957, numbers on Dassen had already crashed to fewer than 75 000 breeding pairs and the total population had dropped to just 147 000 pairs.

Egg collecting contributed considerably to this – hundreds of thousands of eggs were removed each year for human consumption. But even after egg collecting was outlawed in 1967, penguin numbers continued to fall. The collapse of sardine and anchovy stocks off Namibia in the 1970s

saw the demise of the northern population. With jellyfish and salps now dominating the northern Benguela, there is little hope of the fish re-establishing themselves there.

Off South Africa, sardine stocks had already crashed during the 1960s, but were replaced to some extent by anchovies. Penguin numbers decreased, driven also by the increased numbers oiled in tanker spills following the escalation in shipping traffic after the closure of the Suez Canal. There was a brief respite in the 1990s, when several bumper years for pelagic fish increased food availability for penguins, but since 2000 penguin numbers off South Africa – and especially off the heavily fished West Coast – have been plummeting.

There are now fewer than 20 000 pairs breeding in South Africa, and the total population is just some 25 000 pairs – 2.5 per cent of what it was some 80 years ago.

Dr Ross Wanless, head of Bird-Life South Africa's Seabird Conservation Programme, was 'deeply shocked' when the true state of the plunging penguin population was revealed at the 2nd International African Penguin Conference in April 2009. 'The results that were presented were almost unbelievable, but I couldn't argue with the numbers,' he said afterwards.

In 2010, the African Penguin was listed as Endangered on the IUCN's Red Data list, and the population is now at its lowest level ever. Unfortunately it is still going down, confirms researcher Dr Lorien Pichegru of the DST/NRF Centre of Excellence at the University of Cape Town's Percy FitzPatrick Institute of African Ornithology and the Department of Zoology at Port Elizabeth's Nelson Mandela Metropolitan University.

This decrease is not evenly spread across the bird's range. The population is stable at a very low level in Namibia and has >

above African Penguins run the gauntlet between Cape fur seals. Increased predation by seals has helped drive the birds' population crash.

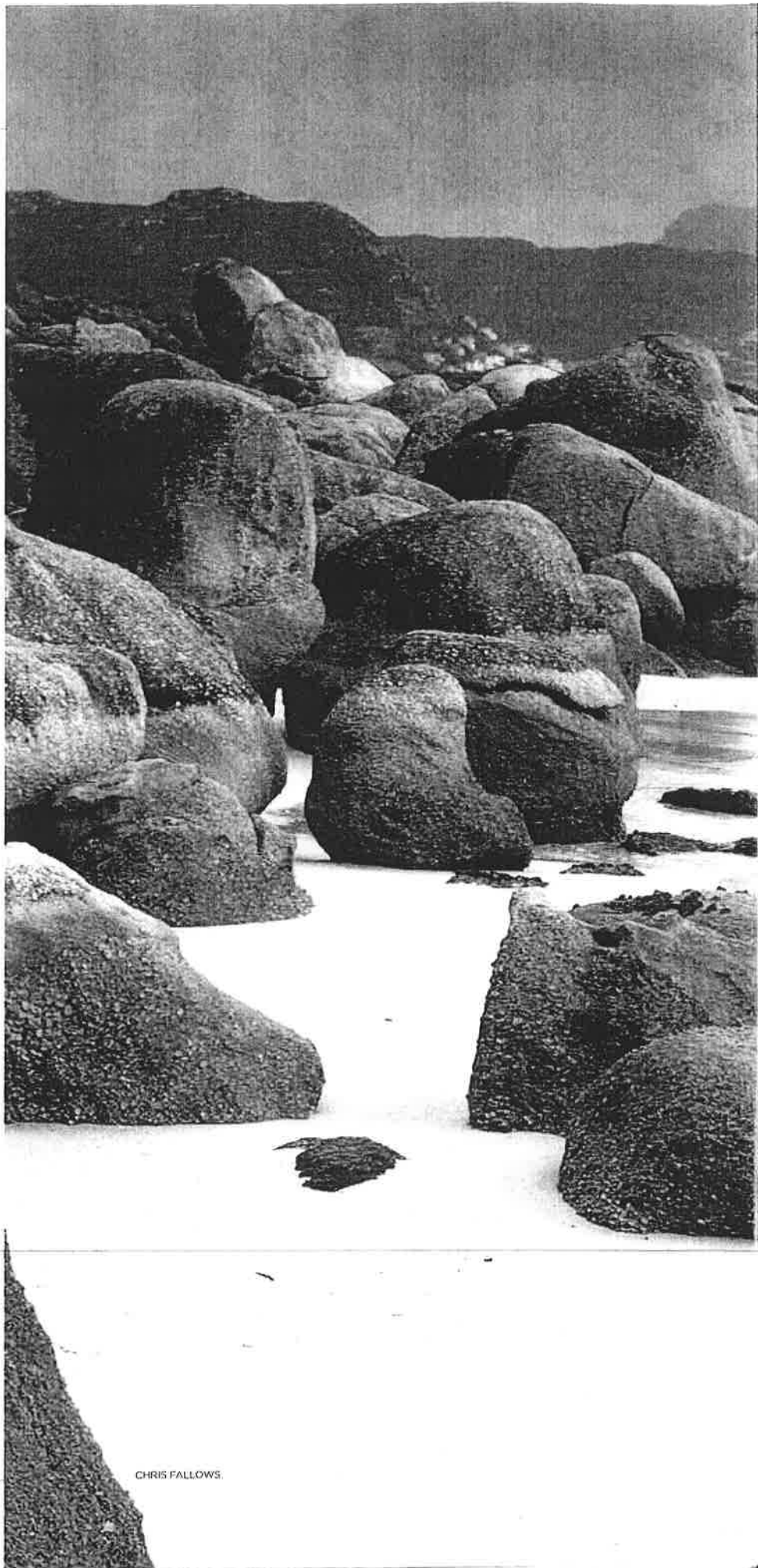
stabilised during the past four to five years on the Eastern Cape coast after a rapid decline, but it continues to drop on the West Coast. 'And because the West Coast population has decreased so much - Dassen Island is down to just a thousand pairs now - we hold half of the global population on just two islands: St Croix, the biggest colony now with 8 000 pairs, and Algoa Bay's Bird Island,' Pichegru says. 'So there's a concentration of the population there, making them very vulnerable to a single oil spill or overfishing in the area.'

Some of the reasons for the penguin's historic decline are well documented, like the egg collecting on a massive scale and the increased number of oil spills already mentioned above, but also guano scraping at island breeding sites; increased predation by Cape fur seals and gulls; and disturbance by people, domestic animals and predators at mainland breeding sites.

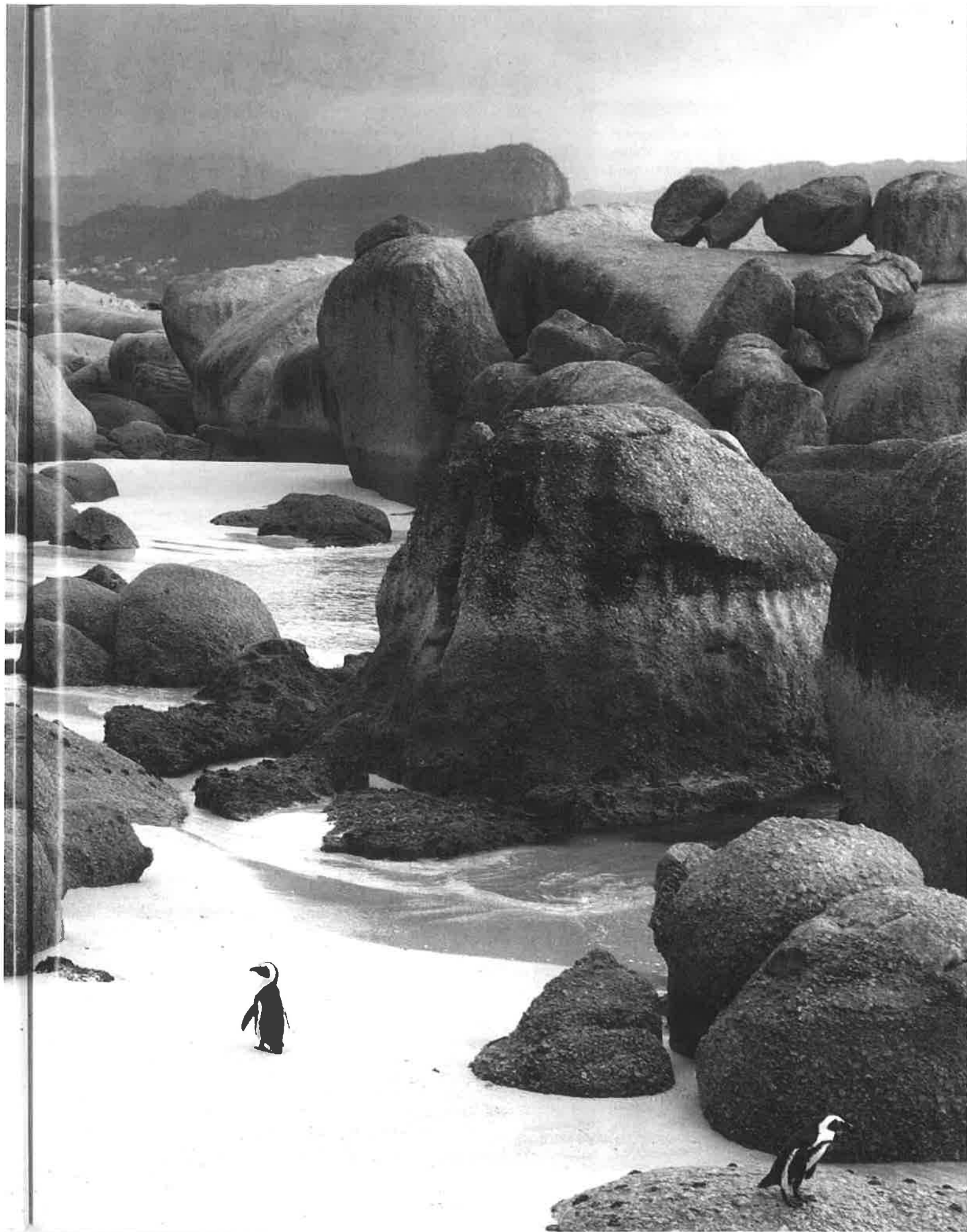
But other possible causes are not yet fully understood or quantified, notably, the extent to which penguins have been affected by a marked shift in the distribution of their prey away from their West Coast breeding sites. Small pelagic fish, such as anchovies and sardines, are now concentrated along the southern Cape coast, where there are currently no penguin breeding sites in a 600-kilometre stretch between Dyer Island in the west and Algoa Bay in the east.

Overall, there's been both a lack of breeding success and an increased mortality of adult birds.

Writing in the November/December 2012 issue of *African Birdlife*, FitzPatrick Institute director Professor Peter Ryan pointed out that a number of penguin colonies had already been lost and more were 'teetering on the brink'. He warned: 'Urgent action is needed if we are to ensure the survival of African Penguins in the wild.' >



CHRIS FALLOWS



It's a warning that has been heeded, and major conservation efforts are now under way for penguins.

A formative event was a workshop in the southern Cape fishing village of Arniston in October 2010, where a proposal to develop an African Penguin Biodiversity Management Plan (APBMP) in terms of the National Environmental Management Act: Biodiversity Act of 2004 was discussed. A draft plan was further refined and formally published in the *Government Gazette* of 31 October 2013, a first for any marine species.

One current conservation research initiative is a transponder project that involves microchipping penguins on Robben Island to gather data on survival rates and the effects of fitting flipper bands. Another is tracking birds outside the breeding season, because despite the plethora of research over decades, scientists still know very little about the movements of non-breeding penguins and what threats they face at sea.

A third area involves lobbying at a policy level. 'Fishing quotas are set without taking the distribution of fish into account and this may affect the availability of fish for penguins, especially since

the shift in fish distribution,' says BirdLife South Africa's Coastal Seabird Conservation Manager, Christina Hagen, who runs the organisation's African Penguin conservation programme.

One of the most exciting, albeit complex, conservation projects involves artificially establishing a new breeding colony on the southern Cape coast mainland - 'to create resilience in the penguin population by bridging the gap between the western and eastern populations,' says BirdLife South Africa, which is leading this initiative. The preferred option is a site near the Keurbooms River mouth near Plettenberg Bay, and an alternative is the coastline of the De Hoop Nature Reserve, just east of Cape Agulhas.

Birds could be attracted to the new site by using decoys, playback of penguin calls, and even mirrors. Captive-raised chicks rescued from the wild and/or juveniles will be released here, and nesting boxes provided to help attract new penguins and persuade youngsters to return to when they're ready to start breeding, at the age of around three or four. Substantial funds have been donated to BirdLife South Africa to research this proposal, but as-yet unanswered questions include how to avoid the introduction of disease and preventing terrestrial predators from attacking the penguins.

Introducing artificial nests is also mooted as a benefit, but an APBMP habitat working group has found that it's also not a simple matter.

For example, fibreglass prototypes were introduced to Dyer Island in 2004 but recent research has found that the eggs were 'basically cooking inside them,' says Pichegru. 'The temperature inside was regularly going as high as 55 degrees Celsius.' Natural burrows in guano are very well insulated, with the interior temperature varying only between five and eight

degrees between day and night in summer. Even if some eggs in artificial nests hatch successfully, that doesn't resolve the problem of temperature extremes: chicks also need protection against cold, wet weather. Hundreds of chicks die of hypothermia and by drowning in their own open nests during heavy storms. 'Because penguins should breed in burrows, we're now trying to mimic natural burrow conditions,' says Pichegru.

As penguin numbers decrease, predation by Cape fur seals and Kelp Gulls in particular on eggs and small chicks has become a progressively more serious factor

below In this September 2013 image, then UCT Master's student Jennifer Roberts returns a penguin fitted with a satellite tracker to its Dassen Island burrow.

right The African Penguin is wading perilously close to extinction, with just 25 000 pairs left from an historical population of millions.



JOHN YELD





PETER GIADWICK

SCIENTISTS STILL KNOW VERY LITTLE ABOUT THE MOVEMENTS OF NON-BREEDING PENGUINS AND WHAT THREATS THEY FACE AT SEA

at some breeding sites, because the penguins become more vulnerable. On Bird Island in Algoa Bay, SANParks managers resorted to culling small numbers of gulls. Pichegru, who researched the gulls' predation, agrees that culling raises ethical issues because the gulls are natural predators. But, she argues, because

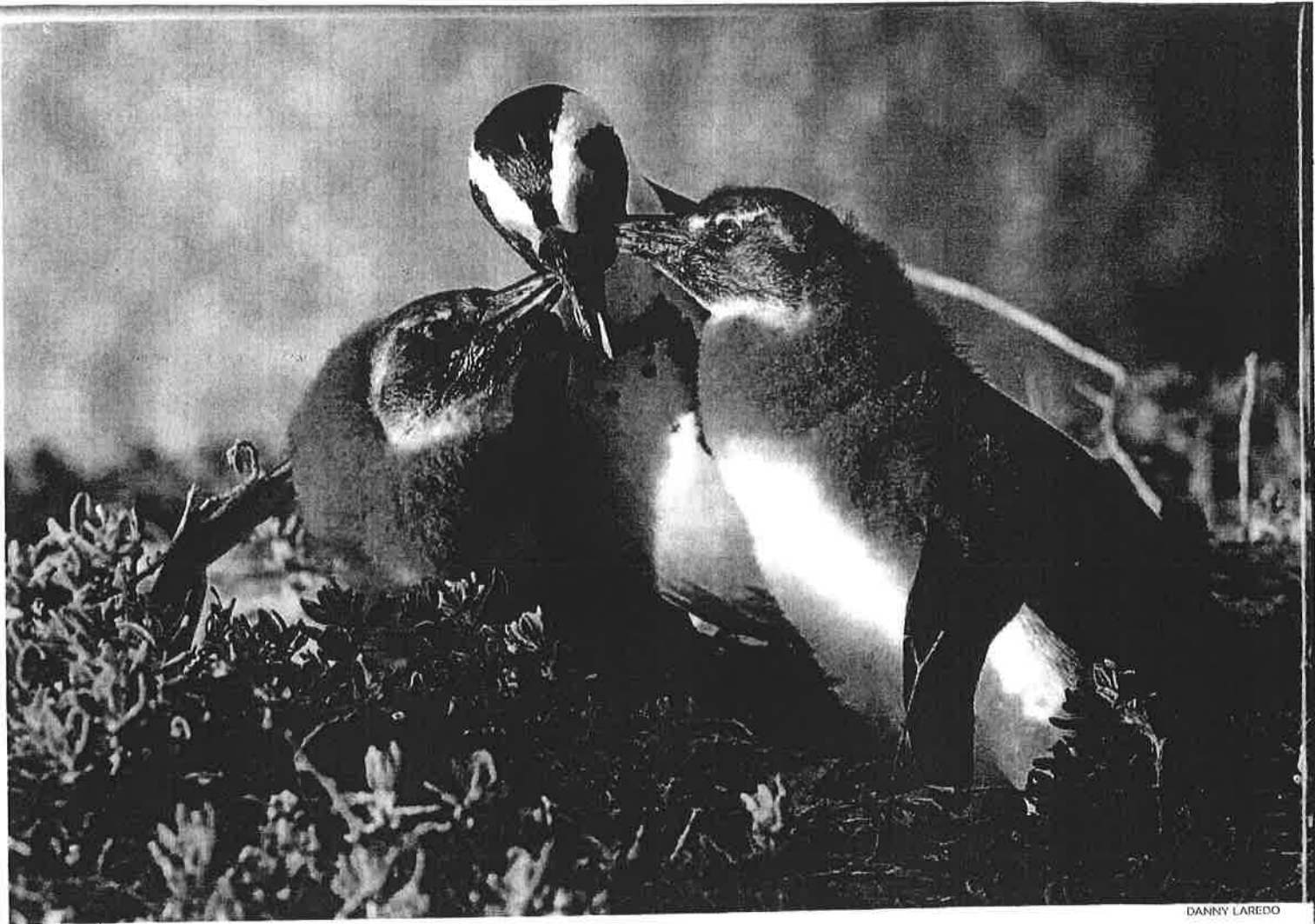
humans were largely to blame for upsetting the ecosystem, we're now obliged to intervene in an attempt to regulate it.

Another initiative is a proposed Marine Protected Area (MPA) in Algoa Bay that will stretch some 75 kilometres along the coast from the Port of Ngqura to Cannon Rocks near Alexandria, extending offshore as far as 20 kilometres at its widest point. A 20-kilometre zone around St Croix, and a smaller seven-kilometre zone around Bird Island would then be permanently closed to sardine fishing. Planning for this initiative started as far back as 1997 but the

Minister of Environmental Affairs has not yet made a final decision.

Arguably, the major current threat to the African Penguin is the local shortage of its prey. So a crucial question is, how great a role does possible competition for resources between these birds and the small pelagics fishing industry – especially around the island breeding colonies – play in the penguins' breeding success and adult survival?

An Island Closure Task Team of the Small Pelagic Scientific Working Group of the Department of >



DANNY LAREDO

Rearing chicks successfully is hampered by a shortage of key prey species – anchovies and sardines – around most breeding sites.

Agriculture, Forestry and Fisheries (DAFF) has been investigating the ecological advantages for penguins of closing demarcated areas around breeding colonies to fishing for certain periods, while also analysing the possible socio-economic disadvantages for affected fishermen.

The team devised a large-scale experiment involving short-term purse-seine fishing closures in a 20-kilometre exclusion zone at two pairs of islands that are sufficiently close to each other to share environmental conditions: Bird and St Croix islands in Algoa Bay, and Dassen and Robben islands off the West Coast. The four islands are key colonies that, when the experiment started, collectively held some 14 600 breeding pairs, or about 75 per cent of the South African penguin population.

St Croix was closed to purse-seine fishing from 1 January 2009

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to 31 December 2011, while Bird Island remained open to fishing until 1 January 2012, after which it was closed for three years. A similar scenario was imposed at Dassen and Robben islands in 2008/2009. A wide range of data were collected; unfortunately, the results were not conclusive across both experimental areas, and led to a tense stand-off in the task team between the biologists committed to an 'ecosystem approach', and applied mathematician Professor Doug Butterworth, director of the UCT-based Marine Resource Assessment and Management, who supports a stock assessment view of fisheries management.

Pichegru, a biologist, says the experiment delivered lots of data that gave a strong result in Algoa Bay, showing that the island closures helped by decreasing adult foraging effort and that, in general, the trend was very positive towards more closures for fishing. But the same was not true on the West Coast, although the closures there helped produce chicks in better condition. However, even if the experiment may not yet have produced fully conclusive results, the precautionary principle demands that the experiment should continue because penguin numbers are still dropping, she argues.

Butterworth, in turn, maintains there are sufficient data showing that the closures do not benefit the penguins sufficiently, and as these closures have an adverse impact on the fishing industry (the biologists say no such evidence was shown), the

experiment at Robben and Dasen islands should be terminated.

Butterworth's argument is based partly on an analysis of the West Coast data by one of his PhD students, Will Robinson, whose results indicated – 'perhaps surprisingly' – that penguin reproduction was better when fishing catches were larger. In his thesis abstract, Robinson agrees that the recent downward trend in penguin numbers, particularly at Robben Island, is 'certainly worrying' and that investigations into reasons for this decline should continue. However, the most commonly suggested reason for the decrease in penguin abundance – heavy fishing pressure – is unlikely to be the primary cause, he says.

Robinson's key results include that the primary reason for the penguin decline at Robben Island is a drop in survival rate of adult birds post-2000, which does link to the eastward shift of sardines over the past 15 years or so. He also found that if the current sardine distribution remains, the outlook for the Western Cape penguin colonies is poor – with or without fishing – and Robben Island appears to be marginal habitat for penguins at this time.

The seemingly irreconcilable interpretations in the task team were adjudicated by the International Fisheries Stock Assessment Review Panel that met at UCT in December 2014. The panel concluded that the suggestion that

increased fishing improved penguin population status 'seems unlikely, given the literature'; also, it was not surprising to find some statistically significant results indicating a positive effect of reduced fishing on penguins.

The panel also noted that the two opposing groups in the task team had essentially evaluated different sets of questions, but that there had also been some agreement between them, including that penguins had benefited from reduced catches and closures at St Croix, but that stopping fishing around the islands was unlikely by itself to be sufficient for the penguin population to recover. The panel recommended that the most effective way to address the impact on penguin populations of fishing near islands was to conduct a full-scale experiment, and it strongly recommended that the current closure regime be continued.

Following further discussions, Emeritus Professor George Branch was appointed as a facilitator and has now reported back to DAFF, presenting findings and making recommendations that are not yet public. For now the island closures remain in place, pending a DAFF decision.

Hagen says BirdLife South Africa welcomes the opportunity to resolve the differences in a constructive way and supports the recommendations put forward by the facilitator. The organisation continues to support the

APBMP and believes it's an important framework to streamline the many actions needed to save the African Penguin. 'But it's too early to tell if these will be enough to reverse the dramatic population decrease,' she adds. ♦

RESCUE & REHABILITATE

WHEN 'Jeffrey' the penguin was helped over the side of the boat and into the sea near Dyer Island on 4 May 2015, those aboard (and their colleagues on land) had special reason to cheer.

This was because the bird was the first of its kind to have benefited from treatment and care at the African Penguin and Seabird Sanctuary (APSS), a dedicated rehabilitation centre that had been in operation in Gansbaai for just over two months at that stage.

The sanctuary, billed as a 'custom-designed, world-class marine bird rehabilitation centre', will provide temporary care for diseased, displaced, injured, oiled and abandoned marine birds, with a special focus on the endangered penguin.

The APSS is a project of the Dyer Island Conservation Trust in conjunction with its partners Marine Dynamics and Dyer Island Cruises, and will work closely with CapeNature and the Department of Environmental Affairs. With sponsorship from Volkswagen South Africa and Grindrod Bank, it was officially opened on 26 February by Derek Hanekom, the Minister of Tourism.

An emaciated Jeffrey had been found at Grotto Beach in Hermanus on 10 April by CapeNature officials who rushed him through to the new sanctuary. The penguin responded so well to treatment that he was released in less than a month.

'This is one of the huge benefits we bring to the Overstrand – the authorities now have a local rehabilitation centre that they can immediately bring their injured birds to, and we have the means to release healthy birds back into their wild environment,' says project director Alouise Lynch.

On the web: www.africanpenguin.org
Penguin Rescue Line: 072 598 7117



DYER ISLAND CONSERVATION TRUST