the long *haul*

A DECADE OF CONSERVING ALBATROSSES AND PETRELS

Over the last 10 years, *Africa – Birds & Birding* has run a number of articles highlighting the plight of albatrosses and petrels off southern Africa. This period has seen some conservation successes, but new threats are emerging. **Peter Ryan** reviews the highs and lows of working to conserve these magnificent seabirds. ▸

Photographs by Peter Ryan

Above *An adult Atlantic Yellow-nosed Albatross displays to birds flying past on the northern scarp of Inaccessible Island. The yellow gape stripe is normally concealed by the cheek feathers.*

Previous spread *An adult Black-browed Albatross hangs over the wake of a trawler, waiting for scraps, among a flotilla of Pintado Petrels.*

I was trained to work on seabird conservation. As a callow honours graduate in zoology from the University of Cape Town in 1983, I was offered a job as a fresh-water systematist in Namibia, which had numerous attractions, not least the promise of plenty of field time in that exciting country. My only other offer was from John Cooper, who suggested I might like to investigate the impacts of plastic ingestion on seabirds. It didn't sound too exciting a topic for masters' research, but then John said the magic words – it would mean trips to Marion and Gough islands. I was hooked, and happily spent the next three years searching for plastic in the innards of hundreds of seabirds, many of which had been lying dead on beaches for far too long. It was the start of my career in seabird conservation, and I developed a useful tolerance for working with smelly seabird carcasses.

In the late 1980s, although I went on to study the evolution of buntings at Tristan da Cunha, I maintained a side interest in seabirds, investigating their interactions with drift-net and rock-lobster fisheries around Tristan, as well as working to conserve their breeding sites. However, I failed to appreciate perhaps the greatest threat facing Southern Ocean seabirds.

Just as we were celebrating the banning of high-seas drift-netting, Nigel Brothers reported the devastating impacts of long-line fishing. As a conservation officer for the Tasmanian conservation authority, Nigel went on several Japanese vessels catching tunas in Australian waters, and was alarmed by the numbers of albatrosses and large petrels being caught. Given that the Japanese alone set some 108-million hooks each year to catch blue-fin tunas in the Southern Ocean, simple extrapolation suggested at least 44 000 albatrosses were being killed annually – enough to account for the decline in albatross numbers observed at several key breeding islands.

Ian Macdonald, then director of conservation research at WWF-SA, saw the need to assess the scope of the problem off South Africa. In a good example of how a small amount of seed money can initiate a significant research enterprise, I was drawn into the long-line issue. Over the past decade, it has come to dominate my research efforts and those of many of my students.

Although tuna fishing was seen as the big threat, it was hard to document. Almost all fishing effort in South African waters was by Taiwanese and Japanese vessels. Most of these ships fished *en route* between other, distant fishing areas, so there was no easy way to get observers aboard. And communication was a huge obstacle. The Japanese embassy flatly refused to help, but researcher Christian Boix worked with the Taiwanese embassy to interview skippers of vessels calling at Cape Town. All skippers reported catching birds, especially when fishing close to the continental shelf, where seabird numbers are highest. Their identification skills were suspect, but we obtained some idea of the scope of the problem from seabird remains returned to port under a voluntary programme initiated by the Japanese fishery. This identified Black-browed, Shy and Grey-headed albatrosses as the main bycatch species, followed by smaller numbers of Wandering, Royal and sooty albatrosses, and giant, White-chinned and Grey petrels. In 1992, a single bag from one vessel contained the heads of one Wandering, 19 Shy, 28 Black-browed, two Indian Yellow-nosed and three Grey-headed albatrosses, five giant-petrels, one Grey and 64 White-chinned petrels.

Fortunately, the new South African government's policy was to develop opportunities for domestic fishing interests, and foreign tuna vessels were being phased out. However, the mid-1990s also saw the development of a long-line fishery for bottom fish, initially kingklip and then hake. As an experimental fishery, some vessels were required to carry observers who could record bycatch of seabirds and other non-target species. The kingklip fishery was short-lived because it had a devastating impact on the stocks of this species. The hake fishery, however, has grown considerably, in part because it requires less capital for new entrants to the industry than trawling, making it easier for previously disadvantaged groups to enter the fishing industry. MSc student Keith Barnes estimated that the fishery killed some 8 000 White-chinned Petrels each year in the mid-1990s, and identified some of the key areas for reducing seabird bycatch. When these were implemented as part of the fishery permit conditions, bycatch dropped significantly, and currently only a few hundred birds are killed each year.

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The mid-1990s also saw a mad scramble to exploit Patagonian toothfish in the sub-Antarctic, including around South Africa's Marion and Prince Edward islands. In scenes reminiscent of the period immediately after the discovery of guano, vessels converged from all over the world to plunder the pristine stocks of toothfish. Because South Africa lacked the resources to police its resources effectively, a legal fishery was initiated in 1997 in the hope that this would control fishing effort. Licenced vessels were required to carry independent observers, so we had a good idea of the fishery's impact on seabirds. In the first year of the legal fishery, almost 1 000 birds were killed, mainly White-chinned ▷

Heads of albatrosses and petrels killed on long-lines set for tunas in the Southern Ocean. Some vessels kill so many birds that observers can only retain the heads for identification.

Petrels, but with significant numbers of Grey-headed and Indian Yellow-nosed albatrosses and giant-petrels. The illegal fishery was estimated to kill about 10 times this number of birds. Worryingly, almost all the birds killed were breeding adults, which has a greater influence on the long-term health of the population than had young birds been killed. The impact was further exacerbated by a strong male bias in mortality, which could lead to long-term imbalances in sex ratios that take years to redress even after mortality ceases.

PhD Student Deon Nel was dispatched to Marion Island to study the impacts of the toothfish mortality on seabirds breeding on the island. He found that not all albatrosses were adversely affected by the fishery. Large numbers of Wandering Albatrosses gathered at fishing vessels to scavenge discards and offal, resulting in an increase in adult survival compared to previous years. However, they also took fishery debris back to their chicks, resulting in the death of at least some chicks which became completely full of hooks and bits of fishing line from discarded toothfish heads. This was addressed by requiring all hooks and lines to be removed from offal before it is discarded.

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From 1998, pressure was placed on the legal fishery to implement measures to reduce seabird mortality, notably setting lines at night only. Because albatrosses seldom forage at night, this reduced their bycatch by more than 95 per cent. Use of effective bird-scaring or *tori* lines and a ban on fishing close to the breeding islands reduced mortality of petrels, which are caught both at night and during the day, by more than 60 per cent. Fortunately, illegal fishing also decreased as stocks of toothfish dwindled, so the impact of this fishery fell from about 10 000 birds killed in 1996/'97 to less than 1 000 birds in subsequent years. Recently this has declined still further, with some vessels switching from long-lining to using pots to catch toothfish – primarily to reduce losses to sperm and killer whales, which quickly learned to steal fish as the lines were hauled, but with the added bonus of eliminating seabird bycatch.

During the late 1990s, several international initiatives were started to tackle the long-line issue, driven in part by BirdLife International. John Cooper was appointed as BirdLife's first seabird conservation officer. He played a leading role in a review of long-line impacts, which ultimately led to the United Nation's Food and Agriculture Organisation calling on its members to produce National Plans of Action to reduce seabird bycatch. John and I drafted a plan for South Africa which sets interim targets for each fishery. At the same time, negotiations towards the Agreement for the Conservation of Albatrosses and Petrels under the Bonn Convention commenced. The final round of negotiations took place in Cape Town, and South Africa was one of the first signatories to this treaty, which came into force in February 2004. Perhaps most importantly, active steps were taken to share information on avoiding bycatch, and the development of new mitigation measures was promoted through competitions and industry involvement.

Although fishing in international waters remained a cause for concern, everything seemed to be going fairly well in South African waters. The toothfish and hake fisheries were catching relatively few birds and, with the exclusion of foreign vessels from the tuna fishery, domestic vessels were killing far fewer birds. However, this was biased by most fishing effort taking place in the oceanic waters off the Northern Cape and KwaZulu-Natal, where there are relatively few birds. As soon as the domestic tuna fleet began to operate along the edge of the Agulhas Bank, significant mortality once again occurred. Tuna quotas were awarded to new entrants into the fishery, many of whom lacked the resources to purchase a fishing vessel. They entered into joint-venture agreements with other companies that had surplus capacity, in many instances resulting in foreign vessels once again fishing in South African waters. The ▷

Albatrosses and petrels are joined by Cape Gannets, Kelp Gulls and Subantarctic Skuas as they wait for scraps behind a hake trawler.

Above *Shy and Black-browed albatrosses dive for discarded fish dangerously close to the trawl warp. If the trawl warp collides with their spread wings, they are dragged underwater and sometimes drowned.*

Above, right *A red* tori *line keeps birds away from the danger zone.*

Visit these websites for more information:
- *www.savethealbatross.net*
- *www.acap.aq*
- *www.birdlife.org.za/projects/marine_pgm/index.htm*

main difference was that foreign-flagged vessels are obliged to carry independent observers, so we have a good idea of the impacts they are having on seabirds.

Since mid-2005, Korean and Philippine vessels have been fishing along the edge of the Agulhas Bank, killing large numbers of birds. The average catch rate has been around 0.6 birds per 1 000 hooks set, more than 10 times the target level, and peaking at up to an unbelievable 18 birds per 1 000 hooks. Most of the birds killed have been White-chinned Petrels and Shy Albatrosses, with smaller numbers of Black-browed and Indian Yellow-nosed albatrosses, and a smattering of Atlantic Yellow-nosed, Tristan and Royal albatrosses, and giant-petrels. Depressingly, the three Southern Royal Albatrosses confirmed killed are the first specimen records for this species from southern Africa. Observers were supplied with well-designed *tori* lines to deploy during line setting, but even these failed to halt the carnage. Unless improvements to weighting lines can be implemented effectively, it seems that under conditions when birds are very abundant, the only way to stop killing birds is not to fish in an area.

Added to this crisis was the emergence of trawlers themselves as a significant threat to albatrosses. After initial reports from the Falkland Islands of birds being killed when they were entangled on trawl warps (the cables used to tow the nets) and dragged underwater, it became apparent that the problem was widespread, with records from Argentina, New Zealand and South Africa. Frozen-food giant I&J and the South African Deep Sea Trawling Association funded investigations which showed that under certain conditions large numbers of Shy and, to a lesser extent, Black-browed albatrosses and White-chinned Petrels, are killed by trawl warps. It was initially thought that they were drowned mainly during setting, but careful observations by Barry Watkins, Jaco Barendse and Steve Kirkman reveal that they are killed throughout the trawling operation. The speed of the ship's passage creates sufficient drag to pull under water any bird unlucky enough to be entwined with the warp. Shy Albatrosses are especially prone to being caught because they compete aggressively at the back of the vessel and have very long wings, which readily become entangled around the warps. There are also frequent collisions with the warps, but these seldom appear to cause lasting damage to the birds.

Mortality is episodic, taking place only when large numbers of birds attend a trawler and scavenge discards and offal right under the stern of the vessel. When competition is less fierce, the larger albatrosses and petrels tend to remain further back, beyond the danger zone where the warps enter the water. Mitigation trials are ongoing, but it appears that short *tori* lines set over each trawl warp are quite effective at keeping birds away. As an interim measure, flying *tori* lines during fishing will be required from July 2006. In the long run, better management of fishery wastes should solve the problem entirely. Several of the larger vessels now operating have fishmeal plants aboard which process discards and offal. All they release is a stream of fine scraps from cleaning the processed fish, and these are too small to attract albatrosses. In winter these ships attract a cloud of Pintado Petrels, but few if any birds large enough to be killed by the trawl warps.

Other threats were emerging at the breeding islands too. Contract researchers Ross Wanless and Andrea Angel were able to confirm post-doctoral fellow Richard Cuthbert's suspicion that introduced mice on Gough Island are significant predators of albatross and petrel chicks, especially in winter when other food is scarce. Ross obtained some of the most gruesome footage imaginable of swarms of mice literally eating Tristan Albatross chicks alive. Despite outweighing the mice a hundred-fold, the albatross chicks appear to have no effective response to these sneaky, nocturnal nibblers. Alarmingly, similar attacks have now occurred on Wandering Albatross chicks at Marion Island, where mouse numbers appear to have increased since the removal of feral cats. The only effective solution will be to eliminate mice from the islands. This is considered to be technically feasible, using aerial drops of poisoned bait in winter, and it will have enormous benefits for the invertebrate fauna of these remote islands. However, it is a very costly exercise and there is always a risk that not all of the mice will be killed.

The other worrying issue is the introduction of novel diseases to albatross and petrel populations. Research at Amsterdam Island in the southern Indian Ocean has shown significant mortality of albatross chicks from avian cholera and other introduced diseases. The only effective measure we can take appears to be to enforce quarantine measures designed to prevent such diseases from reaching the breeding islands. For many years, the French allowed live poultry on their sub-Antarctic islands and these were probably the source of the avian diseases. South Africa has been much more vigilant in this regard, and has imposed very strict controls on all poultry products for more than a decade.

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I can empathise with Heracles and Iolaus in their battle with the Hydra: as fast as one threat is tackled, two more seem to spring up. Conserving albatrosses and petrels is an ongoing task, but there's no need for despondency. Ever more resources are being devoted to raising awareness of the problems and educating people who can make a difference, primarily in the fishing industry. Sam Petersen, BirdLife and WWF Responsible Fisheries Programme manager, works tirelessly to train skippers, fishery observers and compliance officers as well as to develop educational materials for fishers. She is an expert at using innovative ways to obtain results. Recently, a Department of Environment Affairs and Tourism poverty-alleviation project has been set up in collaboration with Working for the Coast to make effective *tori* lines for use in South African fisheries. She is also conducting trials of mitigation measures in several key fisheries, including weighting regimes in both the hake and tuna fisheries to ensure that lines sink sufficiently quickly to be out of the reach of most seabirds before they emerge from under the shelter of *tori* lines.

I remain confident that by working together, researchers, NGOs and industry can ensure a long-term future for albatrosses off southern Africa. □

Author Peter Ryan communing with a Sooty Albatross on a ridge on Inaccessible Island.

'Working to conserve albatrosses can be frustrating and even depressing at times, but it is worthwhile when you get to spend some time with them in the field. They may not be the brightest of birds, but they strike a deep chord in humans, and have few rivals when it comes to general appeal.'