



NEW ZEALAND SEABIRDS

LONG HAUL FISHING EXPERTS



**Southern Seabird
Solutions**



Heading out fishing.
Photo: SeaFIC

When we go fishing we need to make a lot of preparations. We take fresh water and food, waterproof gear, and safety equipment.

We take gear to find and catch fish, we take ice or refrigeration to store our fish, and we use a boat to transport us.

SEAWORTHY SEABIRDS

Seabirds go to sea to fish too. But they don't need fresh water because they have an on-board desalination plant. This special gland concentrates the salt from seawater. They then sneeze the salt out of their nostrils.


These birds have an inborn knowledge of the location of their traditional fishing grounds, sometimes on the other side of the globe.

Once they arrive on the grounds their fish finder kicks in – their sense of smell. Albatrosses can smell food several miles away, well over the horizon. They fly across the wind to catch a scent, and then zig zag upwind towards it.

Seabirds use many different fishing methods. Fairy prions scoop up water and sieve out tiny krill with their comb-like upper bill, while sooty shearwaters dive to 60 m or more searching for squid and fish. Some seabirds like albatrosses fish during the day time while others like black petrels also fish at night when their prey migrates up through the water column. Some cross whole oceans to reach a particular food source. The wandering albatrosses that breed on the Auckland Islands fly to Australia to feed on the mass die-off of squid that occurs off Wollongong each year.



Fairy prions sieve food out of the water. Photo: Martin Saunders

A close-up photograph of an adult albatross with white plumage and a yellow beak, feeding its fluffy white chick. The adult bird is on the right, with its beak open and holding a piece of food. The chick is on the left, with its beak open and facing the adult. They are surrounded by green grass.

*An albatross on Campbell Island
feeds its hungry chick.*

Photo: D Merton

Like humans, seabirds need to sleep while they are out on multi day fishing trips. We take turns at watch. But what does the seabird do without someone to take over the wheel? Amazingly, birds can shut down one side of their brain while the other side stays alert. They also take short “cat naps” rather than a solid eight hour sleep. It is thought that seabirds can sleep on the wing – a bit hard to prove though!

Seabirds are very fuel-efficient. Albatrosses and petrels use the wind gradient above the sea to gain air speed. They swoop down into the valleys of ocean waves, and then wheel back up into the air. This means they can travel many thousands of miles in their hunt for prey using very little energy from flapping. And they have another labour saving device - a shoulder lock - that locks their wings in an outstretched position.

Some seabirds can store food for weeks by converting it into a rich oil. This way when they have a chick waiting for a feed back on land, they can stay at sea for a number of days, getting enough to make the trip back to land worthwhile.

FACT FILE

YELLOW-EYED PENGUIN

DID YOU KNOW?

Unlike flying birds, penguins have to moult all of their feathers at once. They stay out of the water until they are waterproof again.

FEEDS:

On fish, diving down to 100 m or more.

LOOKS LIKE:

Grey-blue with a snow-white belly, pink feet and yellow head band.

MOULTS:

For 3-4 weeks in Feb / March. They don't eat & lose 3-4 kg.

BREEDS:

In coastal forest and scrub.

NUMBER OF BREEDING PAIRS:

Less than 2000 in the world, all in New Zealand.

FOUND:

Southeast South Island, and Sub Antarctic waters.



Photo: Rod Morris

Adolescents hang around in groups calling and showing off.



Photo: D Hansford

FAMILY LIFE

Most young New Zealand albatrosses and petrels head overseas for their big OE. They fly to places like South America, Australia and Southern Africa and don't come back until they are ready to settle down and start a family.

Seabirds don't start family life until they've seen a bit of the world.

When they are ready, which is usually after six or more years roaming the oceans, they come back to the colony where they were born. There they hang around in adolescent groups, calling and showing off to each other.

Once they have found a mate, they tend to stay together for life and both parents look after the chick. In fact it takes both parents to keep the food supply coming in, and if one dies the other parent will do its best, but often the chick is unable to survive.



The chick needs both parents to survive.

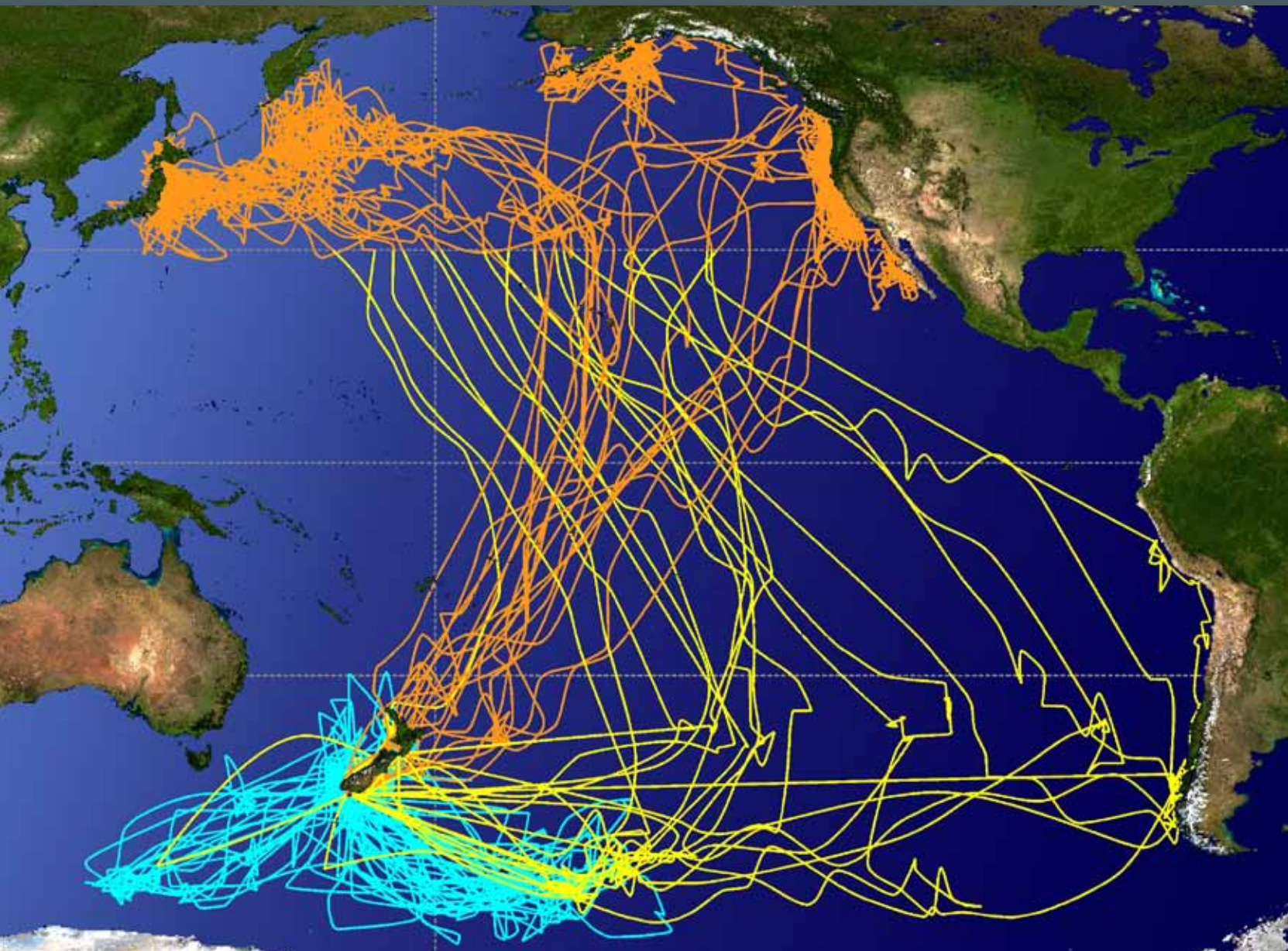
Photo: J.L. Kendrick

Blue flights: During breeding season they collect food in Antarctic waters.

Yellow flights: After breeding they migrate north.

Orange flights: They feed off California, Alaska and Japan before heading home to start the breeding cycle again.

SOOTY SHEARWATERS FLY TO THE NORTH PACIFIC AFTER THE BREEDING SEASON...



When they are raising their youngster, the mother and father often go to different fish “supermarkets”. Take the Buller’s albatross that breeds on the Snares Islands – during the late part of the chick-feeding period the mother flies to the West Coast for food and the father feeds around Stewart Island. Some species also alternate short and long trips to collect food for the chick. For instance sooty shearwaters, that also breed on the Snares, will fly all the way to Antarctica to collect krill, a return trip taking about 11 days. Then they will do a couple of short one to three day trips near the Snares before repeating the cycle.

After the chick has grown up and left the nest many seabirds leave our shores and fly to their favoured fishing grounds around the globe.

FACT FILE

SOOTY SHEARWATER

DID YOU KNOW?

They are the deepest diving flying birds in the world having been recorded swimming to a depth of 68 m.

LOOKS LIKE:

Dark chocolate-brown with silvery lining to the underside of the wings, slender dark bill and dark feet.

BREEDS:


New Zealand, Australia, Chile and the Falkland/Malvinas Islands.

TRAVELS:

Makes a 65,000 km round trip to the Northern Pacific and back each year.



Photo: Kim Westerskov

A close-up photograph of a young seabird chick, possibly a booby, with greyish-brown downy feathers and a long, pointed beak. The chick is positioned inside a dark, hollowed-out burrow in the soil, with its head and one leg visible as it looks out. The surrounding soil is dark brown and moist, with some dry leaves and twigs scattered around the entrance of the burrow.

Burrow nesting seabirds add nutrients to the soil.

Photo: Jeremy Carroll

SEABIRDS THE BACKBONE OF THE COUNTRY

Surprisingly our economy and standard of living today is due in part to seabirds. Before humans arrived in New Zealand there were over a billion seabirds returning to breed each year on the mainland. Much of the ground where farms, orchards and back gardens now prosper was under forest and honeycombed with seabird burrows. For millions of years seabirds returned to these places annually to breed, and brought with them nutrients from the sea. Each year they left guano, dead young and egg shells on the forest floor. When combined with leaves and rotting wood from the forest canopy this created New Zealand's wonderful soils. Soils that we now use to grow cows, sheep and produce.

New Zealand's mainland seabird colonies have all pretty much gone – destroyed by rats, cats and stoats. The only surviving seabird colonies are on safe offshore islands in the Sub Antarctic, and around our coastline.

FACT FILE

BLACK PETREL

DID YOU KNOW?

Captain Cook and other early surveyors used Cook's scurvy grass to keep their men healthy. This coastal plant relies on guano from breeding seabirds to grow.

DIET:

Mainly squid.

FOUND:

Mainly northern waters on the shelf break and further afield. In winter they migrate to Central American waters.

BREEDS:

Now only on Great Barrier (1000 pairs) and Little Barrier (50 – 100 pairs) islands.

PREVIOUS BREEDING:

Used to breed in the ranges of the North Island and top of the South Island. The last mainland chick was found in the Kaitake Ranges near New Plymouth in 1958.

LOOKS LIKE:

Black seabird with black feet and legs and dark tipped, well-hooked yellowish bill.



Photo: Dave Boyle (WMIL)

Pigs on the Auckland Islands.



photo: Graeme Taylor

IT'S A PERILOUS LIFE

Seabirds that survive today are up against the odds. During the breeding season penguins run the gauntlet from their nest to the sea each day dodging people, vehicles and dogs. And their young are defenceless against cats, rats and stoats. Some islands where seabirds breed still have introduced animals – pigs on the sub Antarctic Auckland islands topple albatross chicks off their nests as they dig over the ground. Rats and mice are still present on some seabird islands in the Hauraki Gulf, the Bay of Islands and around Stewart Island, and smaller seabirds cannot defend themselves or their young against these predators. Luckily for us in New Zealand mice haven't learnt to eat albatross chicks alive as they have on Gough Island in the South Atlantic!

Once seabirds are at sea, their troubles are not over. Seabirds can mistake plastic and polystyrene floating on the sea surface for food and take it back to their chick. Hawaiian albatrosses are the worst affected with cases of chicks so full of plastic – including toothbrushes and plastic cutlery and lighters – that they die of dehydration.



Plastic brought back to the nest for the chick. Photo: Stacy Moore

Oil spills, contaminants, changing climate patterns and fishing are also all putting pressure on our remaining seabird populations.

Of the threats seabirds face at sea, one that is easiest to solve is accidental deaths during fishing operations. It can be hard for an individual to understand why catching one or two seabirds over a fishing season can cause a problem back at the colony. But let's remember the other boats in the fleet are also probably catching one or two birds, and that boats in other fisheries around New Zealand and overseas may also be catching them. Then add in recreational boats as well and the total can get quite big pretty quickly. So everyone has to do their bit.



FACT FILE

PIED SHAG

DID YOU KNOW?

Shag feathers absorb water so the birds are negatively buoyant. They spread their wings to dry after feeding.

EATS:

Fish, mainly mullet and flounder.

FEEDS BY:

Dives after fish using its feet to propel itself underwater.

LOOKS LIKE:

Large shag. White underside, glossy black back, black legs and feet, long grey bill.

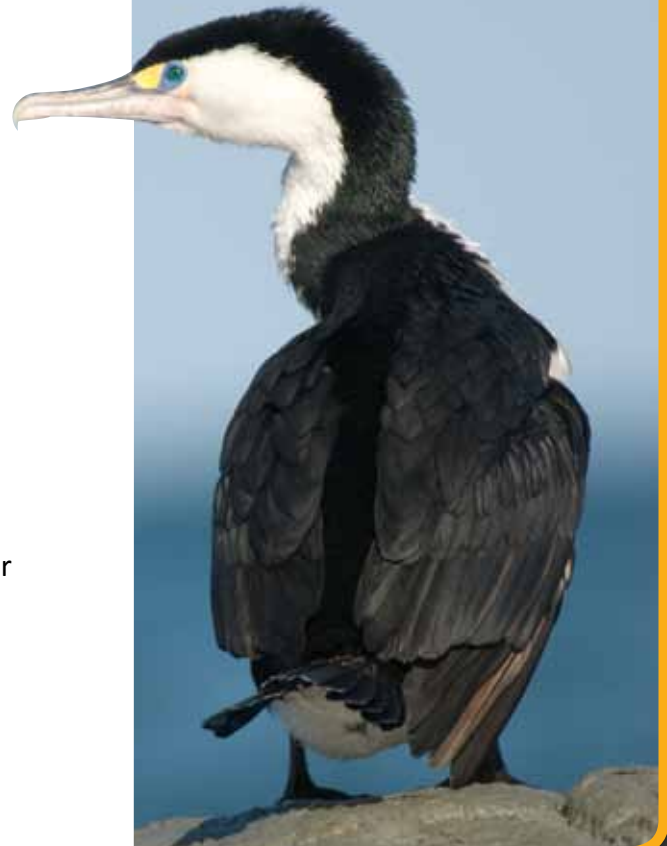
BREEDS:

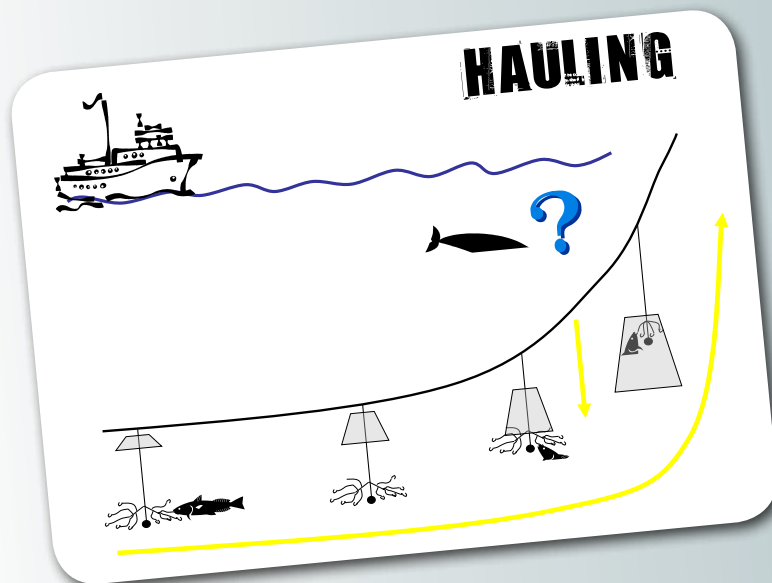
In coastal colonies, often in trees. Chicks leave the nest at around 50 days, but continue to be fed by both parents for up to 80 more days.

FOUND:

Patchy distribution in coastal areas of North, South and Stewart Islands.

Photo: Andrew Walmsley





WE'RE FISHING SMARTER

Many fisheries around the world are now taking actions to avoid catching seabirds. Here are some seabird smart success stories:

SINKING FAST

Chilean fishermen targeting toothfish have completely solved their seabird problem almost by accident. Sperm whales were biting hooked fish off as the line was retrieved, leaving rows of fish lips! So the fishermen changed their fishing method. To protect the fish they now attach a net to each branchline that drops down over the hooks when the line is retrieved. As part of this new gear set up, each branchline has a heavy weight attached to it to keep it taut so the net can slide up and down. Because the hooks now sink so fast, seabird deaths have dropped to zero.

The net keeps whales away and the heavy weight saves seabirds. Photo: Carlos Moreno.

Fishing in the Ross Sea



Photo: John Bennett

WEIGHTED LINES

From 2000, international measures were put in place that meant crews working in the Ross Sea and other Antarctic waters had to attach heavy weights one by one as they set the line, and then take them off again as they hauled the line – a time-consuming, fiddly and expensive process. New Zealand fishermen were sure there must be a better way. They were right. They joined forces with scientists to test whether adding lead beads into the weave of the rope lines would make them sink better. Experiments showed a 94 to 99 percent reduction in catch of white-chinned petrels, a deep diving species of seabird. As well, vessels find they catch more fish because crews don't have to spend as long taking weights on and off, and the lines sink quicker to fishing depth.

BLUE BAIT

In 2000, fishermen from 18 countries gathered in Auckland to talk about seabird smart fishing. Three Brazilian fishing company owners came to the meeting. This was where they first heard about the idea of dyeing bait blue to deter seabirds. They liked the idea and took it home with them. A Brazilian food colouring company has since developed a dye specifically to colour bait. The jury is still out on how effective blue dyed bait is in deterring seabirds but this example illustrates the importance of sharing ideas and experiences between fleets.



Lead beads woven into the line increase sinking speed.

Photo: Graham Robertson

Blue dyed bait. Photo: Greg Lydon





Brady Bird Baffler creates a 'fence'.

Photo: John Cleal

TRAWL MITIGATION

Video footage taken at the stern of a New Zealand deep-sea trawler brought to light a new problem – seabirds being hit by trawl cables as they chased offal. An observer developed a device called a Brady Bird Baffler that creates a 'fence' to keep seabirds away from the danger zone. A fisherman also came up with the idea of making the cable really visible with bristly strapping along its length and Carey's Cunning Contraption won him \$5000 in the WWF SmartGear competition.

We now have fishing practices or devices that fishermen can use to reduce the risk of seabirds getting caught in most types of fishing. In fact most of the ideas were developed by fishermen themselves. The most commonly used methods around the world for longlining are tori lines, night setting, and line weighting. In trawl fisheries the main measures are tori lines, holding offal on board and bafflers.

For more information on mitigation measures see:

www.acap.aq/mitigation-fact-sheets



Night Setting. Photo: SeaFIC

We still need solutions for floating longlines such as those used to target mahi mahi in South America.



Photo: Joanna Alfaro

SOLUTIONS NEEDED

There are still several fishing methods for which we don't have effective and practical ways of keeping seabirds out of harm's way. One example is surface floating longlines, which are used to target mahi mahi in South America. Seabirds become caught not only while the baits are going into the water behind the boat, but also while the line is fishing, particularly when a fish brings the line right to the surface where a seabird can reach the adjacent baited hooks. A second example where we all need to put our thinking caps on is net captures of seabirds – whether large deep sea trawl nets or small inshore set nets.

NEW ZEALAND'S SPECIAL ROLE

Globally and locally there is still more to be done. We know some species are still at risk, and some of these are special to New Zealand. More species of seabirds breed in New Zealand than any other country in the world. That makes us the seabird capital. As the capital we have a special responsibility to look after these global long haul fishing experts.

FACT FILE

SALVIN'S ALBATROSS

DID YOU KNOW?

New Zealand is the home to more types of albatross than any other place in the world.

FEEDS:

By seizing fish and squid on the surface or with shallow dives.

BREEDS:

On the rocky Bounty Islands in the Sub Antarctic.

TOUGH TO STUDY:

On the Bounties, the sounds of the colony are so loud scientists need to wear earplugs to sleep.

LOOKS LIKE:

Silver head and throat. Black back, upperwing and tail. White rump and underparts with a black thumbmark on underwing. Grey-green bill with black tip.

FOUND:

Coastal waters from Northland to Foveaux Strait. Migrates west to Australia and east to Chile and Peru.



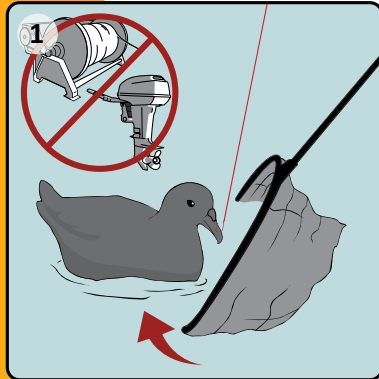
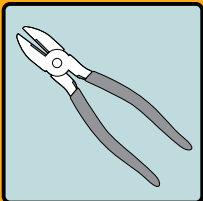
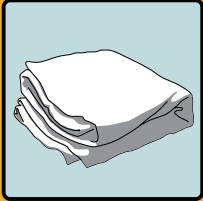
Photo: Debbie Freeman

SAFE SEABIRD RELEASE

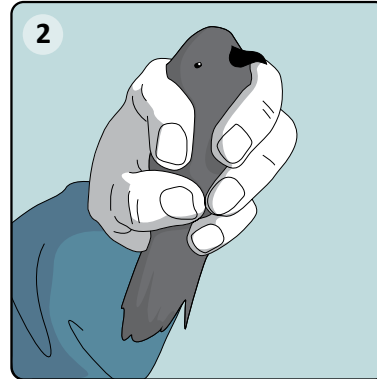
HELPFUL HINTS

- Keep a towel, net, and pliers on board.
- Make sure the bills are not twisted when you hold the beak.
- Never cover bird's nostrils.
- Protect your eyes when handling birds.
- Approach birds from behind where possible.

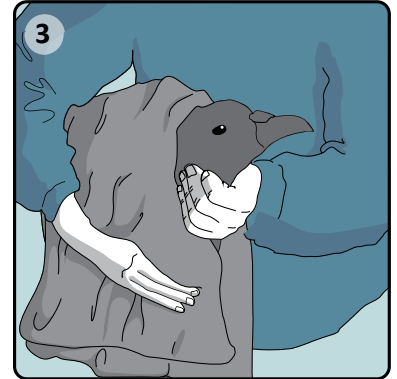
RELEASE KIT



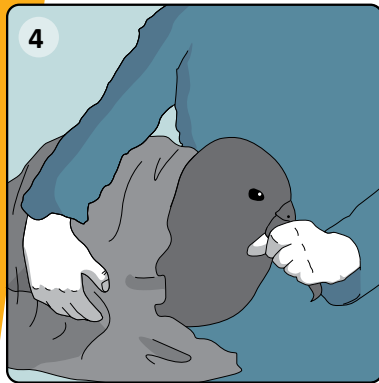
Use a landing net to lift the bird on board.



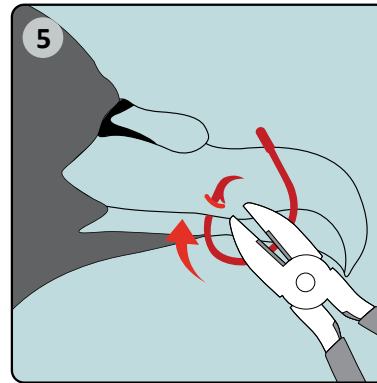
Hold small birds between fingers behind the neck.



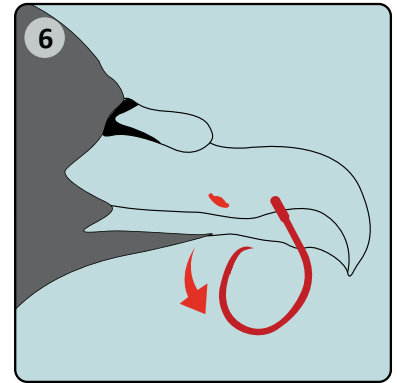
Wrap medium sized birds in towels and cover their eyes if possible.



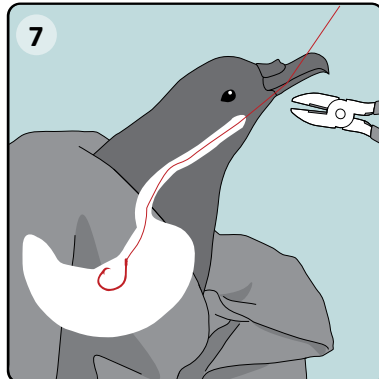
Hold large birds' beaks shut, careful of nostrils.



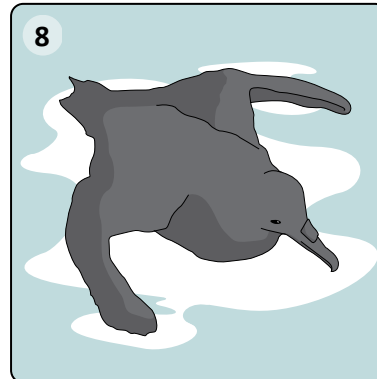
Use pliers to flatten the barb.



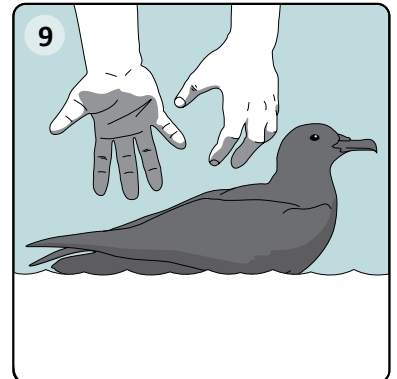
Pull the hook back out of the beak.



If hook is swallowed cut as close to entry as possible.



If bird is exhausted or waterlogged place in loosely covered box to recover.



Release healthy bird onto the water.

DESIGNED BY



ALEX
DOWNEY
DESIGN

Emergency Hotline: 0800DOCHOT or 0800362468

FACT FILE

GREY PETREL

DID YOU KNOW?

Albatrosses and petrels don't drink freshwater. Excess salt from their diet is removed from their bloodstream and excreted from their nostrils.

DIET:

Squid, fish and crustaceans. Can dive to 10 m for prey.

FOUND:

Mainly in Sub-Antarctic waters, but ranges as far north as East Cape/Bay of Plenty during winter.

BREEDS:

Islands in the Pacific, Atlantic and Indian Oceans. In New Zealand the main population is on the Antipodes Islands.

NESTS:

In burrows up to 2.5 m long, which the adult digs with its feet.

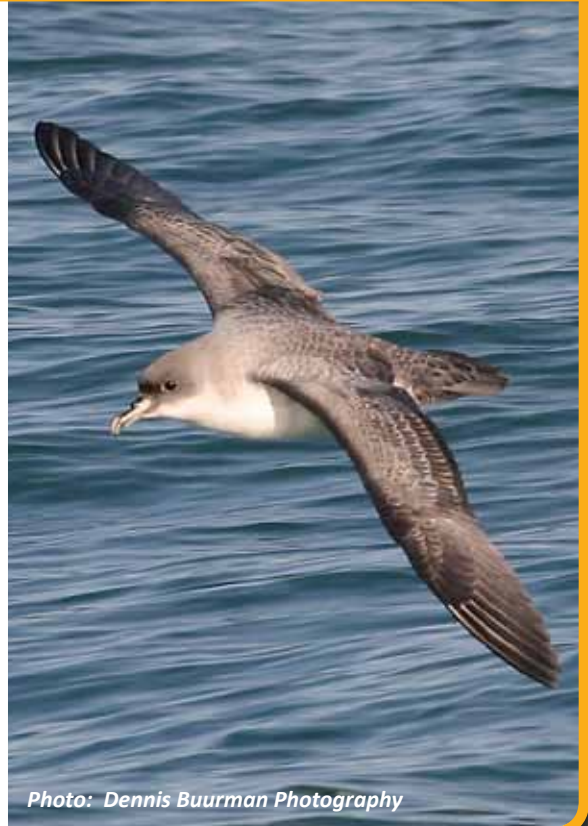


Photo: Dennis Buurman Photography

ABOUT THE SOUTHERN SEABIRD SOLUTIONS TRUST

The Southern Seabird Solutions Trust is an alliance between the New Zealand fishing industry, government, Te Ohu Kaimana and WWF-New Zealand, that works hand in hand with commercial fishermen and recreational anglers in New Zealand and overseas to help reduce seabird captures. For more information on the Southern Seabird Solutions Trust go to: www.southernseabirds.org or contact info@southernseabirds.org

Southern Seabird Solutions Trust is financially supported by Seafood New Zealand, the Ministry for Primary Industries, the Department of Conservation, WWF-New Zealand and Te Ohu Kaimoana.

Thanks to the following project sponsors for their support producing this booklet.



Department of Conservation
Te Papa Atawhai



Ministry for Primary Industries
Manatū Ahu Matua



Front cover photo: *Salvin's albatross* by Peter Marriott.
Booklet design: *What's the Story Publications*

ISBN 978-0-473-24634-1 (Soft cover)
ISBN 978-0-473-24635-8 (PDF)