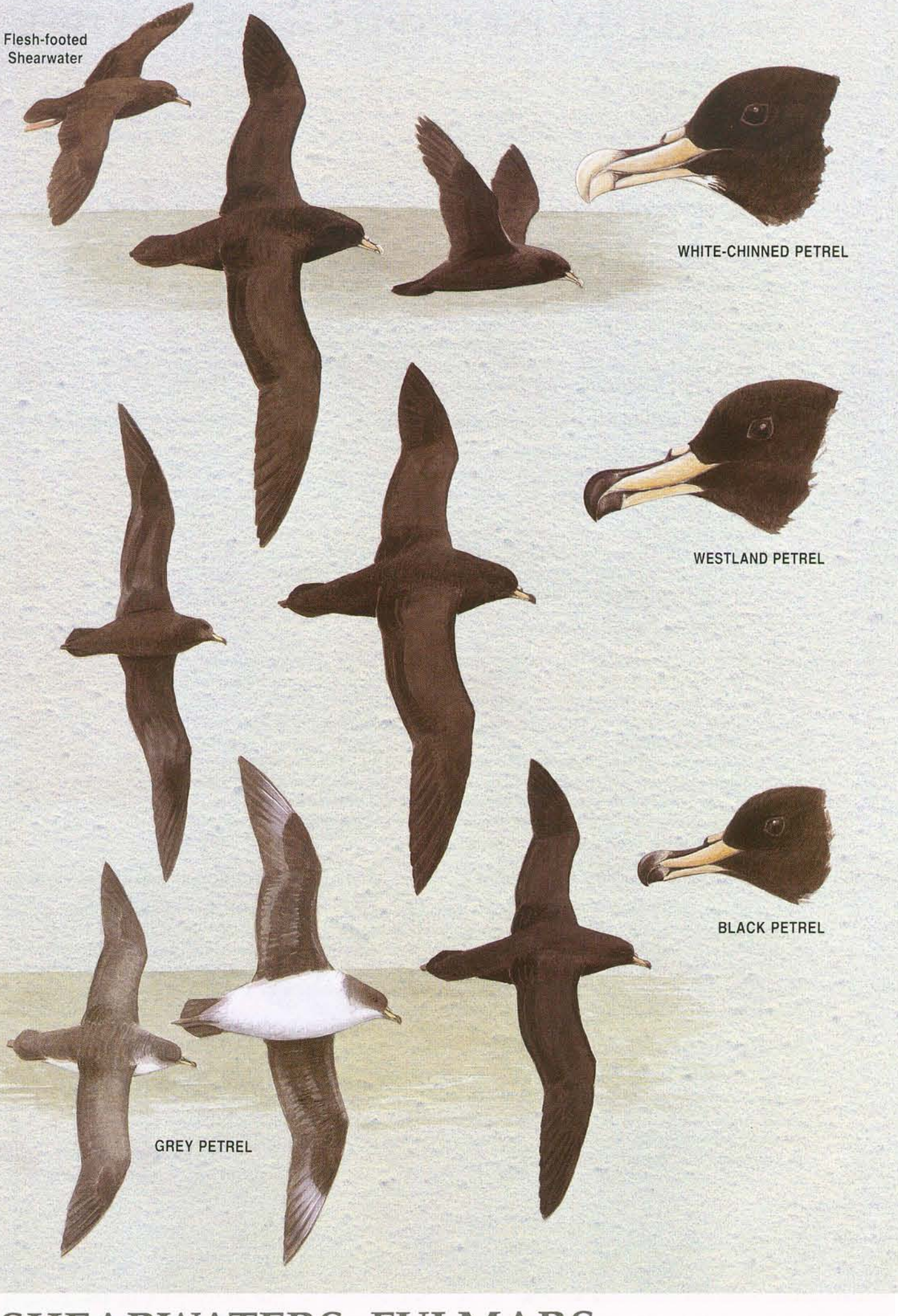


Large heavy-bodied seabirds with robust pale and well-hooked bill; prominent nostrils encased in a tube. Sexes and ages alike. In flight, long glides on stiffly held wings with occasional wingbeats. When windy, soar and wheel in huge arcs. Dive into sea and swim underwater with wings. Generally oceanic; rarely seen near land. Most follow ships and fishing boats. Clumsy on ground; legs and webbed feet set well back. Generally silent over breeding grounds at night, but loud calls and clacks from ground and burrows. Lay 1 large white egg, usually deep in a burrow. Long incubation and fledging periods.

BLACK PETREL (Taiko) *Procellaria parkinsoni*

Uncommon endemic

46 cm, 700 g. Entirely dark blackish brown. Bill (41 x 15 mm) bluish yellow with dark tip and black between the plates; legs and feet black. Like Westland Petrel but smaller. Often follows ships and fishing boats. **Habitat:** Breeds only on Little Barrier and Great Barrier Is; formerly on inland ranges of the mainland. In breeding season, seen mainly around North I and west to Australia. Migrates to eastern tropical Pacific, Jul–Oct. **Breeding:** Nov–Jun.



SHEARWATERS, FULMARS, PRIONS and PETRELS

Procellariidae

The Procellariidae is the largest and most diverse family of seabirds, with about 72 species. In the New Zealand region, 49 species have been recorded, including 11 endemic species and 23 other breeding species.

The Procellariidae includes a wide variety of seabirds from the giant petrels to the diving petrels. All have distinctive external nostrils encased in a tube on the top or sides of the bill. They have 11 primaries. The 11th (outermost) is minute, but the 10th is at least as long as the 9th, giving the wing a pointed tip. All seabirds have webbed feet with three forward-pointing toes of about the same length.

Most species nest in burrows or crevices, normally clumped into colonies. Birds return

being chilled for six days. Incubation stints shorten as incubation proceeds, and when the egg hatches the downy chick is brooded and guarded for only a few days in hole-nesting species, but for several weeks in surface-nesting species, until it is able to maintain body temperature.

Throughout its development, the chick is fed large meals at irregular intervals. It gains weight rapidly, becoming much heavier than its parents, but this declines towards adult weight before it fledges. Chicks normally spend some time on the surface exercising their wings before they eventually leave the colony. Once they have flown, they are completely independent of their parents. Young birds usually return to their home colony at 2–7 years old, and spend several years visiting the colony, especially when breeders are incubating or feeding chicks, before attempting to breed. The Procellariidae are typically long-lived, with several species known to live over 25 years.

Most species now breed only on offshore and outlying islands because mainland colonies have been ravaged by introduced mammalian predators. They generally return to their colonies at night, and once on land they are clumsy and unable to take flight rapidly; their only defence is by biting or by spitting stomach oil. The nestling is particularly vulnerable to predators because it is often left unattended for long periods while the parents feed at sea and it emerges from the nest at night to exercise its wings in the week or two before it can fly.

The Procellariidae feed on a wide variety of prey, ranging from some of the smallest, which sieve zooplankton on comb-like lamellae along the edge of their bills, to the giant petrels, which scavenge on dead marine mammals and occasionally kill small seabirds. Most species feed within a few metres of the sea surface, but some shearwaters dive to at least 20 m. These seabirds have well-developed nasal glands for extracting salt from their blood and exuding it out of the prominent nostrils.

The shearwaters (*Calonectris*, *Puffinus*) include about 15 medium to large species with long slender bills and flat nasal tubes. They

to their colony months before egg-laying to claim their nest sites (usually the same site is used year after year) and to court. After copulation, females leave the colony for one to six weeks on a 'pre-laying exodus' to form the egg. Males also leave but often make occasional visits to the nest site.

All species lay one white egg, which is very large relative to the female's size. The few instances of two eggs in a nest are from two females using the same site. A long incubation period is typically split up into several incubation stints lasting from several days to several weeks between changeovers. Occasionally the changeovers do not coincide and the egg is left unattended for several days; however, eggs have hatched successfully after

are usually brown to black above and white or brown below. Some have large sternums and dive well for fish and squid, using their wings for propulsion, while others have small sternums and feed on, or close to, the surface.

The four species of diving petrel (*Pelecanoides*) are small, stocky black and white seabirds with short wings adapted for propulsion under water. They have a fast, direct, whirring flight and readily dive for small krill and copepods.

The four species of *Procellaria* are large stocky seabirds with large, heavily hooked pale bills with dark markings and prominent nostrils. They feed mainly at night on bioluminescent squid but also now take offal discarded from fishing boats.

The three species of *Pseudobulweria* are medium-sized seabirds with exceptionally large feet and a notch on the cutting edge of the upper bill caused by the latericorns having blunt ends.

The fulmarine petrels (*Lugensa*, *Pagodroma*, *Daption*, *Thalassoica*, *Fulmarus* and *Macronectes*) are a diverse group of 8 species, all of which have robust bills with prominent joined nasal tubes, rising from the base.

The six species of prion (*Pachyptila*) are small seabirds pale blue above and white below with a prominent M-shaped mark across the upperwings and a dark-tipped tail. Comb-like lamellae on the inside of the bill are used to filter zooplankton.

The single *Halobaena* species looks like the prions but has a white-tipped tail and the upper bill has small tooth-like serrations at the base.

The gadfly petrels (*Pterodroma*) consist of 29 species of highly agile seabirds with long wings and short, laterally compressed black bills with a strongly hooked nail. They feed mainly on squid and small fish.

Reading: Harrison, P. 1987. *Seabirds of the World: a photographic guide*. London: Christopher Helm. Harrison, P. 1988. *Seabirds: an identification guide*. London: Christopher Helm. Imber, M.J. 1985. *Ibis* 127: 197–229. Murphy, R.C. 1936. *Oceanic Birds of South America*. New York: MacMillan. Serventy, D.L. et al. 1971. *The Handbook of Australian Seabirds*. Sydney: Reed. Warham, J. 1990. *The Petrels: their ecology and breeding systems*. London: Academic Press.

32. BLACK PETREL *Procellaria parkinsoni*

Plate 10

Other names: Taiko, Parkinson's Petrel

Size: 46 cm, 700 g

Distribution: Breed only in New Zealand, on Little Barrier and Great Barrier Islands. They formerly bred widely on mountain ranges in the North Island and the north-western South Island. During the summer breeding season, they range mainly through subtropical waters between 30 and 42°S around northeastern New Zealand and across the Tasman Sea to the southeastern coast of Australia. A few to the wreckered on North Island beaches in November–April. Recently fledged chicks are sometimes found beach-wreckered on the east coast of the North Island in May.

Black Petrels migrate in March–July to the eastern tropical Pacific Ocean from west of the Galapagos Islands to southern Mexico (15°N) and northern Peru (5°S), and return in October–December. A few younger non-breeders may stay there all year.

Population: c. 10,000 birds, including non-breeders. Little Barrier c. 100 pairs, Great Barrier 2500+ pairs.

Conservation: Protected threatened endemic. Although Maori and early Europeans harvested chicks from mainland colonies, introduced predators probably caused their demise. The colony on Little Barrier Island was severely reduced until cats were eradicated in 1980. Since then the number of chicks raised has improved and the colony is slowly increasing. On Great Barrier Island, where breeding was not discovered until 1964, cat predation at the colony is slight and productivity is high, probably because, unlike Little Barrier, there are few nesting Cook's Petrels to sustain high numbers of cats near the colony.

Black Petrels associate with fishing boats and are sometimes accidentally caught on long-lines or in nets. Between 1986 and 1990, 249 fledglings were transferred from Great Barrier to Little Barrier Island in the hope of boosting the small Little Barrier colony; however, only a few were recaptured there, but some have returned to Great Barrier.

Breeding: Black Petrels are summer breeders.

They return to their mainly high, ridgetop colonies between mid-October and December to court and clean out burrows. Males make frequent visits to the burrow and often stay there during the day, whereas females make only occasional visits. The pre-laying exodus of each pair lasts c. 23–24 days.

Eggs are laid in November–January, mostly between 20 November and 25 December. They lay 1 white egg (69 x 51 mm, 99 g) in a burrow 1–3 m long. The female incubates for the first 0–4 days, then the male takes a long shift of 4–17 days, and then alternating shifts get shorter towards hatching. Eggs hatch in January–February after c. 57 days. The chick is rarely left unattended during the first 2–3 days but is then fed every 2–3 nights until close to fledging, when feeding becomes infrequent. Chicks emerge from their burrows about 10 nights before they finally fledge from mid-April to early July at 96–107–122 days old. Young birds have been recorded breeding at 6 years old. The oldest bird recorded lived at least 17 years.

Behaviour: Breed in loose colonies intermingled with Cook's Petrels. At sea, they are often seen alone but sometimes form flocks of up to 300 birds around feeding cetaceans, or fishing boats. At the colony, they are usually silent in the air but sometimes give a low moan followed by a series of clacks. On the ground they have loud, far-carrying calls, the main one being a rapid series of staccato clacks. Quieter clacks and moans are given from the burrow.

Feeding: While breeding, Black Petrels feed mainly on squid, supplemented by fish, crustaceans and other marine invertebrates. Judging from the diet composition and the importance of bioluminescent forms, much food is probably taken at night; however, observations in the eastern tropical Pacific show that much squid is scavenged from around feeding melon-headed whales and false killer whales by day. Some prey is taken by sitting on the surface with head immersed and then taking a shallow dive, but they are capable of diving down at least 10 m.

Reading: Imber, M.J. 1976. *NZ J Mar Fresh Res* 10: 119–130. Imber, M.J. 1987. *Notornis* 34: 19–39. Pitman, R.L. & Ballance, L.T. 1992. *Condor* 94:

825–835. Powlesland, R.G. 1989. *Notornis* 36: 299–310. Warham, J. 1988. *Notornis* 35: 169–183.