

Autopsy report for seabirds killed  
and returned from New Zealand  
fisheries 1 January 1996 to  
30 September 1996  
Birds returned by Ministry of Fisheries  
observers to the Museum of New  
Zealand Te Papa Tongarewa

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# 1. Introduction

The report is a brief summary of findings from and issues raised by the autopsies described in Table 1. The comments are intended to assist the Department of Conservation in interpreting these results and in the design of further studies. The remarks refer only to the tuna longline fishery unless otherwise specified. Eleven specimens were received from 2 trawlers and 3 longline vessels. Fishery data cited were supplied by the Ministry of Fisheries through the Nonfish Species and Fisheries Interactions Working Group. Nomenclature for the albatrosses follows Nunn et al. (1996); Robertson & Nunn (1998) and Croxall & Gales (1998).

# 2. Background

In 1995 Japanese (charter) tuna longliners made 463 sets in New Zealand waters, of which 251 (54.2%) were observed. In addition, 52 licensed domestic tuna longline vessels made at least 1474 sets, of which 65 (4.4%) were observed. Of the 90 birds recorded as caught dead by observers, 89 (98.9%) were returned to the Museum for autopsy, under a joint MAF Fisheries /Museum of New Zealand programme.

In 1996 no Japanese vessels fished in New Zealand, but 4 out of 58 licensed domestic vessels were observed over 119 sets. The domestic effort is believed by industry sources to have dropped slightly in comparison with the year before.

# 3. Species caught by domestic tuna longliners

Buller's albatross - 2

Grey petrel - 4

These were caught in two discrete areas:

- a) just west of the Puysegur Bank (all Buller's albatrosses)
- b) on the southern section of the Colville Ridge, NE of White I. (all grey petrels)

In previous years (1989-95) these species were also among the most frequently caught (10.5% and 31.5%, respectively). However, the proportions of *sets observed* and of *dead birds returned* for autopsy were too low to determine whether the birds autopsied were fully representative of those caught by domestic longliners in 1996, and whether the overall mortality rate in 1996 was the same as in previous years.

The mean catch rate (including birds reported as being released alive) was estimated using MinFish data at 0.27, half that of the mean catch rate of Japanese vessels 1987-94. However, allowing for the fewer hooks per set of domestic vessels, these figures may be comparable although if all birds reported as released alive actually survived, the estimated bird mortality rate per set would fall to 0.11.

## 4. Species caught by trawlers

Buller's albatross - 1

Sooty shearwater - 3

Black-bellied storm petrel - 1

All of these were returned from a single vessel fishing east of Bank's Peninsula in May, except for the black-bellied storm petrel, which was entangled in a squid trawl NE of the Auckland Is. This is the first time this very small, abundant species has ever been reported entangled in fishing gear. Netsonde monitor wires were not the cause of the trawl mortality in 1996.

The author's personal experience, together with previous observer data, suggests that many more birds than these would have been caught by trawlers in New Zealand in 1996. Presumably the low rate of return reflects either the difficulty observers have in recovering birds from trawl nets and/or the perceived low priority in returning birds thus caught.

## 5. Age and sex ratios

All birds caught were breeding adults, as determined by gonadal state, except for the 3 sooty shearwaters and the black-bellied storm petrel from trawlers, which appeared to be pre-breeding subadults. One of the grey petrels was thought to be a failed breeder because its brood patch was already down-covered in early June.

No clear trend in the sex ratio of birds caught was evident, except for grey petrels, which were all adult females. In past years the pattern of grey petrel

mortality around and north of East Cape suggests that these waters are a key foraging area for female grey petrels which breed on Antipodes Is., 1500 km to the south, in winter (Bartle 1990).

## 6. Moulting, fat score and stomach contents

Only body moulting was recorded. The results strongly supported the interpretation of breeding status obtained by gonadal examination.

The amount of subcutaneous fat was scored to obtain a general idea of body condition as follows: 1 = no fat; 2 = little fat; 3 = moderate fat; 4 = fat; 5 = very fat

All birds caught scored 3 or 4. Such high scores are characteristic of normal healthy birds at sea in autumn.

Six (55%) of the birds caught had empty stomachs, suggesting that at the time of capture they may have recently left their breeding colonies in search of food, and while not starved, may have been hungry. This is similar to the result obtained by Klages et al. (1995) for the stomachs of 191 longlined albatrosses, where 30% were empty, while another 30% contained bait organisms only. The assertion of these authors that albatrosses regurgitate all but bait organisms as they drown is without evidential support.

In this connection it is perhaps noteworthy that all three *breeding* grey petrels, caught far from their breeding place, had substantial amounts of squid in their stomachs. The incidence of plastic pellets in 3 out of 11 stomachs (27%) is also symptomatic of hunger (Harper & Fowler 1987).

## 7. Recommendations

1. Observer coverage of the domestic tuna longline fleet should be doubled.
2. All birds killed in fishing activities should be returned.

## 8. References

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TABLE ONE  
AUTOPSY IDENTIFICATIONS AND DETAILS

List by vessel type, of birds caught by observed vessels from 1 January 1996 to 30 September 1996 and returned to the Museum of New Zealand.

<b>AUTOPSY #</b>	<b>Vessel type</b>	<b>Date</b>	<b>General Position</b>	<b>Species english name</b>	<b>Species scientific name</b>	<b>age</b>	<b>sex</b>	<b>fat score</b>	<b>stomach contents</b>	<b>gizzard contents</b>	<b>moult</b>
960001	domestic tuna longliner	7/4/96	Puysegur	<b>Buller's Albatross</b>	<i>Thalassarche bulleri</i>	adult breeder	male	4	empty	empty	bare brood patch
960003	domestic tuna longliner	2/5/96	Puysegur	<b>Buller's Albatross</b>	<i>Thalassarche bulleri</i>	adult breeder	male	4	empty	squid or fish eye lens, fragments squid beaks	bare brood patch
960002	domestic tuna longliner	7/6/96	NE of White Is.	<b>Grey Petrel</b>	<i>Procellaria cinerea</i>	adult	female	3	empty	squid beaks	downy brood patch
960004	domestic tuna longliner	5/6/96	NE of White Is.	<b>Grey Petrel</b>	<i>Procellaria cinerea</i>	adult breeder	female	3	1 large squid, 1 large squid beak, flesh & eyeballs	eye lenses & many squid beak fragments	bare brood patch
960005	domestic tuna longliner	17/6/96	NE of White Is.	<b>Grey Petrel</b>	<i>Procellaria cinerea</i>	adult breeder	female	4	squid & beak remains	full squid beak remains	slightly downy brood patch
960006	domestic tuna longliner	18/6/96	NE of White Is.	<b>Grey Petrel</b>	<i>Procellaria cinerea</i>	adult breeder	female	4	squid slurry	squid beak fragments, eye lens, plastic pellets	downy brood patch
960007	squid trawler	24/4/96	NE Auckland Is.	<b>Black-bellied Storm Petrel</b>	<i>Fregatta tropica</i>	sub-adult	female	3	empty	fish otoliths, grit, plastic pellets	body moult
960011	trawler	10/5/96	off Banks Peninsula	<b>Buller's Albatross</b>	<i>Thalassarche bulleri</i>	adult breeder	female	4	fish remains	several otoliths & squid beaks; fish or squid eye lens; plastic pellets	
960008	trawler	9/5/96	off Banks Peninsula	<b>Sooty Shearwater</b>	<i>Puffinus griseus</i>	sub-adult	male	3	fish remains	otoliths & squid beaks	
960009	trawler	10/5/96	off Banks Peninsula	<b>Sooty Shearwater</b>	<i>Puffinus griseus</i>	sub-adult	female	4	empty	2 small otoliths	
960010	trawler	10/5/96	off Banks Peninsula	<b>Sooty Shearwater</b>	<i>Puffinus griseus</i>	sub-adult	male	4	empty	a few worn squid beaks	