Recovery plan for albatrosses in the Chatham Islands

Chatham Island mollymawk, northern royal albatross, Pacific mollymawk

2001–2011

THREATENED SPECIES RECOVERY PLAN 42

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Cover: Chatham Island mollymawk. (*C.J.R. Robertson*)

CONTENTS

Recovery plans

This is one of a series of recovery plans published by the Department of Conservation. Recovery plans are statements of the Department's intentions for the conservation of particular plants and animals for a defined period. In focusing on goals and objectives for management, recovery plans serve to guide the Department in its allocation of resources, and to promote discussion amongst a wider section of the interested public.

After a technical report which had been refined by scientists and managers both within and outside the Department had been prepared, a draft of this plan was sent to the Chatham Islands Conservation Board for comment. After further refinement, this plan was formally approved by the Wellington Conservator in January 2001. A review of this plan is due after ten years (in 2011), or sooner if new information leads to proposals for a significant change in direction. This plan will remain operative until a reviewed plan is in place.

The Department acknowledges the need to take account of the views of the tangata whenua and the application of their values in the conservation of natural resources. While the expression of these values may vary, the recovery planning process provides opportunities for consultation between the Department and the tangata whenua. Departmental Conservancy Kaupapa Atawhai Managers are available to facilitate this dialogue.

Comments and suggestions relating to the conservation of Chatham Islands endemic albatrosses are welcome and should be directed to the Wellington Conservancy office of the Department.

1. Introduction

The Chatham Islands, surrounded by sea and separated by 860 km from other land masses, is a haven for seabirds and provides important breeding habitat for a large number of species, many of them endemic to these islands. There are three species of albatross that are endemic, or very nearly endemic to the Chatham Islands. The Chatham Island mollymawk *Thalassarche eremita* breeds only in the Chatham Islands, and the northern royal albatross *Diomedea sanfordi* and Pacific mollymawk *Thalassarche* nov. sp. both have more than 99% of their breeding populations based in the Chatham Islands. All three species nest on privately owned offshore islands in the Chatham group.

The Department of Conservation currently ranks all three species as Category B, the second highest priority category for conservation management (Molloy & Davis 1994). Chatham Island mollymawk are ranked internationally as Critically Endangered by the IUCN Red List Categories (BirdLife 2000). Northern royal albatross and Pacific mollymawk are ranked as Endangered and Vulnerable respectively (BirdLife 2000). Albatrosses range over huge areas of oceans. Although they usually breed on small isolated islands, in this case the Chatham Islands, they are regarded as treasures by peoples all over the world.

In the Chatham Islands, all the sites on which albatross breed are privately owned. The consent of the owners of these islands is mandatory before the recovery actions discussed in this document can be undertaken. Gaining the agreement and involvement of landowners is an essential prerequisite to undertaking any of the research or recovery actions at the albatross breeding grounds outlined here. This plan is intended to provide an overview of the actions the Department believes are necessary to ensure the long-term survival of albatross in the Chatham Islands. The Department seeks the opportunity to discuss these objectives with landowners and to reach agreement on a co-operative approach to the protection and enhancement of albatross populations in the Chatham Islands.

This plan sets out a recommended recovery programme for Chatham Island mollymawk, northern royal albatross, and Pacific mollymawk in the Chatham Islands. No set timeframes have been recommended in the plan, as amendments are likely to be required as discussion and consultation with landowners proceed. This plan does not cover conservation work for these species at sites outside of the Chatham Islands—in particular, objectives for the Taiaroa Head population of northern royal albatross or the Rosemary Rock population of Pacific mollymawk are not covered here. Much of the material presented here has been taken from *Action plan for seabird conservation in New Zealand* (Taylor 2000a).

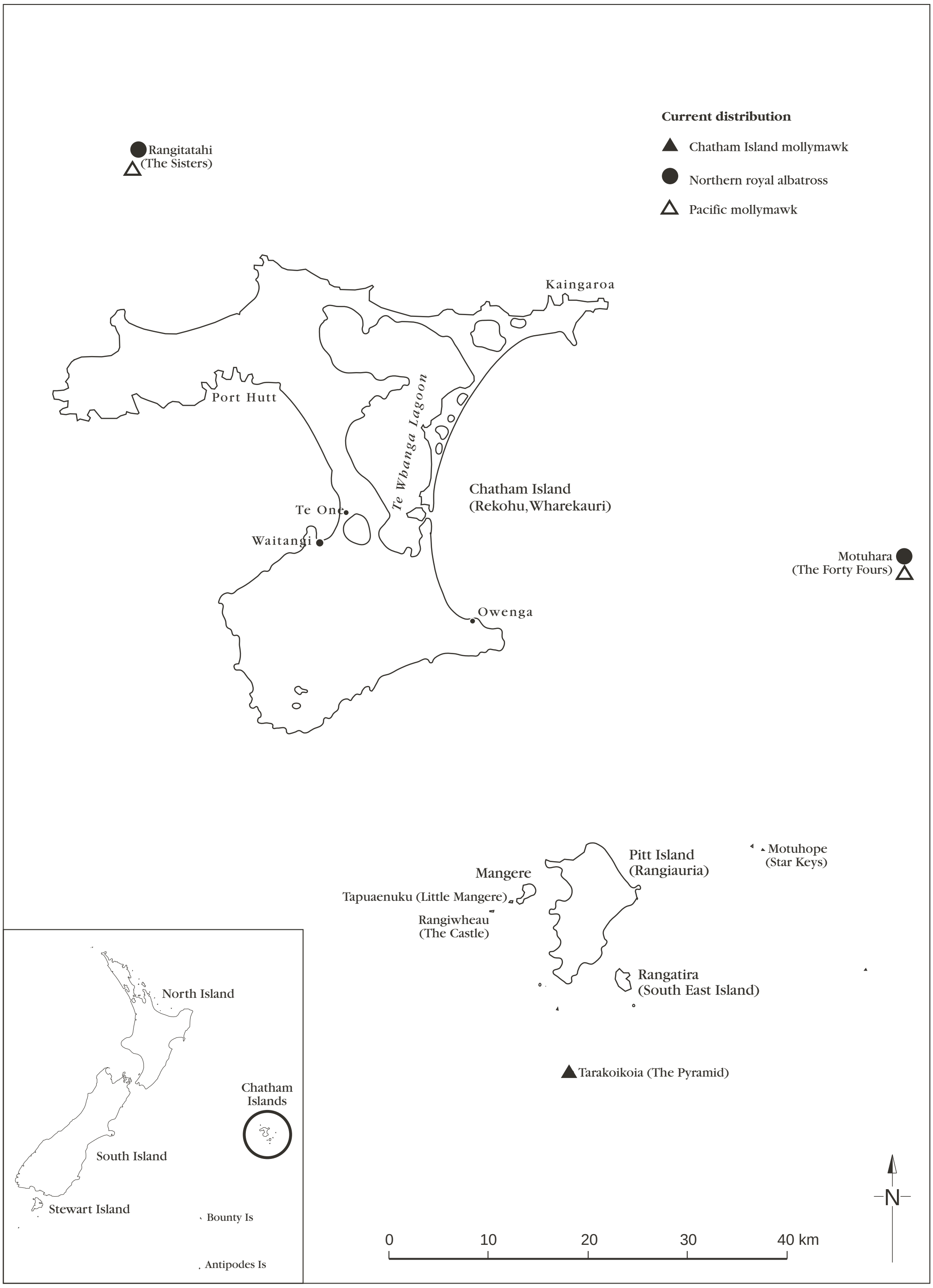

Figure 1. Distribution of Chatham Island mollymawk, northern royal albatross, and Pacific mollymawk populations.

2. Past/present distribution and population numbers

Chatham Island mollymawk breed only on The Pyramid in the Chatham Islands, although a few birds have been recorded ashore at The Snares Western Chain and Albatross Island (Tasmania). In 1999, 5333 occupied breeding sites on the Pyramid were counted, suggesting a probable breeding population of 10 000–11 000 individuals (Robertson pers. comm.). Previous estimates, based on counts from aerial photographs, indicated a population of 3200–4200 breeding pairs (Robertson 1998). Three cohorts of chicks were banded between 1993 and 1995, and an estimated 1200–1500 chicks fledged in each season (Robertson 1998).

The major part of the northern royal albatross population (99%) breeds in the Chatham Islands on The Forty-Fours and on Big and Little Sister Islands. There is an estimated breeding population of 6500–7000 pairs based on counts from aerial photographs taken in the 1970s and 1990s (Robertson 1998). In 1995 a count of 5200 pairs was estimated to be equivalent to a total mature population of 17 000 individuals (Robertson 1998). There are a small number (up to 27 pairs) breeding at Taiaroa Head, Otago Peninsula, including five individuals which are hybrid progeny of *D. sanfordi* and *D. epomophora* pairings. Two individuals of *D. sanfordi* were recorded at Enderby Island, Auckland Islands, breeding with *D. epomophora* from 1993 to 1995.

Pacific mollymawk breed on The Forty Fours and on Big and Little Sister in the Chatham Islands and on Rosemary Rock in the Three Kings. There have been no counts of the largest breeding colonies on Forty-Fours and Big Sister. However, on the basis of area of occupancy, the population on the Forty-Fours is estimated at 16 000 breeding pairs and 1500 pairs on Big Sister (Robertson 1991). Counts on Little Sister from 1994 to 1996 indicate 630–670 breeding pairs. There are estimated to be 20 pairs on the Three Kings.

The former distribution of Chathams albatrosses from fossil evidence is not entirely clear. Fossils of all three species have been found on Pitt and Chatham Islands but these may not represent former breeding sites. There is convincing evidence that royal albatross formerly bred on Pitt Island (A. Tennyson pers. comm.) but there is only limited evidence (one or a few immature bones) suggesting that royal albatross and Chatham Island mollymawks may have bred on Chatham Island. There is no evidence of Pacific mollymawks breeding on Chatham or Pitt Islands.

3. Cause of decline and present-day threats

There are no introduced mammals on the islands in the Chatham group where albatross breed. The arrival of mammalian predators to the islands is a fairly remote but ever present risk. Another potential threat to these albatross species is the arrival of avian diseases, such as avian pox virus (apparently spread by bird fleas and ticks) to the breeding islands. This virus has caused high chick mortality in some seasons at colonies of shy albatrosses off Tasmania and black-browed albatrosses at the Falkland Islands (Gales 1993). Avian diseases may be a potential threat to chicks' survival on all the albatross islands and should be looked for in seasons of high chick mortality.

Both CI mollymawk and northern royal albatross have been harvested in large numbers in the past. Anecdotal evidence suggests that the harvest of Pacific mollymawk has been less frequent (Robertson 1991). The illegal harvest of chicks still poses a threat to albatross populations in the Chatham Islands. There are believed to have been a number of incidences of birds being taken illegally over the past 20 years.

The major threat to albatross populations in the Chatham Islands at the present time appears to be habitat degradation due to severe storm events. An easterly storm in 1985 removed large amounts of soil and vegetation from the Forty-Fours, Sisters, and The Pyramid, impacting on the nesting material available for Chatham and northern royals to use for nesting (Robertson 1998). As a result, northern royal albatross nest sites were built from stones, or eggs were laid on bare rock, resulting in low hatching success (Robertson 1998). Following the storms, the Pyramid was largely bare of soil, and nest material was scarce. This loss of soil and drying of the island may induce greater egg and chick mortality for Chatham Island mollymawk, as has been observed with northern royal albatross. Since 1998, however, there has been some improvement in soil and vegetation cover on the Pyramid (C.J.R. Robertson pers. comm.).

For royal albatross the problem of habitat degradation is exacerbated by the normally biennial breeding pattern being disrupted by low breeding success, resulting in most of the total breeding population attempting to nest annually. This prevents the habitat from recovering, as the birds strip all substantial vegetation in an attempt to create nest sites (Robertson 1998).

Pacific mollymawk are somewhat less affected by the habitat changes since they mainly nest on steep cliff margins (Sisters) or rough plateau basins (Forty-Fours), where there is more soil and vegetation than on the open plateau tops. However, the drying of these islands may induce greater egg and chick mortality through increased collapsing of nest structures (Robertson & Sawyer 1994).

The exposed nature of colonies of all species means that local storm events can have an impact on breeding success in parts of the colony (Robertson 1998).

The only confirmed capture of a CI mollymawk by a tuna longliner was reported in 1997 (Baird et al. 1998). A further nine birds have been caught by demersal longliners fishing for ling, and by a research vessel (C.J.R. Robertson pers. comm.). The longlining fisheries off Peru and Chile pose a threat to this species during the non-breeding season (Spear et al. 1995, Robertson pers. comm.). Three banded birds or birds with transmitters were caught by coastal longline fisheries in Chile and Peru from 1995 to 1999 (C.J.R. Robertson pers. comm.). CI mollymawk attend trawlers off both the east and west coasts of New Zealand, but no specimens have been recovered from observed vessels (DOC unpubl.).

Only two northern royal albatross have been captured on tuna longlines in the New Zealand EEZ and returned for identification between 1988 and 1999 (Baird et al. 1998, C.J.R. Robertson pers. comm.). The high survival rate of adults and fledglings indicate that this form of mortality is not a major threat to the species (Robertson 1993a). The species regularly attends trawlers, yet there are no confirmed records of northern royal albatross bycatch from trawl fisheries (DOC unpubl.).

There is no evidence of Pacific mollymawk being caught on tuna longlines. However, until recently, there has been no observer coverage on longliners operating on the Chatham Rise, an area used by Pacific mollymawk. One Pacific mollymawk has been confirmed killed by trawling (DOC unpubl.). This species regularly follows crayfish boats at the Chatham Islands and takes discards from the pots.

Little is known about the possible effects of pollutants such as plastics and oil spills on albatross in the Chatham Islands. Chatham Island mollymawk apparently ingests plastics very rarely, as only 10 pieces have been found in nests on The Pyramid (C.J.R. Robertson pers. comm. 1999). Northern royal albatross forage widely over the Tasman Sea, Pacific Ocean, South Atlantic Ocean, and Southern Indian Ocean, and could be at risk from a wide range of pollutants or oil spills.

However, a recent study of organochlorine contaminants in northern royal albatross, Chatham and Pacific mollymawk found PCDD, PCDF, PCB, and DDT group residues present at considerably lower concentrations than those reported from albatross species breeding in the north Pacific Ocean (Jones 1999).

The PCB levels in CI mollymawk were slightly lower than those found in the northern royal albatross, with those found in Pacific mollymawk being lower again. DDT group levels in CI mollymawk were slightly higher than the levels found in northern royal albatross and Pacific mollymawk breeding at the Chatham Islands (Jones 1999). The levels of all these pollutants in the albatross of the Chatham Islands were considered low and are not expected to affect reproductive capability in the near future (Jones 1999). The decrease in egg-shell thickness observed in northern royal albatross at the Chatham Islands in the past 20 years does not appear to be caused by contaminants (Jones 1999), and may result from stress to birds due to high nest densities on the breeding colonies (C.J.R. Robertson 1998, pers. comm.).

4. Species ecology and biology

Each of the three species lays one egg and the male and female share incubation and protection of the chick during the guard stage (Marchant & Higgins 1990). Incubation period is c. 80 days for northern royal albatross and c. 70 days for CI mollymawk and Pacific mollymawk. These species do not have the ability to re-lay in the same season if their egg or chick is lost.

There is little detailed information available regarding CI mollymawk breeding biology due to difficulties with access to the site. They breed annually from August to April (C.J.R. Robertson pers. comm.). Nests consist of a shallow cup on a small pedestal of soil, rock chips, and vegetation.

Northern royal albatross breed two-yearly if a chick is successfully raised. Parents with eggs or chicks that fail before the end of the guard stage in March re-nest the following season. At Taiaroa Head, the age of first breeding is 8–10 years, with a mean of 69% of fledglings surviving to five years old. Nests are a circular mound of vegetation, small stones, or peat. In the Chatham Islands the estimated mean annual productivity was 48% from 1973 to 1976 but only an estimated 18% p.a. from 1989 to 1996 (Robertson 1998). Factors influencing breeding were detailed by Robertson (1998).

Pacific mollymawk breed annually from October to June. Nests are on cliff ledges and on steep faces at the top of cliffs on The Sisters and the plateau tops on The Forty Fours.

5. Past conservation efforts

No specific conservation actions have been taken, but the following research or monitoring has been done.

Chatham Island mollymawk

(1) A few visits to The Pyramid between 1973 and 1976 helped to estimate the size of the population, determine the laying and hatching period and others aspects of the breeding cycle (Robertson 1991).

(2) Courtship behaviour was studied in November 1991 (Robertson & Page 1992).

(3) Three cohorts of chicks were banded by conservation staff and members of the local community in 1993–1995 (Robertson 1998).

(4) A study plot was established in 1995 for annual monitoring, and observations commenced on the breeding biology of this species. Three birds had a satellite transmitter attached to monitor movements during chick rearing and dispersal after breeding. Further satellite transmitters were attached to ten birds in 1998 (C.J.R. Robertson pers. comm.).

Northern royal albatross

(1) The colony at Taiaroa Head first established about 1919, and intensive management from that time has maximised breeding success and resulted in a slowly increasing population. This small colony has been intensively monitored and has provided an ideal site for the study of aspects of the breeding biology and population dynamics of the species (Robertson 1993a, 1993b; Robertson & Richdale 1993). The data collected on breeding success, adult and juvenile survival rates, recruitment, and longevity is the best available for a seabird population in New Zealand. Important animal husbandry techniques have also been developed at Taiaroa Head (Robertson & Wright 1973).

(2) The populations on Chatham Islands were studied in the 1970s and 1990s. Counts were made of breeding populations and birds were banded. Basic breeding biology was studied during these periods (Robertson 1991, C.J.R. Robertson pers. comm. 1998).

(3) Food samples have been collected from albatross regurgitations at Taiaroa Head and Chatham Islands. These were later identified by Imber (1991, 1999).

(4) A proposal seeking a legal harvest of toroa (albatrosses at the Chatham Islands) led to the initiation of new studies of northern royal albatrosses at the Chatham Islands by Robertson (1991). Most of the research was conducted on Little Sister and involved an assessment of population dynamics, breeding success, breeding biology and the effects of habitat change on the breeding population. Aerial photographic surveys have been undertaken to count numbers of breeding pairs and to determine breeding success at The Sisters and The Forty Fours colonies (Robertson & Sawyer 1994). Ground truthing of these photos was undertaken to determine proportions of breeders and non-breeders ashore at the time of photography (C.J.R. Robertson pers. comm. 1999). Adults and chicks have been banded at the Little Sister colony (Robertson 1998).

(5) Satellite tracking has been carried out on adults from both the Taiaroa Head (Nicholls et al. 1994) and The Sisters colonies to monitor movements during the breeding season and dispersal after breeding (C.J.R. Robertson pers. comm. 1998)

Pacific mollymawk

(1) Studies were conducted on the breeding cycle of Pacific mollymawk on Chatham Islands in 1970s and 1990s. The laying and hatching periods were determined and adult birds were banded (Robertson 1991, Robertson 1998). Recent research on Little Sister Island has included a census of breeding pairs, estimates of breeding productivity (57–60% to end of guard stage), recapture of banded birds, and an estimate of adult survival in the period 1974–1995 (93.5% per annum) (Robertson 1998). The breeding distribution on The Forty Fours was mapped by Robertson & Sawyer (1994). The timing of incubation shifts, breeding frequency and measurement of chick growth rates in the first part of the chick rearing period have been studied in recent seasons (C.J.R. Robertson pers. comm. 1999).

(2) A small diet sample collected at the Chatham Islands between 1972 and 1976 was analysed by West & Imber (1986).

6. Recovery goal

Two recovery goals are proposed for each species—a long-term goal and a shorter-term goal. The shorter-term goal of ten years is to be achieved by the year 2011, which is when this plan expires.

LONG-TERM GOAL

To have a number of self-sustaining populations of each species that require minimal management.

TEN-YEAR GOAL

To prevent human-induced declines of CI mollymawk, northern royal albatross, and Pacific mollymawk populations and establish the support of landowners for the re-commencement of monitoring work at breeding colonies of each albatross species.

IF ALL DECLINES HAVE HALTED, THE IUCN CONSERVATION RANKING OF CI MOLLYMAWK WILL CHANGE FROM CRITICALLY ENDANGERED TO VULNERABLE AND NORTHERN ROYAL ALBATROSS WILL CHANGE FROM ENDANGERED TO VULNERABLE.

7. Options for recovery

7.1 OPTION 1

No action

This is not the preferred option. The entire breeding population of the CI mollymawk is restricted to a single site, and the other two species are also limited to only a few sites, almost totally in the Chatham Islands. If no action were taken, these species would remain at risk due to a catastrophic event at their breeding grounds. Factors such as fishing bycatch, marine pollution, illegal harvest, or poor reproductive success caused by habitat degradation could, individually or in combination, cause gradual but serious reductions in albatross numbers if left unchecked.

7.2 OPTION 2

Monitor populations using aerial photograph to detect changes in population size

This is not the preferred option. While aerial photography will give some indication of population trends this method of monitoring alone will not be sufficient. Detrimental changes in the population may not be discovered until it is too late to determine the cause of the changes and implement protection measures.

The implementation of the following two preferred options for recovery will require the prior agreement of island owners.

7.3 OPTION 3 (PREFERRED OPTION)

Monitor populations using aerial photography. Obtain land-owner support and approval for additional monitoring/ research on albatross populations and to implement measures to protect albatross habitat in the Chatham Islands

This is the preferred option within the term of this plan. In addition to aerial monitoring, research into the population dynamics of the albatrosses in the Chatham Islands is essential to improve understanding of the risks faced by these species and to determine methods to reduce and mitigate these risks. Albatrosses face risks away from their breeding colonies in the Chatham Islands in the form of fisheries bycatch and marine pollution in their feeding grounds. There may be opportunities for research at Chatham Islands breeding colonies to provide information important to understanding of these threats on albatross and developing measures to reduce their impact. The importance of measures to protect populations from risks such as the arrival of mammals, illegal harvest, or the arrival of avian disease should be advocated to the island owners. Quarantine measures must be implemented by any researchers permitted to visit the islands.

7.4 OPTION 4 (PREFERRED LONG-TERM OPTION)

Investigate methods to improve productivity at breeding colonies and possible methods to establish additional breeding colonies of albatross in the Chatham Islands

This option is supplementary to Option 3 as a preferred option for the long-term recovery of albatross. Protection and monitoring measures as set out in Option 3 may not be sufficient on their own to ensure the long-term survival of albatross populations in the Chatham Islands. A major threat currently faced by albatross populations there is habitat degradation. Although this is due to natural causes, the impacts, when combined with human-induced threats such as those discussed above, may place albatross populations under threat. It may be possible to implement management measures to reduce the impacts of these natural disasters. In order to do this the agreement of landowners would be required and techniques would need to be developed and trialled, probably initially at more easily accessible sites. The establishment of additional populations of albatross in the Chatham Islands could further improve their conservation status.

8. Objectives

The recommended objectives for Chatham Island mollymawk, northern royal albatross and Pacific mollymawk are:

1. Seek the support and cooperative participation of island owners in an albatross monitoring and management programme.
2. Monitor all albatross breeding colonies in the Chatham Islands.
3. Advocate for the protection of albatross breeding colonies in the Chatham Islands.
4. Increase understanding of albatross population dynamics and status.
5. Investigate techniques and seek agreement on them to improve productivity of albatross populations.
6. Assess sites and investigate techniques for establishing additional albatross colonies in the Chatham Islands.

9. Work plan

Specific tasks required to achieve each objective, and performance measures to assess success in meeting objectives are set out below.

OBJECTIVE 1. SEEK THE SUPPORT AND COOPERATIVE PARTICIPATION OF ISLAND OWNERS IN AN ALBATROSS MONITORING AND MANAGEMENT PROGRAMME

Performance measures

A co-operative agreement between island owners and the Department developed for the management of albatross in the Chatham Islands, during the term of the plan and subject to the support of island owners.

Explanation

The full support of island owners is essential before work can be undertaken on albatross in the Chatham Islands. It is important that the Department works towards the development of a co-operative relationship with island owners that ensures the long-term survival of the three albatross species and also safeguards the interests of owners.

Actions required

Action 1.1 Initiate discussions with island owners to seek their support for the development of a programme to be undertaken on the islands

Explanation

An improved knowledge of albatross numbers and population dynamics is essential to understanding the status and long-term outlook for the species. In order to gain this information, permission from the islands' owners is required for researchers to visit the islands. The participation of owners in aspects of the work should be encouraged. Any access agreements reached should clearly set out activities permitted on the island, duration of the research and a timetable for reporting results back to owners.

Priority

Essential

Responsibility

Wellington Conservancy

Chatham Island Area Office

OBJECTIVE 2. MONITOR ALL ALBATROSS BREEDING COLONIES IN THE CHATHAM ISLANDS

Performance measures

Monitoring programme, combining aerial photographic counts taken three times each year with periodic ground-based counts to ensure accuracy of population estimates, undertaken subject to landowner approval.

Explanation

It is essential that regular base-line monitoring of all albatross populations on the Chatham Islands is carried out to establish a long-term picture of population trends for all colonies. Population estimates taken from aerial photographs need to be compared against ground-based counts to check the accuracy of these estimates.

Actions required

Action 2.1 Conduct three flights annually to photograph albatross colonies on The Pyramid, The Sisters, and The Forty Fours. Analyse photographs and compare with counts from previous years to determine population trends

Explanation

Photographs of all the albatross breeding colonies in the Chatham Islands have been carried out over a number of years. This level of monitoring is the absolute minimum required to establish population trends at each of the breeding colonies.

Priority

Essential

Responsibility

Chatham Island Area Office

Science Technology and Information Services

Action 2.2 Advocate to landowners the need for an accurate ground census to be conducted on The Pyramid for CI mollymawk and on The Sisters and The Forty Fours for northern royal albatross and Pacific mollymawk. Conduct ground census if landowner approval obtained

Explanation

To ensure the accuracy of population estimates made using photographic counts ground-based counts are required for comparison (Moore 1999). A census would need to be conducted annually for three consecutive years, then repeated at five-yearly intervals. Priority should be given to conducting ground counts of CI mollymawk on The Pyramid and Pacific mollymawk on The Forty Fours and Big Sister.

Priority

High

Responsibility

Wellington Conservancy

Chatham Island Area Office

Science Technology and Information Services

Action 2.3 Correlate ground-based counts with aerial photographs and use this information to determine historic population trends from photographs

Explanation

Once ground-based counts have been carried out the results can be compared with counts made from aerial photographs to determine the accuracy of population estimates gained from photographic counts. Photographic counts compared across years will indicate population trends for each of the colonies.

Priority
High

Responsibility
Wellington Conservancy

Science Technology and Information Services

OBJECTIVE 3. ADVOCATE FOR THE PROTECTION OF ALBATROSS BREEDING COLONIES IN THE CHATHAM ISLANDS

Performance measures

There is no reduction in albatross numbers on The Pyramid, The Sisters and The Forty Fours due to human induced threats.

Explanation
Albatross colonies have been protected to a large extent in the past by the extreme isolation and inaccessibility of their breeding sites. The populations will need continued protection from human-induced threats at their breeding grounds, such as introduction of mammalian predators or avian disease, or illegal harvest of birds.

Actions required

Action 3.1 **Advocate and implement quarantine measures to prevent the introduction of mammalian predators to breeding islands**

Explanation
Whenever the islands are visited there is a risk of accidental introduction of mammalian predators to the islands. This risk can be significantly reduced by advocating strongly against illegal harvest of albatross and by ensuring that any researchers permitted to visit the islands adhere to strict quarantine measures such as those followed by DOC to prevent introduction of mammals to offshore Nature Reserves.

Priority
Essential

Responsibility
Chatham Island Area Office

Wellington Conservancy

Science Technology and Information Services

Action 3.2 Advocate against the illegal harvest of albatross and prosecute known cases

Explanation

Illegal harvest threatens albatross populations in two ways. Firstly there is the direct risk to the population of taking chicks and therefore reducing productivity. Our current knowledge of population dynamics indicates this would not be sustainable. Secondly there is the risk of inadvertent introduction of mammalian predators when visiting the islands.

Priority

High

Responsibility

Chatham Island Area Office

Wellington Conservancy

OBJECTIVE 4. INCREASE UNDERSTANDING OF ALBATROSS POPULATION DYNAMICS AND STATUS

Performance measures

Research initiated on agreed aspects of albatross population dynamics and biology if and when agreement can be reached from island owners, and subject to funding

Explanation

There are still many aspects of albatross population dynamics that are not understood. This lack of information limits our ability to make management decisions and make predictions about the future health of the populations. Information on albatross diet and foraging behaviour is essential to improve our understanding of the threats albatrosses face in their foraging grounds in international waters so that measures can be taken to reduce these risks.

Actions required

Action 4.1 Conduct research into population dynamics for CI mollymawk and Pacific mollymawk and recruitment rates for northern royal albatross

Explanation

Little is known of key population parameters for CI mollymawk and Pacific mollymawk populations. Research is needed to determine adult and fledging survival rates, recruitment of juveniles to the breeding population, age at first breeding, and species longevity. Information is needed for northern royal albatross on rates of recruitment to the Chatham Islands breeding colonies.

Priority

High

Responsibility

Chatham Island Area Office

Science Technology and Information Services

Action 4.2 Conduct research on movement and dispersal patterns of adult and fledgling albatross from Chatham Island breeding colonies

Explanation

The importance of fisheries bycatch to the three Chatham Islands albatross species is still poorly understood. Recent work with CI mollymawk, where satellite transmitters were attached to birds, will assist with understanding of foraging behaviour and locations. By determining where species spend time feeding, their overlap with international fishing operations can be determined. The movement and dispersal patterns of adult and fledgling albatross needs further study using satellite telemetry (Nicholls et al. 1994). Information is required for CI molly-mawk and Pacific mollymawk on foraging patterns of adults during incubation shifts and chick rearing and an assessment of sexual differences in foraging patterns. For northern royal albatross, information on movement and dispersal patterns of fledglings is required, and additional work on adult foraging patterns would be also useful.

Priority

High

Responsibility

Science Technology and Information Services

Wellington Conservancy

Action 4.3 Conduct diet studies for the three albatross species

Explanation

Improved understanding of the diet of all three species is needed. Very little is known about the diet of CI mollymawk and Pacific mollymawk. It is important to learn if fisheries waste is important to these species and to determine if there is a sexual difference in diet. Seasonal variation in chick diet needs to be understood for all species, and diet information needs to be correlated with foraging zones to determine potential conflict with commercial fishing operations.

Priority

Lower

Responsibility

Wellington Conservancy

Science Technology and Information Services

Chatham Island Area Office

Action 4.4 Research development of adult plumage and bill characteristics in CI mollymawk and Pacific mollymawk

Explanation

Improved knowledge of the age at which adult plumage and bill characteristic development will help to separate albatross juveniles of different species at sea and in the hand and thus contribute to the understanding of their distribution.

Priority

Lower

Responsibility

Science Technology and Information Services

OBJECTIVE 5. INVESTIGATE TECHNIQUES AND SEEK AGREEMENT ON THEM TO IMPROVE PRODUCTIVITY OF ALBATROSS POPULATIONS

Performance measures

Albatross productivity on islands sufficient to ensure populations are stable or increasing in size over the term of the plan.

Explanation

Productivity, particularly that of northern royal albatross, is believed to have been reduced by habitat degradation at the breeding colonies caused by severe storm events. It may be possible to mitigate the adverse impacts of this habitat degradation by implementing habitat protection and restoration measures. Possible techniques need to be investigated and, if they look promising, the support of landowners needs to be sought to implement measures to improve productivity of current populations and to mitigate against storm damage.

Actions required

Action 5.1 Investigate options for improving chick hatching rates

Explanation

Seek information from other projects internationally and in New Zealand where similar habitat issues have been addressed. Techniques may need to be trialled on other species at more accessible sites in New Zealand before being attempted in the Chatham Islands.

Priority

Moderate

Responsibility

Wellington Conservancy

Science Technology and Information Services

Action 5.2 Discuss options with landowners and implement techniques if agreement is reached

Explanation

Once possible techniques to improve chick hatching have been determined, these would needed to be discussed with island owners. If they are in agreement, the techniques could be trialled on albatross in the Chatham Islands.

Priority

Moderate

Responsibility

Chatham Island Area Office

Science Technology and Information Services

OBJECTIVE 6. ASSESS SITES AND INVESTIGATE TECHNIQUES FOR ESTABLISHING ADDITIONAL ALBATROSS COLONIES IN THE CHATHAM ISLANDS

Performance measures

Potential sites for the establishment of additional albatross colonies have been identified and techniques to be used to attract and/or transfer birds to the site have been determined within the term of the plan.

Explanation

It is important to identify possible sites for the establishment of new albatross colonies well in advance of attempting to attract or transfer birds to these sites so that any required management can be carried out and potential conflict with other uses for the area can be resolved. Techniques to be used for establishing the birds at a new site will need to be determined.

Actions required

Action 6.1 Assess possible sites in the Chatham Islands for the establishment of new albatross colonies

Explanation

Criteria for assessment of possible sites will need to be developed before potential sites can be identified. Sites on either Chatham or Pitt Island would require predators to be excluded or controlled to zero density. In the long term, the eradication of key predators from these areas would be ideal. If sites on Mangere or Rangatira are to be used for the establishment of albatross in the future this needs to be integrated into management plans. In particular on Mangere, planning for the revegetation programme will need to consider the vegetation requirements for areas identified for albatross.

Priority

Lower

Responsibility

Wellington Conservancy

Science Technology and Information Services

Action 6.2 Research techniques for establishment of albatross populations

Explanation

The development of techniques for attracting seabirds to new sites and for transferring chicks to establish new colonies of seabirds is being done with a number of seabird species in New Zealand. Many of the techniques developed will be applicable for albatross. International research on albatross (e.g. Podolsky 1990) and other seabirds should also be followed closely.

Priority

Lower

Responsibility

Wellington Conservancy

Science Technology and Information Services

10. Review date

This plan will be reviewed after ten years, or sooner if new information leads to proposals for a significant change in direction. The plan will remain operative until a reviewed plan is in place. The date that is proposed for review of this recovery plan is **July 2011**.

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