

approval is set forth in the direct final rule. If no relevant adverse comments are received in response to this action, no further activity is contemplated in relation to this action. If EPA receives relevant adverse comments, the direct final rule will be withdrawn and all public comments received will be addressed in a subsequent final rule based on this proposed action. EPA will not institute a second comment period on this action. Any parties interested in commenting on this action should do so at this time. Please note that if EPA receives adverse comment on part of this rule and if that part can be severed from the remainder of the rule, EPA may adopt as final those parts of the rule that are not the subject of an adverse comment. For additional information, see the direct final rule that is located in the rules section of this **Federal Register**.

Dated: November 29, 2007.

**William Rice,**

*Acting Regional Administrator, Region 7.*

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## DEPARTMENT OF THE INTERIOR

### Fish and Wildlife Service

#### 50 CFR Part 17

[96100-1671-0000-W4]

RIN 1018-AV21

#### Endangered and Threatened Wildlife and Plants; Proposed Rule To List Six Foreign Bird Species Under the Endangered Species Act

**AGENCY:** Fish and Wildlife Service, Interior.

**ACTION:** Proposed rule.

**SUMMARY:** We, the U.S. Fish and Wildlife Service (Service), propose to list three petrel species (order Procellariiformes), the Chatham petrel (*Pterodroma axillaris*), previously referred to as (*Pterodroma hypoleuca axillaris*); Fiji petrel (*Pterodroma macgillivrayi*); and the magenta petrel (*Pterodroma magentae*) as endangered, pursuant to the Endangered Species Act of 1973, as amended (Act). In addition, we propose to list the Cook's petrel (*Pterodroma cookii*); Galapagos petrel (*Pterodroma phaeopygia*), previously referred to as (*Pterodroma phaeopygia phaeopygia*); and the Heinroth's shearwater (*Puffinus heinrothi*) as threatened under the Act. This proposal, if made final, would extend the Act's protection to these species. The Service

seeks data and comments from the public on this proposal.

**DATES:** We must receive comments and information from all interested parties by March 17, 2008. Public hearing requests must be received by January 31, 2008.

**ADDRESSES:** You may submit comments by one of the following methods:

- Federal eRulemaking Portal: <http://www.regulations.gov>. Follow the instructions for submitting comments.
- U.S. mail or hand-delivery: Public Comments Processing, Attn: RIN 1018-AV21; Division of Policy and Directives Management; U.S. Fish and Wildlife Service; 4401 N. Fairfax Drive, Suite 222; Arlington, VA 22203.

We will not accept e-mail or faxes. We will post all comments on <http://www.regulations.gov>. This generally means that we will post any personal information you provide us (see the Public Comments section below for more information).

**FOR FURTHER INFORMATION CONTACT:**

Mary M. Cogliano, PhD, Division of Scientific Authority, U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 110, Arlington, VA 22203; telephone 703-358-1708; fax, 703-358-2276; or e-mail, [ScientificAuthority@fws.gov](mailto:ScientificAuthority@fws.gov).

**SUPPLEMENTARY INFORMATION:**

#### Background

In this proposed rule, we propose to list three foreign seabird species as endangered, pursuant to the Act (16 U.S.C. 1531, *et seq.*). These species are: the Chatham petrel (*Pterodroma axillaris*), Fiji petrel (*Pterodroma macgillivrayi*), and magenta petrel (*Pterodroma magentae*). We also propose to list the Cook's petrel (*Pterodroma cookii*), Galapagos petrel (*Pterodroma phaeopygia*), and Heinroth's shearwater (*Puffinus heinrothi*) as threatened species under the Act. All species are considered pelagic, occurring on the open sea generally out of sight of land, where they feed year round. They return to nesting sites on islands during the breeding season where they nest in colonies (Pettingill 1970, p. 206).

#### Chatham petrel (*Pterodroma axillaris*)

The Chatham petrel is also known by its Maori name, ranguru. Fossil evidence indicates that this species was once widespread throughout the Chatham Islands of New Zealand [New Zealand Department of Conservation (NZDOC) 2001b]. However, the species is currently only known to breed on South East Island (Rangatira) (BirdLife International 2007a) and, as a result of

recent release efforts, on Pitt Island (BirdLife International News 2006) within the Chatham Islands. The population of this species is very small, estimated at 800-1,000 birds based on recent research and banding studies (Taylor 2000), and is showing a decreasing population trend (BirdLife International 2007a). It is estimated that fewer than 200 pairs breed per year (NZDOC 2001b). The IUCN considers the Chatham petrel to be "Critically Endangered" (BirdLife International 2006a).

Banding studies have shown that young birds of this species remain at sea for at least two years before returning to land to breed and nest. Based on limited feeding habits data, the species preys on squid and small fish (Heather and Robertson 1997, as cited in BirdLife International 2000).

#### Fiji petrel (*Pterodroma macgillivrayi*)

Synonyms for the Fiji petrel include *Pseudobulweria macgillivrayi* and *Thalassidroma macgillivrayi*. Very little information is available on the Fiji petrel and its life history. There have only been 12 substantiated sightings of this species on land since 1965, and a total of 13 historically. These sightings have all been on Gau Island (BirdLife International 2000), a 52.55-square mile (136.1 km<sup>2</sup>) island in Fiji's Lomaiviti archipelago (Wikipedia 2007f). The population of this species is very small, estimated at less than 50 birds and is showing a decreasing population trend (BirdLife International 2007c). The IUCN classifies the Fiji petrel as "Critically Endangered" (BirdLife International 2006c).

#### Magenta petrel (*Pterodroma magentae*)

The magenta petrel, or Taiko as it is known locally, is native to Chatham Island, New Zealand (BirdLife International 2000), the largest island in the Chatham Islands chain, covering 348 square miles (900 km<sup>2</sup>, Wikipedia 2007b). Based on fossil evidence and historical records, it is believed that the magenta petrel was once the most abundant burrowing seabird on Chatham Island (Bourne 1964, Sutton and Marshall 1977, as cited in NZDOC 2001a). It has been reported that prior to 1900, indigenous Moriori and Maori harvested thousands of petrel chicks for food (Crockett 1994). The limited feeding habits data show that the magenta petrel preys on squid (Heather and Robertson 1997, as cited in BirdLife International 2000).

The type specimen for the magenta petrel was first collected at sea in 1867, and after 10 years of intensive searching the species was re-discovered in 1978 in

the southeast corner of Chatham Island (Crockett 1994). Since then, additional searches have resulted in the location and banding of 92 birds (BirdLife International 2007d). The IUCN considers this species as “Critically Endangered” (BirdLife International 2006d). The magenta petrel population is estimated at 120 individuals with a decreasing trend (BirdLife International 2007d).

*Cook’s petrel (Pterodroma cookii)*

Cook’s petrel is endemic to the New Zealand archipelago (del Hoyo, *et al.* 1992), which comprises two main islands, the North and South Islands, and numerous smaller islands. The total land area of the archipelago covers 103,700 square miles (268,680 km<sup>2</sup>, Wikipedia 2007i). Historically, Cook’s petrels were harvested in large numbers as a food source by native Moriori (Oliver 1955).

Although the Cook’s petrel was once considered a dominant species on these islands, the species’ breeding and nesting activities are now restricted to islands at the northern and southern limits of its former breeding range, including Great Barrier (Aotea), Little Barrier (Hauturu), and Codfish (Whenua Hou) Islands (del Hoyo, *et al.* 1992). The species’ diet consists primarily of cephalopods, fish, crustaceans, and bioluminescent tunicates that can be hunted at night (Imber 1996).

The IUCN classifies this species as “Endangered” (BirdLife International 2006b). Although the population on Little Barrier Island was thought to be about 50,000 pairs (BirdLife International 2007b), using GIS (Geographic Information System) technology, Rayner, *et al.* (2007b) determined that the population is around 286,000 pairs. In 2006, the Great Barrier Island population was considered to be in danger of extirpation because only four nest burrows had been located in recent years, and it was estimated that fewer than 20 pairs continued to breed on the island. However, the populations on Little Barrier and Codfish islands are likely to be increasing (BirdLife International 2007b).

*Galapagos petrel (Pterodroma phaeopygia)*

The Galapagos petrel is endemic to the Galapagos Islands, Ecuador (BirdLife International 2000), and is currently known to occur on the archipelago’s islands of Santa Cruz, Floreana, Santiago, San Cristóbal, and Isabela, which cover a total land area of 2,680 square miles (6,942 km<sup>2</sup>, Cruz and Cruz 1987; Vargas and Cruz 2000, as cited in

BirdLife International 2000). This species feeds mostly on squid, fish, and crustaceans (Castro and Phillips 1996, as cited in BirdLife International 2000), and has been observed foraging near the Galapagos Islands, as well as east and north of the islands (Spear, *et al.* 1995).

The IUCN classifies the Galapagos petrel as “Critically Endangered” (BirdLife International 2006e). The total population is estimated to be 20,000–60,000 birds with a decreasing population trend (BirdLife International 2007e).

*Heinroth’s shearwater (Puffinus heinrothi)*

Very little information is available on the Heinroth’s shearwater and its life history. The species’ nesting grounds have not been located, but observations of the species indicate that the species breeds on Bougainville Island in Papua New Guinea, and Kolombangara and Rendova Islands in the Solomon Islands (Buckingham, *et al.* 1995, Coates 1985, 1990, as cited in BirdLife International 2000).

The IUCN categorizes this species as “Vulnerable” (BirdLife International 2006f). The population is estimated at 250–999 birds, with an unknown population trend; however, there is no substantial evidence of a decline (BirdLife International 2007f).

**Previous Federal Action**

Section 4(b)(3)(A) of the Act requires the Service to make a finding known as a “90-day finding” on whether a petition to add, remove, or reclassify a species from the list of endangered or threatened species has presented substantial information indicating that the requested action may be warranted. To the maximum extent practicable, the finding shall be made within 90 days following receipt of the petition and published promptly in the **Federal Register**. If the Service finds that the petition has presented substantial information indicating that the requested action may be warranted (referred to as a positive finding), Section 4(b)(3)(A) of the Act requires the Service to commence a status review of the species if one has not already been initiated under the Service’s internal candidate assessment process. In addition, Section 4(b)(3)(B) of the Act requires the Service to make a finding within 12 months following receipt of the petition on whether the requested action is warranted, not warranted, or warranted but precluded by higher-priority listing actions (this finding is referred to as the “12-month finding”). If the listing of a species is found to be warranted but precluded by higher-

priority listing actions, then the petition to list that species is treated as if it is a petition that is resubmitted on the date of the finding and is, therefore, subject to a new 12-month finding within one year. The Service publishes an Annual Notice of Resubmitted Petition Findings (annual notice) for all foreign species for which listings were previously found to be warranted but precluded.

On November 24, 1980, we received a petition (1980 petition) from Dr. Warren B. King, Chairman, United States Section of the International Council for Bird Preservation (ICBP), to add 79 native and foreign bird species to the list of Threatened and Endangered Wildlife (50 CFR 17.11). The species covered by the 1980 petition comprised 19 native species and 60 foreign species, including the six seabird species of the family Procellariidae that are the subject of this proposed rule. In response to the 1980 petition, we published a notice to announce a positive 90-day finding on May 12, 1981 (46 FR 26464) for 77 species, as two of the foreign species identified were already listed under the Act. On January 20, 1984, we published a 12-month finding within an annual review on pending petitions and description of progress on all ESA listing amendments (49 FR 2485). In this notice, we found that listing all 58 foreign bird species on the 1980 petition was warranted but precluded by higher-priority listing actions, however, the species were not listed by name. On May 10, 1985, we published the first annual notice (50 FR 19761) in which we continued to find that listing all 58 foreign bird species on the 1980 petition was warranted but precluded by higher-priority listing actions. In our next annual notice (51 FR 996), published on January 9, 1986, we found that listing 54 species from the 1980 petition, including the six species that are the subject of this proposed rule, continued to be warranted but precluded by higher-priority listing actions, whereas new information caused us to find that listing the four remaining species was no longer warranted. We published additional annual notices of findings on July 7, 1988 (53 FR 25511), December 29, 1988 (53 FR 52746), April 25, 1990 (55 FR 17475), November 21, 1991 (56 FR 58664), and May 21, 2004 (69 FR 29354). In addition, on September 28, 1990, we published a final rule (55 FR 39858) to list six species from the 1980 petition to the List of Threatened and Endangered Wildlife.

Per the Service’s listing priority guidelines that were published on September 21, 1983 (48 FR 43098), in our April 23, 2007, Annual Notice on

Resubmitted Petition Findings for Foreign Species (72 FR 20184), we determined that listing the six seabird species of family Procellariidae was warranted. The six species were selected from the list of warranted but precluded species for two reasons. First, this family grouping includes more high priority species than any other taxonomic family group in our list of warranted but precluded species; and, second, because of the significance and similarity of the threats to the species. Combining taxonomically related species that face similar threats into one proposed rule allows us to maximize our limited staff resources and thus increases our ability to complete the listing process for warranted-but-precluded species.

### Summary of Factors Affecting the Species

Section 4(a)(1) of the Act (16 U.S.C. 1533 (a)(1)) and regulations promulgated to implement the listing provisions of the Act (50 CFR part 424) set forth the procedures for adding species to the Federal lists of endangered and threatened wildlife and plants. A species may be determined to be an endangered or threatened species due to one or more of the five factors described in section 4(a)(1) of the Act. These factors and their application to the Chatham petrel, Cook's petrel, Fiji petrel, Galapagos petrel, magenta petrel, and Heinroth's shearwater follow.

#### *Chatham petrel (Pterodroma axillaris)*

##### A. The Present or Threatened Destruction, Modification, or Curtailment of the Habitat or Range

The range of this species changes intra-annually based on an established breeding cycle. During the breeding season (November to June) (NZDOC 2001b), breeding birds return to breeding colonies to breed and nest. During the non-breeding season, birds migrate far from their breeding range where they remain at sea until returning to breed. Therefore, our analysis of Factor A is separated into analyses of: (1) The species' breeding habitat and range, and (2) the species' non-breeding habitat and range.

BirdLife International (2007a) estimates the range of the Chatham petrel to be 436,000 km<sup>2</sup> (168,300 mi<sup>2</sup>); however, BirdLife International (2000) defines "range" as the "Extent of Occurrence, the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species, excluding cases of vagrancy."

Because this reported range includes a large area of non-breeding habitat (i.e., the sea), our analysis of Factor A with respect to the Chatham petrel's breeding range focuses on the islands where the species is known to breed.

The Chatham petrel breeds primarily on one island (BirdLife International 2000; NZDOC 2001b), the 0.84 square mile (2.18 km<sup>2</sup>, Wikipedia 2007k) South East Island in the Chatham Islands (BirdLife International 2000; NZDOC 2001b). In 2002, the NZDOC began efforts to expand the species' breeding range by releasing chicks onto Pitt Island, an island approximately 2.5 km (1.55 mi) northwest of South East Island. Over a four-year time period, 200 chicks were transferred to the 40 ha (98.8 acre) Ellen Elizabeth Preece Conservation Covenant (Caravan Bush), a fenced, predator-free enclosure on Pitt Island. As of 2006, four adult birds had returned to the island from the sea to breed, and in June, 2006, a pair successfully reared a chick. This represents the first time in more than a century that a Chatham petrel chick has fledged on Pitt Island (BirdLife International News 2006).

The Chatham petrel breeds on coastal lowlands and slopes in habitats with low forest, bracken, or rank grass (del Hoyo, *et al.* 1992). It nests in burrows on flat to moderately sloping ground among low vegetation and roots (Marchant and Higgins 1990, as cited in BirdLife International 2000). Since the arrival of European explorers, this breeding habitat has contracted extensively, largely as a result of its conversion to agricultural purposes (NZDOC 2001b; Tennyson and Millener 1994).

We are not aware of any present or threatened destruction or modification of the Chatham petrel's habitat on South East Island. This island is currently uninhabited by humans (Wikipedia 2007k), and since 1954, it has been managed as a reserve for the Chatham petrel. Access to this island is restricted by permit. In addition, since 1961, all livestock has been removed from the island, allowing the natural vegetation to regenerate (Nilsson, *et al.* 1994). The Chatham petrel's fenced, 40 ha (98.8 acre) release area on Pitt Island is protected by a conservation covenant, and we are unaware of any present or threatened destruction or modification of any of the species' habitat on Pitt Island. Therefore, we find that the present or threatened destruction or modification of the species' breeding habitat is not a threat to the species.

The Chatham petrel's range at sea is poorly known; the species has been recorded on several occasions at sea

near South East Island, and has been recorded once 12 km (7.5 mi) south of the island (West 1994). It is believed that the species migrates to the North Pacific Ocean in the non-breeding season, based on the habits of closely related species; however, no sightings have been recorded in the Northern Hemisphere (Taylor 2000). We are unaware of any present or threatened destruction, modification, or curtailment of this species' current sea habitat or range.

##### B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

We are unaware of any commercial, recreational, scientific, or educational purpose for which the Chatham petrel is currently being utilized.

##### C. Disease or Predation

The Chatham petrel's breeding range was reduced extensively following the arrival of European explorers, largely due to predation by introduced species such as rats (*Rattus* spp.), feral cats (*Felis catus*), and weka (*Gallirallus australis*), an introduced bird (Heather and Robertson 1997, as cited in BirdLife International 2000; NZDOC 2001b; Taylor 2000). Although no introduced predators are currently present on South East Island, there is an ongoing risk that predators will be introduced to the island by boats transporting conservation and research staff to the island. Given this risk, combined with the devastating impact introduced predators had on Chatham petrel populations historically, we find that predation by introduced species is a threat to the Chatham petrel on South East Island, the species' primary breeding location.

On Pitt Island, Chatham petrel chicks were released within a 40 ha (98.8 acre) fenced, predator-free breeding habitat. Although this area is fenced, and the threat of predation on nesting Chatham petrels is reduced, introduced predators, such as feral cats and weka, are present on this island (BirdLife International News 2002) and could potentially get inside the fenced area or prey on Chatham petrels that leave the fenced area. Therefore, we find that predation by introduced species is a threat to the Chatham petrel on Pitt Island.

We are unaware of any threats due to predation on Chatham petrels during the non-breeding season while the species is at sea.

The information available suggests that petrels in general are susceptible to a variety of diseases and parasites, particularly during the breeding season, when large numbers of seabirds

congregate in relatively small areas to breed and nest (BirdLife International 2007a; Carlile, *et al.* 2003). However, there are no documented records of diseases impacting the persistence of the Chatham petrel. Therefore, we find that the threat of diseases is not a significant threat to this species.

#### D. The Inadequacy of Existing Regulatory Mechanisms

The Chatham petrel is protected from disturbance and harvest under New Zealand's Wildlife Act of 1953 and its Reserves Act of 1977. The petrel is designated as a Category A species by the NZDOC, which signifies the species is of the highest priority for conservation management (Molloy and Davis 1999). As such, the NZDOC developed a ten-year recovery plan for the Chatham petrel in 2001, with the goals of protecting the species' breeding burrows on South East Island from the broad-billed prion (*Pachyptila vittata*) (see Factor E below) and establishing a reintroduced population elsewhere within the species' historic breeding range (NZDOC 2001b). A measure of the success of this recovery plan is the successful establishment of breeding individuals on Pitt Island (see Factor A above) in 2006, thereby increasing the breeding range of the species. These efforts are beginning to show some success (see Factor E below), but it is too early to know the level of success, because it can take fledged seabirds years to return to their breeding colony to breed and nest (Taylor 2000).

Similarly, protection of Chatham petrel burrows has reduced the population impacts resulting from competition with the broad-billed prion (see Factor E below), however, this threat remains the greatest threat to the species.

New Zealand ratified the Agreement on the Conservation of Albatrosses and Petrels (ACAP) in November 2001, which is designed to reduce impacts of fishing operations on populations of Procellariids (ACAP 2001), however the Chatham petrel is not listed in Annex 1 to this Agreement and, therefore, is not protected under this Agreement. Therefore, implementation of this Agreement has not reduced the threat of incidental take of this species in long-line fisheries (see Factor E below).

Therefore we find that existing regulatory protections have not significantly reduced or removed the threats to the Chatham petrel.

#### E. Other Natural or Manmade Factors Affecting the Continued Existence of the Species

Based on the information available, the predominant threat to the Chatham

petrel is nest burrow competition between this species and the more abundant broad-billed prion, which numbers around 300,000 individuals. The prion not only occupies potential Chatham petrel burrows, but has been observed actively evicting or lethally attacking eggs, nestlings, and occasionally adults of the Chatham petrel. Such competition has resulted in a high rate of pair bond disruption and a low rate of breeding success in Chatham petrels, despite the high percentage of egg-fertility (BirdLife International 2000; NZDOC 2001b).

To reduce the threat posed by competition with the broad-billed prion on South East Island, the NZDOC has implemented nest site protection efforts for the Chatham petrel, including placement of artificial nest sites and the blockage of burrows to prevent occupation by the broad-billed prion (NZDOC 2001b). During the 2005–2006 breeding season, out of 155 known breeding pairs, 83 percent of the pairs successfully fledged one chick per pair (Wikipedia 2007d). Although these actions are improving the petrel's breeding success (NZDOC 2001b; Taylor 1999, as cited in BirdLife International 2000), only a small proportion of breeding burrows occupied by Chatham petrels have been located and, therefore, protected (Taylor 1999, as cited in BirdLife International 2000). Therefore, we consider nest burrow competition between this species and the broad-billed prion to be a significant threat to the Chatham petrel.

The Chatham petrel's restricted breeding range puts the species at a greater risk of extinction. Breeding colonies were once widespread throughout the Chatham Islands (NZDOC 2001b), a group of about 10 islands within a 24.85 mile [40-kilometer (km)] radius covering a total land area of 373 square miles (966 km<sup>2</sup>, Wikipedia 2007c). Currently, however, breeding of this species is restricted to South East Island (BirdLife International 2007a) and, as a result of recent release efforts, Pitt Island (BirdLife International News 2006), a total land area of less than 1 mi<sup>2</sup> (Wikipedia 2007j,k). This habitat area is insufficient for the long-term survival of the Chatham petrel, particularly since breeding pairs, eggs, and nestlings on South East Island, the primary breeding area of this species, face the pervasive threat of nest-site competition with the broad-billed prion. It is estimated that the self-sustainability of the breeding population on Pitt Island as a result of the release program will take longer than four more years to achieve (NZDOC 2001b).

The Chatham petrel's restricted breeding range combined with its colonial nesting habits and small population size of 800–1,000 birds (Taylor 2000) makes the species particularly vulnerable to the threat of adverse random, naturally occurring events (e.g., cyclones, fire) that destroy breeding individuals and their breeding habitat. Fire is a high risk in the Chatham Islands because the climate is very dry during the summer, and the vegetation becomes tinder dry. If fires do occur, the remoteness of the islands renders the fires unlikely to be exterminated by human intervention. Burrow-nesting species such as the Chatham petrel are at a high risk because they are likely to suffocate from smoke inhalation or to be lethally burned inside or while attempting to escape from their burrows (Taylor 2000).

Another natural disaster, severe storms, has impacted New Zealand historically, and so the likelihood of future impacts of storms is high. A severe storm in 1985 stripped two islands in the Chatham Islands chain bare of vegetation and soil cover, causing high increases in egg mortality of nesting albatrosses (Taylor 2000). Considered the worst recorded cyclone in New Zealand's history, Cyclone Giselle hit New Zealand April 10, 1968, with wind speeds of 275 km/h (Wikipedia 2007). Although we are unaware of the impact of this cyclone on the Chatham petrel's population numbers or breeding habitat, the severity of the wind or waves created by such a storm has potential to significantly damage Chatham petrel burrows. These burrows are particularly vulnerable because they are located on coastal lowlands (del Hoyo, *et al.* 1992), and they are extremely fragile, occurring in soft soils (Taylor 2000).

While species with more extensive breeding ranges or higher population numbers could recover from adverse random, naturally occurring events such as fire or storms, the Chatham petrel does not have such resiliency. Its very small population size and restricted breeding range puts the species at higher risk for experiencing the irreversible adverse effects of random, naturally occurring events. Therefore, we find that the combination of factors—the species' small population size, restricted breeding range, and likelihood of adverse random, naturally occurring events—to be a significant threat to the species.

We are unaware of any documented cases of incidental take of Chatham petrels by commercial long-line fishing operations or entanglement in marine

debris; however, it is generally recognized that all seabirds are at high risk of injury or mortality when they attempt to take bait from long-line fishing gear. The lack of data on these impacts could be a result of the species' low population number. Dr. Michael Rands, Director and Chief Executive of BirdLife International, has reported that the number of seabirds killed in long-line fishery operations continues to increase, and the long-line fishery, especially operations by unlicensed "pirate" vessels, is the single greatest threat to all seabirds [Australian Antarctic Division (AAD) 2007; BirdLife International News 2003]. Therefore, we consider the incidental take of Chatham petrels by commercial long-line fishing operations to be a significant threat to the species.

### Conclusion

Predation by introduced species is an ongoing threat to the Chatham petrel, which historically reduced the species' population numbers. Nest burrow competition between the Chatham petrel and the more abundant broad-billed prion is a current, on-going threat to the Chatham petrel that is of high magnitude that has not been controlled by human intervention. The broad-billed prion occupies Chatham petrel burrows, actively evicting or lethally attacking eggs, nestlings, and occasionally adults of the Chatham petrel, and as a result is reducing the Chatham petrel's population which is already very small, estimated at 800–1000 individuals. Although the NZDOC has been actively working to protect Chatham petrel nest sites from the broad-billed prion, only a small proportion of Chatham petrel breeding burrows have been located and protected (Taylor 1999, as cited in BirdLife International 2000). This threat is magnified by the fact that the impacted area is the Chatham petrel's primary breeding location, and the breeding area is extremely small, less than 1 mi<sup>2</sup> in size. The only other location where the species has been documented to breed is the 40 ha (98.8 acre) enclosed area on Pitt Island where Chatham Petrels were reintroduced. It is currently uncertain whether the species will maintain this portion of its range as a breeding area; as of 2006, only one pair breeding in this area had successfully reared a chick.

Once a population is reduced below a certain number of individuals, it tends to rapidly decline towards extinction (Franklin 1980; Gilpin and Soule 1986; Soule 1987). The Chatham petrel's small population, combined with its restricted breeding range and colonial nesting

habits makes the species particularly vulnerable to the threat of random, naturally occurring events. These catastrophic events, such as cyclones and fire, are known to occur in New Zealand and have the potential to destroy breeding individuals and their breeding habitat.

The threats within the species' breeding range are compounded by the threat posed by long-line fishing in the species' non-breeding range. Although New Zealand implements measures to protect other seabird species from this threat under the Agreement on the Conservation of Albatrosses and Petrels, the Chatham petrel is not currently offered protection by this Agreement. We are unaware of any documentation on the level of Chatham petrel mortality caused by long-line fisheries; however, the number of seabirds killed in long-line fishery operations continues to increase, and the long-line fishery, especially operations by unlicensed "pirate" vessels, is the single greatest threat to all seabirds (AAD 2007; BirdLife International News 2003). Therefore, the magnitude of this threat to the species in its non-breeding range is significant. Because the survival of this species is dependent on recruitment of chicks from its breeding range, the severity of threats to the Chatham petrel within its breeding range puts the species in danger of extinction throughout its range. Therefore, we find the Chatham petrel to be in danger of extinction throughout all of its range. Because we find that the Chatham petrel is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range.

### *Fiji petrel (Pterodroma macgillivrayi)*

#### A. The Present or Threatened Destruction, Modification, or Curtailment of the Habitat or Range

Although little is known about the Fiji petrel and its life history, based on general information common to all other Procellariid species, we know that the range of the Fiji petrel changes intra-annually based on an established breeding cycle. During the breeding season, breeding birds return to breeding colonies to breed and nest. During the non-breeding season, birds migrate far from their breeding range where they remain at sea until returning to breed. Therefore, our analysis of Factor A is separated into analyses of: (1) The species' breeding habitat and range, and (2) the species' non-breeding habitat and range.

BirdLife International (2007c) estimates the range of the Fiji petrel to

be 154,000 km<sup>2</sup> (59,460 mi<sup>2</sup>); however, BirdLife International (2000) defines "range" as the "Extent of Occurrence, the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species, excluding cases of vagrancy." Because this reported range includes a large area of non-breeding habitat (i.e., the sea), our analysis of Factor A with respect to the Fiji petrel's breeding range focuses on the island where the species breeds.

Although the nesting area of this species has not been located (Priddel, *et al.* draft), the information available indicates that the species breeds on Gau Island, Fiji, where the few recorded sightings of this species on land have occurred (Priddel, *et al.* draft; RARE Conservation 2006a; Watling and Lewanavanua 1985). The species was originally known from just one specimen collected in 1855 on Gau Island. There were no additional confirmed sightings of the species until 1984 when an extensive, 16-month search on Gau Island revealed one additional sighting. The researchers used spotlights and recorded collared petrel calls in an attempt to attract petrels to the highlands area where the researchers were searching. On the first night of spotlighting, a single Fiji petrel flew into the researchers' light. No additional birds were found on this search expedition (Watling 1986; Watling and Lewanavanua 1985). There have been an additional 16 reported sightings of this species on land, all on Gau Island, and ten additional sightings at sea, however, many of these reports have not been substantiated (Priddel, *et al.* draft). In 2007, Priddel, *et al.* (draft) summarized all these records, specifying which records were credible. The researchers determined that of the 17 recorded sightings on land between 1965 and 2007, 12 were highly credible based on researchers' identification of dead specimens, photographs of specimens, or live specimens. In addition to the sightings on land, there have been ten sightings at sea, all since 1960. However, none of these reports have been substantiated. Based on researcher observation or detailed descriptions, three of these reports are considered by Priddel, *et al.* (draft) to be credible.

We consider the evidence sufficient to conclude that the Fiji petrel breeds on Gau Island because: (1) all 12 substantiated sightings of the species on land have been on Gau Island; (2) Procellariids return to land only for breeding purposes, and (3) the original specimen of this species collected in

1855 was determined to be an immature bird, based on its feathers and skull morphology (Bourne 1981, as cited in Priddel, *et al.* draft; Imber 1985b; Priddel, *et al.* draft); so it is reasonable to believe that its nest was in the vicinity.

Based on the locations of Fiji petrel sightings on Gau Island, the species' breeding habitat is most likely to be undisturbed mature forest on rocky, mountainous ground within the island's cloud forest highlands (del Hoyo, *et al.* 1992; RARE Conservation 2006a). Based on the nesting habits of other colonial seabirds, it has been suggested that Fiji petrels nest in close proximity to collared petrels (*Pterodroma leucoptera*), which nest on the ground in this rugged terrain of interior Gau Island (Watling and Lewanavanua 1985).

In 1985, it was estimated that over 27 square miles (70 km<sup>2</sup>) of forest habitat up to 2,346 feet (715 meters) in elevation is potentially suitable for breeding and nesting of Fiji petrels on Gau Island (Watling and Lewanavanua 1985). Unlike the lowlands of Gau Island which have been cleared to a large extent for settlement, agriculture, and forest plantations, the upland interior forests where the species is believed to breed, has not been logged (Priddel, *et al.* draft; Veitayaki 2006). The only maintained inland trail leads to a telecommunication tower on a mountain peak just below Delaco. The 3,115 inhabitants of Gau Island live in coastal villages, where the majority live by subsistence fishing and farming, maintaining gardens up to 300 m in elevation. Although low-level forestry activities occur in lowland areas, no other intensive industry or agriculture is practiced on the island (Priddel, *et al.* draft). Veitayaki (2006) noted that the practice of shifting cultivation on Gau Island using improved machinery and the indiscriminant use of fire is rapidly progressing toward the cloud forests within the interior of the island. However, no information was provided to show this is actually occurring.

Veitayaki (2006), described a community-based conservation project on Gau Island that has been in place since 2001, whereby villagers in the district of Vanuaso Tikina are collaborating with the University of the South Pacific to sustainably manage their environmental resources. Goals of the project include preservation of the upland cloud forest, adoption of sustainable land use practices, protection of drinking water, and development of alternative sources of livelihood. The success of this project has provided momentum beyond the

Vanuaso Tikina district, as there is interest in incorporating the same sustainable-use practices in the other villages on Gau Island (Veitayaki 2006).

In 2003, the World Resources Institute (WRI) reported that less than 1% (.88%) of Fiji's total land area is protected to such an extent that it is preserved in its natural condition (Earth Trends 2003a). Gau Island, however, is relatively pristine compared to most areas of Fiji due to the semi-subsistence lifestyle (Veitayaki 2006). The Fiji people show great pride in the Fiji petrel, making it the emblem of the national airline (Air Fiji) and presenting it on the Fijian Fifty-dollar banknote (Priddel, *et al.* draft). Legislation has been drafted to protect the Fiji petrel's habitat on Gau Island, once nesting colonies have been located (RARE Conservation 2006a) (see Factor D, below). Because Gau Island's upland forest habitat, where the species is most likely to breed, remains in a pristine condition and does not appear to be threatened with destruction or modification, we find that the present or threatened destruction, modification, or curtailment of this species' breeding habitat or range is not a threat to the species.

The Fiji petrel's range at sea is poorly known; the species has been recorded once at sea near Gau Island and once at sea 200 km (124.3 mi) north of Gau Island (Watling 2000, as cited in BirdLife International 2000; Watling and Lewanavanua 1985). We are unaware of any present or threatened destruction, modification, or curtailment of this species' current sea habitat or range.

#### B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

We are unaware of any commercial, recreational, scientific, or educational purpose for which the Fiji petrel is currently being utilized.

#### C. Disease or Predation

The greatest threat to the long-term survival of the Fiji petrel is thought to be predation on breeding birds and their eggs and chicks by introduced predators such as rats and feral cats on Gau Island (BirdLife International 2000). Since nesting colonies of Fiji petrels have not been located, predation on the Fiji petrel has not been directly observed. However, cats and Pacific rats (*R. exulans*) have been found in the highland forests of Gau Island, where this species is most likely to breed (Imber 1986, as cited in Priddel, *et al.* draft; Watling and Lewanavanua 1985). The path to the telecommunications transmitter on the summit of Gau Island may have facilitated the movement of

feral cats and Pacific and brown rats (*R. norvegicus*) into the Fiji petrel's breeding habitat (Watling 2000, as cited in BirdLife International 2000).

The remains of collared petrels have been found in feral cat scats and killings in the highland forests of Gau Island, where the Fiji petrel is also believed to breed. It is suggested that the collared petrel nests successfully despite this predation threat because its synchronized nesting during the first half of the year swamps cat predation. The collection of a first-flight young of the Fiji petrel on Gau Island in the month of October, however, indicates that this species has a more extended or later breeding season, putting this more sparsely populated species at greater risk of predation (Watling 1986). Cats and rats are known to have caused many local extirpations of other petrel species (Moors and Atkinson 1984, as cited in Priddel, *et al.* draft). According to Priddel, *et al.* (draft) there do not appear to be any inaccessible cliffs or mountainous ledges where Fiji petrels could nest out of the reach of cats or rats.

A feral pig (*Sus scrofa*) population has recently established in southern areas of Gau Island and is considered an emerging threat to the Fiji petrel (Priddel *et al.* draft). Feral pigs have caused the local extinction of other species of seabirds on numerous islands (Moors and Atkinson 1984, as cited in Priddel, *et al.* draft).

Protecting Fiji petrel nest sites from introduced predators by creating barriers around the nests is not possible at this time because the exact location of the nesting sites is unknown. There is no information indicating that predator eradication has been attempted on Gau Island. Even if a predator eradication program were to be implemented, protection of the nest sites would be difficult due to the permanent habitation of humans on the island. Even if cats were prohibited as pets, there is still a high potential for cats and rats to be transported to Gau Island in boats transporting humans or other shipments.

Because the threat of predation by introduced cats and rats has severely impacted closely related petrel species, and there are records of these introduced predators on Gau Island, especially feral cats and rats in the highland forests of Gau where the Fiji petrel is most likely to breed, we find that predation is a significant threat to the Fiji petrel.

We are unaware of any threats due to predation on Fiji petrels during the non-breeding season while the species is at sea.

Although several diseases have been documented in other species of petrels (see Chatham petrel Factor C), disease has not been documented in the Fiji petrel. Therefore, the significance of this threat to the Fiji petrel is unknown.

#### D. The Inadequacy of Existing Regulatory Mechanisms

Although the Fiji petrel is protected from international trade under Fijian law (Government of Fiji 2002, 2003), this protection has not significantly reduced or removed the threat of predation within the species' breeding range, nor has it reduced the threat posed by long-line fisheries (see Factor E below) within its range at sea.

Community awareness of the conservation significance of the Fiji petrel has been promoted in Fiji. From 2002–2004, Milika Rati, a local conservationist on Gau Island, led a "Pride campaign" (RARE Conservation 2006a), a constituency-building program developed by the conservation organization RARE (RARE Conservation 2006b). Ms. Rati chose the Fiji petrel as the flagship mascot for this movement and used a series of high-profile activities to raise awareness of the conservation urgency of the species. This campaign resulted in a confirmed sighting of a Fiji petrel (RARE Conservation 2006a). A follow-up survey to the campaign revealed that 99 percent of the participants believed natural resource protection to be important, and 94 percent were aware that the Fiji petrel is at risk of extinction.

Based on increased public awareness of the Pride campaign, a formal agreement supporting the creation of a bird sanctuary for the species was signed by all 16 of Fiji's village chiefs (RARE Conservation 2006a).

The Australian Regional National Heritage Programme continues to fund the Pride campaign on Gau Island. The Wildlife Conservation Society, BirdLife International, and the National Trust of the Fiji Islands are collaborating to work towards implementation of conservation recommendations made by Ms. Rati, including minimizing predators (RARE Conservation 2006a).

Although the Fiji petrel is protected from international trade (Government of Fiji 2002, 2003) by Fijian law and public awareness and support for the species' protection on Gau Island is strong, these conservation measures have not significantly reduced the threats to the species.

#### E. Other Natural or Manmade Factors Affecting the Continued Existence of the Species

Because of the paucity of recorded sightings of this species (see discussion of Factor A above), the population is apparently very small. The IUCN estimates the population to be less than 50 individuals, with a decreasing trend due to predation by introduced predators (BirdLife International 2007c). Species with such small population sizes are at greater risk of extinction. Once a population is reduced below a certain number of individuals, it tends to rapidly decline towards extinction (Franklin 1980; Gilpin and Soule 1986; Soule 1987).

This species' risk of extinction is further compounded by its restricted current breeding range, which according to the best available information is limited to Gau Island, where an estimated 27 square miles (70 km<sup>2</sup>) of potential breeding habitat is available. However, based on what is known about the species, this is considered a relatively small amount of appropriate habitat for breeding, particularly since breeding pairs, eggs, and nestlings on Gau Island face the pervasive threat of predation by introduced species such as feral cats and rats.

The Fiji petrel's restricted breeding range combined with its colonial nesting habits and small population size of less than 50 birds (BirdLife International 2007c) makes the species particularly vulnerable to the threat of adverse random, naturally occurring events (e.g., cyclones, flooding, and landslides) that destroy breeding individuals and their breeding habitat. Fiji is vulnerable to the devastating effects of cyclones inter-annually between November and April. On average, 15 cyclones affect this country each decade (World Meteorological Organization 2004). The most severe cyclone in within the past 100 years was cyclone Kina in January, 1993, with wind speeds of 120 knots spanning an area 180 miles (289.7 km) from its center. The Government of Fiji declared the area a disaster, because virtually all areas of Fiji were impacted by this cyclone and the associated flooding (UN Department of Humanitarian Affairs 1993). Landslides are common in Fiji's mountainous areas during these severe weather conditions (World Meteorological Organization 2004), and would be particularly threatening to breeding Fiji petrels and their breeding habitat.

While species with more extensive breeding ranges or higher population numbers could recover from adverse

random, naturally occurring events such as cyclones, the Fiji petrel does not have such resiliency. Its very small population size and restricted breeding range puts the species at higher risk for experiencing the irreversible adverse effects of random, naturally occurring events. One such event could destroy the entire known breeding population on Gau Island.

Therefore, we find that the combination of factors—the species' small population size, restricted breeding range, and likelihood of adverse random, naturally occurring events—to be a significant threat to the species.

Although we are unaware of any documented cases of incidental take of Fiji petrels by commercial long-line fishing operations or entanglement in marine debris, these long-line fishing operations have been identified as a threat to all seabird species (see analysis under Chatham petrel, Factor E). Moreover, the lack of data on these impacts to the Fiji petrel could be a result of the species' low population number. Therefore, we find the incidental take of Fiji petrels by commercial long-line fishing operations to be a significant threat to the species.

#### Conclusion

The primary threat to the Fiji petrel is most likely predation by introduced feral cats and rats within the species' breeding range. The probability of introduced predators preying on this species is high given that introduced feral cats are documented to prey upon the closely related collared petrel in the interior forests of Gau Island where the Fiji petrel is most likely to nest. Furthermore, the devastating impact of predation by introduced species has been documented in several closely-related species. There is no information indicating that predator eradication has been attempted on Gau Island. This threat is magnified by the fact that the threat likely threatens the species throughout its breeding range, the interior forests of Gau Island. Although the Fiji petrel is legally protected from international trade, to our knowledge Fiji has not successfully implemented measures to protect the species from the threat of predation.

The Fiji petrel's low population size of less than 50 individuals puts the species at a high risk of extinction. The low population size combined with its restricted breeding and colonial nesting habits, typical of all Procellariid species, makes the species particularly vulnerable to the threat of random, naturally occurring events (e.g., cyclones) that are known to occur in Fiji

and have the potential to destroy breeding individuals and their breeding habitat.

The threats within the species' breeding range are compounded by the threat posed by long-line fishing in the species' non-breeding range. There is no information indicating that Fiji has implemented measures to protect the species from long-line fishery activities. However, because the survival of this species is dependent on recruitment of chicks from its breeding range, the severity of threats to the Fiji petrel within its breeding range puts the species in danger of extinction throughout all of its range. Therefore, we find the Fiji petrel to be in danger of extinction throughout all of its range. Because we find that the Fiji petrel is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range.

*Magenta petrel (Pterodroma magentae)*

A. The Present or Threatened Destruction, Modification, or Curtailment of the Habitat or Range of the Magenta Petrel

The range of this species changes intra-annually based on an established breeding cycle. During the breeding season (September to May) (Imber, *et al.* 1994b; Taylor 1991), breeding birds return to breeding colonies to breed and nest. During the non-breeding season, birds migrate far from their breeding range where they remain at sea until returning to breed. Therefore, our analysis of Factor A is separated into analyses of: (1) The species' breeding habitat and range, and (2) the species' non-breeding habitat and range.

BirdLife International (2007d) estimates the range of the magenta petrel to be 1,960,000 km<sup>2</sup> (7,568,000 mi<sup>2</sup>); however, BirdLife International (2000) defines "range" as the "Extent of Occurrence, the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species, excluding cases of vagrancy." Because this reported range includes a large area of non-breeding habitat (i.e., the sea), our analysis of Factor A with respect to the magenta petrel's breeding range focuses on the islands where the species is known to breed.

The magenta petrel breeds exclusively on Chatham Island, New Zealand, within relatively undisturbed inland forests (Crockett 1994; Imber, *et al.* 1994a). At least 23 breeding burrows have been discovered, all located near the Tuku-a-Tamatea River (BirdLife International 2007d; Brooke 2004,

Hilhorst 2000, Taylor 2005, as cited in BirdLife International 2007d). Although some breeding burrows are on private land (Taylor 2000), the majority of known breeding burrows are located within the Tuku Nature Reserve (Reserve) (Chatham Island Taiko Trust 2007). This Reserve was established in 1984 to protect 5 square miles (12 km<sup>2</sup>) of magenta petrel breeding habitat. In 1993, 1 square mile (2 km<sup>2</sup>) of contiguous forested land was added to the Reserve by covenant, and a second covenant expected to be approved in the near future will protect an additional 4 square miles (11 km<sup>2</sup>) of contiguous habitat to the Reserve (Chatham Island Taiko Trust 2007).

As a result of New Zealand's Biodiversity Strategy, initiated in the year 2000, all logging of indigenous forests on government land has been halted, and logging on private land is required to be sustainable (Green and Clarkson 2005). Breeding burrows have been found on private land (Taylor 2000), and sustainable logging practices would not necessarily protect these magenta petrel nest sites. The significant loss of magenta petrel burrows and colonies historically due to the alteration of habitat on Chatham Island for livestock grazing purposes (Crockett 1994) demonstrates the severe impacts that habitat alteration has on magenta petrel populations. Besides logging, fire is a threat to the magenta petrel's breeding habitat. Although the species' recovery plan identifies accidental fire as a threat to the magenta petrel, it does not address mitigation of this threat (NZDOC 2001a). The NZDOC deals with an average of 160 fires in New Zealand each year, suggesting that fires are relatively common in New Zealand (NZDOC n.d.). Taylor (2000) identifies flooding of burrows as a threat, given that most known burrows are in wet areas in valley floors. He also notes that destruction of nest-sites by pigs and dogs accompanying pig-hunters near the burrows threatens the magenta petrel's breeding habitat. These threats to the magenta petrel's breeding habitat are magnified by the species' restricted habitat area on Chatham Island. Because of the very small number of breeding pairs, any loss of breeders from the population would increase the species' threat of extinction. Therefore, we find that the present and threatened destruction of the habitat of this species to be a significant threat to the species.

The magenta petrel's range at sea is poorly known; however, research has documented foraging behavior south and east of the Chatham Islands (Imber, *et al.* 1994a). In addition, because the

original specimen of this species was shot at sea eastwards in the temperate South Pacific Ocean, it is believed birds disperse there during the non-breeding season. We are unaware of any present or threatened destruction, modification, or curtailment of this species' current sea habitat or range.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

We are unaware of any commercial, recreational, scientific, or educational purpose for which the magenta petrel is currently being utilized.

C. Disease or Predation

The available information suggests that the most serious threat to the magenta petrel is predation on all life stages (eggs, chicks, and adults) of the species by introduced predators, including feral cats, pigs, weka, and rats. It is reported that periodically the species' entire annual breeding production is lost due to predation of eggs and chicks (BirdLife International 2007d). Permanent eradication of these introduced predators from Chatham Island is difficult due to the permanent habitation of humans on the island. Since the early 1990's, however, the NZDOC has monitored known breeding burrows and has implemented an intensive predator control program, including setting extensive trap lines and poisoning to remove introduced predators from the magenta petrel's breeding areas (Taylor 2000). This effort has significantly reduced the threat of predation on adult petrels, with only two being found dead in 20 years, as of the year 2000. However, a number of chicks are still lost in some seasons (Imber, *et al.* 1998). As additional burrows have been located and protection from predation expanded over the years, breeding has increased and breeding success has improved. In 1994, only four breeding pairs were known, but in 2004, 15 breeding pairs were observed (Brooke 2004, Hilhorst 2000, Taylor 2005, as cited in BirdLife International 2007d). Sixteen chicks were known to have fledged from 1987–2000 (Taylor 2000), and within a single year, 2002, a total of seven chicks fledged (BirdLife International 2007d). Eight birds fledged in the 2005 season, and a record 11 magenta petrel chicks fledged in the 2006 season (Chatham Island Taiko Trust 2006).

Even though the predator control program has decreased the threat of predation to the magenta petrel, birds, especially chicks, are still killed by introduced predators, and only areas where petrels are known to breed are

protected. Therefore, we find predation by introduced species to be a significant threat to the species.

We are unaware of any threats due to predation on magenta petrels during the non-breeding season while the species is at sea.

Although several diseases have been documented in other species of petrels (see Chatham petrel Factor C), disease has not been documented in the magenta petrel. Therefore, the significance of this threat to this species is unknown.

#### D. The Inadequacy of Existing Regulatory Mechanisms

The magenta petrel is protected from disturbance and harvest under New Zealand's Wildlife Act of 1953 and its Reserves Act of 1977. The petrel is designated as a Category A species by the NZDOC, which signifies the species is of the highest priority for conservation management (Molloy and Davis 1999). As such, the NZDOC developed a ten-year recovery plan for the magenta petrel in 2001, with the goals of preventing further loss of known breeding pairs, maximizing productivity at known breeding burrows, locating and protecting additional burrows, and establishing an additional predator-proof breeding area in southern Chatham Island (NZDOC 2001a). A measure of success of the recovery plan has been demonstrated by the successful protection of breeding pairs and increased productivity resulting from predator control efforts (see Factor C above). However, the threat of predation on magenta petrels by introduced species remains the greatest threat to the species. In 2006, a second protected area was established near the southern coast of Chatham Island at a location where magenta petrels were known to have bred in reasonable numbers 90 years ago. This 7.5-ha area, protected by landowner covenant, has been fenced to exclude livestock in an effort to allow the forest to recover. Within this area, 3 ha are enclosed by a predator-proof fence. Loudspeakers were placed on the site, and pre-recorded magenta petrel calls are being played to attract young males to the ground where it is hoped they will begin to dig burrows and eventually find a mate to breed. It is too early to know the success of this effort because it is anticipated that it will take several years for breeding to begin once young males start digging burrows. Captive rearing studies of the closely related grey-faced petrel (*P. macroptera*) have been undertaken, and its diet analyzed, to develop methods for captive rearing of magenta petrels in captivity should it

ever be necessary to 'rescue' abandoned or malnourished magenta petrel chicks (NZDOC 2001a; Taylor 2000).

New Zealand ratified the Agreement on the Conservation of Albatrosses and Petrels in November 2001, which is designed to reduce impacts of fishing operations on populations of Procellariids (ACAP 2001), however the magenta petrel is not listed in Annex 1 to this Agreement and, therefore, is not protected under this Agreement. Therefore, implementation of this Agreement has not significantly reduced or removed the threat of incidental take of this species in long-line fisheries (see Factor E below).

Therefore, we find that regulatory protections have not significantly reduced the threats to the magenta petrel.

#### E. Other Natural or Manmade Factors Affecting the Continued Existence of the Species

The magenta petrel population is extremely small, estimated at 120 individuals based on population surveys (Brooke 2004, Hilhorst 2000, Taylor 2005, as cited in BirdLife International 2007d) and is believed to be decreasing due to predation by introduced species (BirdLife International 2007d). The fact that it took 10 years of intensive searching to rediscover the species in 1978 is an indication of the rarity of the species. Species with such small population sizes are at greater risk of extinction. Once a population is reduced below a certain number of individuals, it tends to rapidly decline towards extinction (Franklin 1980; Gilpin and Soule 1986; Soule 1987).

This species' risk of extinction is compounded by its restricted breeding range, which is limited to Chatham Island. Based on what is known about the species, the breeding habitat available on Chatham Island is a relatively small amount of appropriate habitat for breeding, particularly since breeding pairs, eggs, and nestlings on Chatham Island continue to be threatened by introduced species such as feral cats and rats.

The magenta petrel's restricted breeding range combined with its colonial nesting habits and small population size of less than approximately 120 birds makes the species particularly vulnerable to the threat of adverse random, naturally occurring events (e.g., storms, fire) that destroy breeding individuals and their breeding habitat (NZDOC 2001b). Fire is a high risk in the Chatham Islands because the climate is very dry during the summer, and the vegetation becomes

tinder dry. Burrow-nesting species such as the magenta petrel are at a high risk because they are likely to suffocate from smoke inhalation or to be lethally burned inside or while attempting to escape from their burrows (Taylor 2000).

Another natural disaster, severe storms, has impacted New Zealand historically (see Chatham petrel discussion of Factor E), and so the likelihood of future impacts of storms is high. Although we are unaware of the impact of previous cyclones on the magenta petrel's population numbers or breeding habitat, the severity of the wind or waves created by such storms or flooding associated with storms has potential to significantly damage magenta petrel burrows. These known burrows are particularly vulnerable to flooding because they are located on valley floors (NZDOC 2001a).

While species with more extensive breeding ranges or higher population numbers could recover from adverse random, naturally occurring events such as fire or storms, the magenta petrel does not have such resiliency. Its very small population size and restricted breeding range puts the species at higher risk for experiencing the irreversible adverse effects of random, naturally occurring events. One such event could destroy the entire known breeding population on Chatham Island. Therefore, we find that the combination of factors—the species' small population size, restricted breeding range, and likelihood of adverse random, naturally occurring events—to be a significant threat to the species.

Although we are unaware of any documented cases of incidental take of magenta petrels by commercial long-line fishing operations or entanglement in marine debris, these long-line fishing operations have been identified as a threat to all seabird species (see analysis under Chatham petrel, Factor E). Moreover, the lack of data on these impacts to the magenta petrel could be a result of the species' low population number. Therefore, we find the incidental take of magenta petrels by commercial long-line fishing operations to be a significant threat to the species.

#### Conclusion

Predation by introduced species such as rats, weka, and feral cats and pigs is a current, on-going threat to the magenta petrel that is of high magnitude that has not been controlled by human intervention. These introduced predators are known to destroy magenta petrel eggs, chicks, and adults, reducing the species' population (NZDOC 2001a), which is already very small, estimated

at 120 individuals. Although the NZDOC has been actively working to protect magenta petrel nest sites from predation by introduced species, a number of chicks are still lost in some seasons (Imber, *et al.* 1998), and the breeding burrows that have not yet been located are not protected. This threat is magnified by the fact that a limited amount of breeding habitat is protected from habitat alteration or destruction. The breeding habitat that is protected remains at risk from accidental fires and flooding.

The magenta petrel's low population size of approximately 120 individuals puts the species at a high risk of extinction. The low population size combined with its restricted breeding habitat and colonial nesting habits makes the species particularly vulnerable to the threat of random, naturally occurring events (e.g., cyclones, fire) that are known to occur in New Zealand and have the potential to destroy breeding individuals and their breeding habitat. One such event, such as a cyclone during the nesting season could destroy the entire breeding population on Chatham Island.

The threats within the species' breeding range are compounded by the threat posed by long-line fishing in the species' non-breeding range. Although New Zealand implements measures to protect other seabird species from this threat under the Agreement on the Conservation of Albatrosses and Petrels, the magenta petrel is not currently offered protection by this Agreement. Because the survival of this species is dependent on recruitment of chicks from its breeding range, the severity of threats to the magenta petrel within its breeding range puts the species in danger of extinction throughout all of its range. Therefore, we find the magenta petrel to be in danger of extinction throughout all of its range. Because we find that the magenta petrel is endangered throughout all of its range, there is no reason to consider its status in a significant portion of its range.

#### *Cook's petrel (Pterodroma cookii)*

##### A. The Present or Threatened Destruction, Modification, or Curtailment of the Habitat or Range

The range of this species changes intra-annually based on an established breeding cycle. During the breeding season, which appears to vary by population (Taylor 2000), breeding birds return to breeding colonies to breed and nest. During the non-breeding season, birds migrate far from their breeding range where they remain at sea until returning to breed. Therefore, our

analysis of Factor A is separated into analyses of: (1) The species' breeding habitat and range, and (2) the species' non-breeding habitat and range.

BirdLife International (2007b) estimates the range of the Cook's petrel to be 76,300,000 km<sup>2</sup> (29,460,000 mi<sup>2</sup>); however, BirdLife International (2000) defines "range" as the "Extent of Occurrence, the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species, excluding cases of vagrancy." Because this reported range includes a large area of non-breeding habitat (i.e., the sea), our analysis of Factor A with respect to the Cook's petrel's breeding range focuses on the islands where the species is known to breed.

The Cook's petrel breeds on Little Barrier, Great Barrier, and Codfish Islands in the Chatham Islands, New Zealand, covering a total land area of 126 square miles (327 km<sup>2</sup>, Wikipedia 2007e,g,h). The species breeds on steep slopes near ridge tops at 984 feet (300 m) above sea level or higher and prefers unmodified forest habitat with low, open canopies (Rayner, *et al.* 2007b). Fire is unlikely to be a threat to this species' breeding habitat because Cook's petrels breed primarily in damp forests (Imber 1985a, as cited in Taylor 2000). Breeding burrows are usually long and deep among tree roots and are not easily collapsed; so trampling by introduced species is not likely to be a threat to Cook's petrel nest sites (Taylor 2000).

According to the best available information, a large amount of suitable habitat is available to the Cook's petrel on the three islands where it breeds. Of these islands, the largest, the Great Barrier Island covering 110 square miles (285 km<sup>2</sup>), is the only one that has a permanent human population. This small population of 1,100 people is located primarily within coastal settlements, away from the species' breeding habitat. Inhabitants mostly make a living from farming and the tourist industry, but the island is not considered a major tourist destination due to its relative remoteness (Wikipedia 2007g). There is no indication that the Cook's petrel's breeding habitat on Great Barrier Island is threatened with human-induced habitat destruction or modification.

The other two islands, Little Barrier and Codfish Islands, covering 11 and 5 square miles (28 km<sup>2</sup> and 14 km<sup>2</sup>), respectively, are wildlife sanctuaries with restricted access. These islands are not inhabited by humans aside from rotational conservation staff (Wikipedia 2007e,h). Therefore, the Cook's petrel's

breeding habitat on these islands is not threatened with human-induced habitat destruction or modification.

In 2004, the Maungatautari Ecological Island Trust prepared "An Ecological Restoration Plan for Maungatautari," which outlined suggested restoration of habitat and the removal of threats to attract or reintroduce Cook's petrel to the North Island in the Chatham Islands chain (McQueen 2004). The Trust has established a 13 square mile (34 km<sup>2</sup>) predator enclosure to protect nest sites, and research is now underway to investigate reintroduction of the Cook's petrel to Maungatautari (Rayner, *et al.* 2007a). If successful, this effort would expand the breeding range of the species.

Based on the lack of identified threats to the Cook's petrel's breeding habitat within its breeding range, we find that the present or threatened destruction, modification, or curtailment of the species' habitat or range is not a threat to the species.

During the non-breeding season, the Cook's petrel migrates to the east Pacific Ocean, primarily between 34 °S and 30 °N (Heather and Robertson 1997, as cited in BirdLife International 2000). We are unaware of any present or threatened destruction, modification, or curtailment of this species' current sea habitat or range.

##### B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

We are unaware of any commercial, recreational, scientific, or educational purpose for which the Cook's petrel is currently being utilized.

##### C. Disease or Predation

The introduction of predatory species by European settlers is believed to have contributed to the historical population decline in this species. The best available information indicates that the Codfish Island population declined due to predation by an introduced bird, the weka (Marchant and Higgins 1990, as cited in BirdLife International 2000). In 1934, there were an estimated 20,000 breeding pairs on Codfish Island, but weka predation reduced the population to 100 pairs by 1984 (Bartle, *et al.* 1993, as cited in Taylor 2000). On Little Barrier and Great Barrier Islands, introduced feral cats and the Pacific rat reduced population numbers. The black rat (*R. rattus*) also contributed to the decline on Great Barrier Island (Heather and Robertson 1997, Marchant and Higgins 1990, as cited in BirdLife International 2000; Taylor 2000).

Due to extensive predator eradication programs implemented by NZDOC, by

1980, feral cats had been eradicated from Little Barrier Island. By 1985, weka had been eradicated from Codfish Island (Taylor 2000). Rats had been successfully eradicated from Codfish Island by 1998 and from Little Barrier Island by 2006 (NZDOC 2006).

Although the introduced predators that threaten Cook's petrels have been eradicated from Little Barrier and Codfish Islands, introduced predators have not been removed from Great Barrier Island. As a result, the Cook's petrel population on Great Barrier Island, which has been reduced to 20 breeding pairs, continues to be severely threatened by introduced feral cats, the black rat, and the Pacific rat (Marchant and Higgins 1990, as cited in BirdLife International 2000), and the risk of local extinction of this species is high. Loss of this population would decrease the genetic diversity of the species, increasing the species' risk of extinction.

Even on Little Barrier and Codfish Islands where introduced predators have been removed, there is a continued risk that predators will be re-introduced to the island by boats transporting conservation and research staff to the islands. Given the magnitude of the devastation these species have, once introduced, and the likelihood that they could be re-introduced, we find introduced predators to be an ongoing threat to Cook's petrel populations on Little Barrier and Codfish Islands.

We are unaware of any threats due to predation on Cook's petrels during the non-breeding season while the species is at sea.

Although several diseases have been documented in other species of petrels (see Chatham petrel Factor C), disease has not been documented in the Cook's petrel. Therefore, the significance of this threat to this species is unknown.

#### D. The Inadequacy of Existing Regulatory Mechanisms

The Cook's petrel is protected from disturbance and harvest under New Zealand's Wildlife Act of 1953 and its Reserves Act of 1977. The petrel is designated as a Category C species by the NZDOC, which signifies the species is a third priority species for conservation management (Molloy and Davis 1999). As discussed in Factor C above, predator eradication efforts have not adequately reduced the threat of predation on the species.

New Zealand ratified the Agreement on the Conservation of Albatrosses and Petrels in November 2001, which is designed to reduce impacts of fishing operations on populations of Procellariids (ACAP 2001), however the

Cook's petrel is not listed in Annex 1 to this Agreement and, therefore, is not protected under this Agreement. Therefore, implementation of this Agreement has not significantly reduced or removed the threat of incidental take of this species in long-line fisheries (see Factor E below).

Because the available regulatory protections have not significantly reduced the threats to the Cook's petrel, and this species is a lower priority species for intensive conservation management, we find that regulatory protections have not significantly reduced the threats to the species.

#### E. Other Natural or Manmade Factors Affecting the Continued Existence of the Species

Although we are unaware of any documented cases of incidental take of Cook's petrels by commercial long-line fishing operations or entanglement in marine debris, these long-line fishing operations have been identified as a threat to all seabird species (see the Chatham petrel Factor E). Therefore, we consider the incidental take of Cook's petrels by commercial long-line fishing operations to be a significant threat to the species.

#### Conclusion

The primary threat to the Cook's petrel is predation by introduced feral cats, the black rat, and the Pacific rat within the species' breeding range, particularly on Great Barrier Island. Eradication of introduced predators on this island is difficult due to the permanent habitation of humans on the island; so this threat on Great Barrier Island is likely to persist. This threat, combined with the low number of breeding pairs (approximately 20) on Great Barrier Island is likely to result in local extinction.

The threats within the species' breeding range are compounded by the threat posed by long-line fishing in the species' non-breeding range. Although New Zealand implements measures to protect other seabird species from this threat under the Agreement on the Conservation of Albatrosses and Petrels, the Cook's petrel is not currently offered protection by this Agreement. Because the survival of this species is dependent on recruitment of chicks from its breeding range, the threats to this species within its breeding range put the species at risk.

The overall population number of the Cook's petrel is not low, and the two largest populations of this species, those breeding on Little Barrier and Codfish Islands, with 50,000 and 100 pairs, respectively are reported to be

increasing (Marchant and Higgins 1990, as cited in BirdLife International 2000; Taylor 2000). As a result, the species does not currently appear to be in danger of extinction. However, there is a high risk of local extinction on Great Barrier Island within the foreseeable future. The loss of the breeding birds on Great Barrier Island would not only impact the overall species' population growth but would decrease its genetic variability, increasing the Cook's petrel's risk of extinction throughout its range. Therefore, we find that the Cook's petrel is likely to become in danger of extinction within the foreseeable future throughout all of its range. Because we find that the Cook's petrel is likely to become in danger of extinction within the foreseeable future throughout all of its range, there is no reason to consider its status in a significant portion of its range.

#### *Galapagos petrel (Pterodroma phaeopygia)*

##### A. The Present or Threatened Destruction, Modification, or Curtailment of the Habitat or Range

As in other Procellariid species, the range of the Galapagos petrel changes intra-annually based on an established breeding cycle. During the breeding season, breeding birds return to breeding colonies to breed and nest. During the non-breeding season, birds migrate far from their breeding range where they remain at sea until returning to breed. Therefore, our analysis of Factor A is separated into analyses of: (1) The species' breeding habitat and range, and (2) the species' non-breeding habitat and range.

BirdLife International (2007e) estimates the range of the Galapagos petrel to be 14,200,000 km<sup>2</sup> (5,483,000 mi<sup>2</sup>); however, BirdLife International (2000) defines "range" as the "Extent of Occurrence, the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species, excluding cases of vagrancy." Because this reported range includes a large area of non-breeding habitat (i.e., the sea), our analysis of Factor A with respect to the Galapagos petrel's breeding range focuses on the island where the species breeds.

The Galapagos petrel is known to breed on the islands of Santa Cruz, Floreana, Santiago, San Cristóbal, and Isabela within the Galapagos archipelago (Cruz and Cruz 1987; Harris 1970). The species breeds in the humid and thickly vegetated uplands of these islands (Harris 1970) at elevations

between 984 and 2,953 feet (300 and 900 meters) (Baker 1980, as cited in BirdLife International 2000; Cruz and Cruz 1987, 1996). The species prefers to nest under thick vegetation in sufficient soil for burrowing (Harris 1970). The species is known to nest within burrows or natural cavities on slopes, in craters, in sinkholes, in lava tunnels, and in gullies (Baker 1980, as cited in BirdLife International 2000; Cruz and Cruz 1987, 1996).

On the island of Santa Cruz, the Galapagos petrel historically bred at lower elevations, down to 180 meters (590.6 feet). However, habitat modification of these lower elevations for agricultural purposes restricted the Galapagos petrel's use of these lower elevation areas for breeding. On San Cristóbal Island, historical clearance of vegetation in highland areas for intensive grazing purposes drastically reduced the species' breeding habitat on the island (Harris 1970).

In 1959, Ecuador designated 97% of the Galapagos land area as a National Park, leaving 3% of the remaining land area distributed between Santa Cruz, San Cristóbal, Isabela, and Floreana Islands. The park land area is divided into various zones signifying the level of human use (Parque Nacional Galapagos Ecuador n.d). Although the islands where the Galapagos petrel is known to breed includes a large 'conservation and restoration' zone, all of these islands, except Santiago, include a significant sized 'farming' zone (Parque Nacional Galapagos Ecuador n.d), where agricultural and grazing activities continue to threaten the Galapagos petrel's habitat and range. According to Baker (1980, as cited in BirdLife International 2000), at least half of the Galapagos petrel's current breeding range on Santa Cruz Island is farmed. The rationale for maintaining farming zones within the Galapagos National Park is to sustain the economy of island inhabitants and encourage local consumption of traditional products (e.g., vegetables, fruits, and grazing animals) (Parque Nacional Galapagos Ecuador n.d).

The primary threat to the Galapagos petrel's breeding habitat is destruction of breeding habitat by introduced feral mammals, such as goats (*Capra hircus*), pigs, donkeys (*Equus asinus*), and cattle (*Bos taurus*). These species trample and destroy Galapagos petrel nest-sites, and reduce breeding habitat by overgrazing (e.g., goats) and uprooting (e.g., pigs) the vegetation (Cruz and Cruz 1987, 1996; Eckhardt 1972).

In 1997, the Galapagos National Park Service (GNPS) and the Charles Darwin Foundation initiated 'Project Isabela,' an

ecological restoration program which required removal of all feral goats from Santiago and northern Isabela Islands [Note: northern Isabela is separated from southern Isabela by a 12 km-wide lava field (Charles Darwin Foundation 2006)]. In 2006, the GNPS announced that no feral goats could be found in these areas, noting that monitoring efforts would continue to ensure successful eradication [Charles Darwin Research Station (CDRS) 2006]. Concurrent with the goat eradication program, feral donkeys were removed from Santiago Island and Alcedo Volcano on northern Isabela Island (Carrion, *et al.* 2007). After a 30-year eradication program, feral pigs were successfully removed from Santiago Island, with the last pig being shot in April, 2000 (Cruz, *et al.* 2005).

Despite the success of these eradication efforts, introduced species, especially feral goats, continue to threaten Galapagos petrel habitat on the human populated islands of Santa Cruz, Floreana, San Cristóbal, and southern Isabela. Feral goats are especially problematic in areas bordering farmland, and eradication of feral livestock in these human population areas is difficult (CDRS 2006).

Based on the widespread and ongoing threats of farming activities and introduced species to the Galapagos petrels' breeding habitat, we find that the present and threatened destruction of this species' breeding habitat is a threat to the species.

The Galapagos petrel's range at sea is poorly known; however, research has documented foraging behavior around the Galapagos islands, as well as east and north of the islands. We are unaware of any present or threatened destruction, modification, or curtailment of this species' current sea habitat or range.

#### B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

We are unaware of any commercial, recreational, scientific, or educational purpose for which the Galapagos petrel is currently being utilized.

#### C. Disease or Predation

The threat of predation on the Galapagos petrel is exemplified by the rapid decline of populations of this species in the early 1980s as a result of predation by introduced species, such as dogs (*Canis lupus familiaris*), cats, pigs, and black and brown rats (BirdLife International 2007e; Cruz and Cruz 1996), supplemented by natural predation by the Galapagos hawk (*Buteo galapagoensis*) (Cruz and Cruz 1996). In

some cases, these population declines were as high as 81 percent over four years (BirdLife International 2007e). From 1980 to 1985, the population on Santa Cruz Island declined from an estimated 9,000 pairs to 1,000 pairs (Baker 1980, as cited in BirdLife International 2000; Cruz and Cruz 1987). During the same time period, the Santiago Island population declined from 11,250 pairs to less than 500 pairs (Cruz and Cruz 1987; Tomkins 1985, as cited in BirdLife International 2000), and the number of birds breeding on Floreana Islands was estimated to have been reduced by up to 33% annually for four years (Coulter, *et al.* 1981, as cited in BirdLife International 2000).

Introduced feral dogs, cats, and pigs are common predators of all life stages (eggs, chicks, fledglings, and adults) of the Galapagos petrel (Cruz and Cruz 1987, 1996). Eggs and hatchlings are eaten by black and brown rats (BirdLife International 2007e). Adding to predation by introduced species, the Galapagos hawk has been known to further reduce population numbers; young and aged petrels are particularly vulnerable to this predator. In 1985, monitoring of 510 adult Galapagos petrels on Santiago Island showed that the species' mortality rate due to predation by pigs and Galapagos hawks was greater than 50 percent (BirdLife International 2007e).

Predator control and petrel monitoring programs are currently in place on Floreana, Santa Cruz, and Santiago Islands (Vargus and Cruz 2000, as cited in BirdLife International 2000). Eradication efforts to remove feral pigs, which eat nestlings, juvenile, and adult petrels on Santiago Island, succeeded by the end of 2000 (Cruz, *et al.* 2005). Recolonization of pigs on Santiago Island is not likely since the island is not inhabited by humans, and there are no farming zones on the island where pigs could be placed. Predation by introduced rats and cats continue to pose a predation threat to Galapagos petrels on Santiago Island, compounded by predation by the Galapagos hawk. Efforts are underway on Santiago Island to remove introduced rats, but there is no information to indicate that eradication has been achieved.

Although pigs were removed from Santiago Island, they continue to threaten the Galapagos petrel on the other four islands where the petrel is known to breed. Although predation by pigs, as well as cats, rats, and dogs, on Floreana and Santa Cruz Islands continues to threaten the Galapagos petrel, predator control efforts have been initiated on these two islands and are beginning to show some success in

reducing the threat to Galapagos petrels. For example, prior to predator control efforts on Floreana Island, only 33 percent of the banded Cerro Pajas colony of the Galapagos petrel population returned to breed and nest as adults (Coulter, *et al.* 1982, as cited in Cruz and Cruz 1990a). In 1982, predator control was initiated on this island (Cruz and Cruz 1990a), and by 1985, return rates for banded birds was 80–90 percent due to the predator control program (Cruz and Cruz 1990a). To emphasize the significance of such a reduction in predation on adults, with respect to petrel population growth, the Hawaiian dark-rumped petrel (*Pterodroma sandwichensis*), a species related to the Galapagos petrel, exhibited a 5 percent annual decline in its population size when adult survival rates were reduced as low as 10 percent (Simons 1984).

There is no information to indicate that there have been predator control efforts on San Cristóbal or Isabela Islands where cats, rats, dogs, and pigs continue to threaten the species.

Although the threat of predation by pigs on Santiago Island has been eliminated and the threat of predation is being reduced on Floreana and Santa Cruz Islands, the Galapagos petrel continues to be threatened by one or more predators on all of the islands within the species' breeding range. This threat has been shown to result in rapid population declines. Therefore, we find predation to be a threat to the Galapagos petrel.

We are unaware of any threats due to predation on Galapagos petrels during the non-breeding season while the species is at sea.

While several diseases have been documented in other species of petrels (see Chatham petrel Factor C), disease has not been documented in the Galapagos petrel. Therefore, the significance of this threat to this species is unknown.

#### D. The Inadequacy of Existing Regulatory Mechanisms

Ecuador is a member of ACAP, which is designed to reduce impacts of fishing operations on populations of Procellariids (ACAP 2001), however the Galapagos petrel is not listed in Annex 1 to this Agreement and, therefore, is not protected under this Agreement. Therefore, implementation of this Agreement has not significantly removed or reduced the threat of incidental take of this species in long-line fisheries (see Factor E below).

Ecuador designated the Galapagos Islands as a national park, and the islands were declared a World Heritage

Site in 1979 (BirdLife International 2000); however these protections have not eliminated the threat of predation nor the threat of nest-site destruction by livestock (BirdLife International 2007e).

#### E. Other Natural or Manmade Factors Affecting the Continued Existence of the Species

Oil and chemical spills can have direct effects on Galapagos petrel populations, and based on previous incidents, we consider this a significant threat to the species. For example, on January 16, 2001, a tanker ran aground at Schiavoni Reef, about 2,625 feet (800 meters) from Puerto Baquerizo Moreno on San Cristóbal Island (Woram 2007). By January 28, 2001, the slick reached the islands of Isabela and Floreana. Only one Galapagos petrel from Cristóbal Island is documented to have died; however, 370 large animals were reported to be contaminated by oil. The total effect of the oil spill on Galapagos petrels and other species is difficult to quantify for a variety of reasons. Due to the behavior of ocean-dependent species and the high toxicity of diesel, many affected animals might have died and sunk undetected. In addition, the effects of oiling may be highly localized, given the vastness of the Galapagos coastline, thereby making detection unlikely. Finally, because the long-term effects of oiling were not monitored, the total mortality from this event is likely underestimated (Lougheed, *et al.* 2002).

Although we are unaware of any documented cases of incidental take of Galapagos petrels by commercial long-line fishing operations or entanglement in marine debris, these long-line fishing operations have been identified as a threat to all seabird species (see the Chatham petrel discussion of Factor E). Therefore, we consider the incidental take of the Galapagos petrel by commercial long-line fishing operations to be a significant threat to the species.

Barbed wire fences on agricultural lands cause mortality in adult Galapagos petrels (BirdLife International 2007e). With the exception of Santiago Island, agricultural lands are present throughout the species' breeding range. Although there is no information available regarding the numbers and trends of mortality due to fences, this source of mortality in combination with other threats from long-line fishing operations and chemical and oil spills poses a significant risk to the survival of the species.

There is evidence that the productivity of Galapagos petrel populations is indirectly affected by fluctuations in ocean temperatures and currents, which impact the Galapagos

petrel's prey base. During the El Niño–Southern Oscillation (ENSO) of 1982–1983, Cruz and Cruz (1990b) found that the growth rate of Galapagos petrel chicks was lower and fledging occurred later than in other years. These so-called “ENSO chicks” reached a lower peak mass at a later age than non-ENSO chicks. The extended nestling period and reduced growth rates of ENSO chicks are believed to reflect a decline in the availability of food resources because of diminishing ocean productivity during the ENSO. No information is available on the long-term effect on petrel population productivity due to this change in ocean temperatures and currents, and, therefore, the significance of this threat to the Galapagos petrel is indeterminate.

#### Conclusion

In the 1980's, the Galapagos petrel declined as much as 81% in four years due primarily to predation by introduced predators. According to BirdLife International (2007e), conservation efforts have slowed but not halted the population decline. Despite predator control efforts, the Galapagos petrel continues to be threatened by one or more predators on all of the islands within the species' breeding range. The Galapagos petrel's breeding habitat is also threatened by introduced species, especially feral goats, on the islands of Santa Cruz, Floreana, San Cristóbal, and southern Isabela, where barbed wire fences contribute to the decline in the number of adult Galapagos petrels.

The threats within the species' breeding range are compounded by the threats to the species within its range at sea. Oil spills can have direct effects on Galapagos petrel populations, and based on the occurrence of a previous incident within the species' range at sea, we consider this a significant threat to the species. Incidental take from long-line fishing in the species' range at sea is an additional threat to the species.

Although Ecuador implements measures to protect other seabird species from this threat under the Agreement on the Conservation of Albatrosses and Petrels, the Galapagos petrel is not currently offered protection by this Agreement. Because the survival of this species is dependent on recruitment of chicks from its breeding range, the threats to this species within its breeding range puts the species at risk.

The overall population number of the Galapagos petrel is not low, estimated at 20,000 to 60,000 birds (BirdLife International 2007e). As a result, the species does not currently appear to be in danger of extinction. However, as the population numbers continue to decline

as a result of the threats discussed above, the risk of extinction of this species continues to increase. Therefore, we find that the Galapagos petrel is likely to become in danger of extinction within the foreseeable future throughout all of its range. Because we find that the Galapagos petrel is likely to become in danger of extinction within the foreseeable future throughout all of its range, there is no reason to consider its status in a significant portion of its range.

*Heinroth's shearwater (Puffinus heinrothi)*

A. The Present or Threatened Destruction, Modification, or Curtailment of the Habitat or Range

Although little is known about Heinroth's shearwater and its life history, based on general information common to all other Procellariid species, we know that the range of the species changes intra-annually based on an established breeding cycle. During the breeding season, breeding birds return to breeding colonies to breed and nest. During the non-breeding season, birds migrate far from their breeding range where they remain at sea until returning to breed. Therefore, our analysis of Factor A is separated into analyses of: (1) The species' breeding habitat and range, and (2) the species' non-breeding habitat and range.

BirdLife International (2007f) estimates the breeding range of Heinroth's shearwater to be 400,000 km<sup>2</sup> (154,400 mi<sup>2</sup>); however, BirdLife International (2000) defines "range" as the "Extent of Occurrence, the area contained within the shortest continuous imaginary boundary which can be drawn to encompass all the known, inferred, or projected sites of present occurrence of a species, excluding cases of vagrancy." Because this reported range includes a large area of non-breeding habitat (i.e., the sea), our analysis of Factor A with respect to the Heinroth's shearwater's breeding range focuses on the islands where the species is most likely to breed.

Although the nesting area of this species has not been located, the information available indicates that the species breeds on Bougainville Island in Papua New Guinea and the islands of Kolombangara and Rendova in the Solomon Islands, where the few recorded sightings of this species have occurred (Buckingham, *et al.* 1995, Coates 1985, 1990, Iles 1998, as cited in BirdLife International 2000). The species was originally known from a few historic specimens from Watom, Papua New Guinea, suggesting

historical breeding there, but there have been no recent records from this island. More recently, two birds were captured inland on Bougainville Island. One of these birds was described as being recently fledged; so it is reasonable to believe that its nest was in the vicinity (Hadden 1981, as cited in BirdLife International 2000). The conclusion that the bird breeds on Bougainville Island is further supported by recent observations in the seas around this island, including one flock of 250 birds (Coates 1985, 1990, as cited in BirdLife International 2000). It is also reasonable to conclude that breeding occurs on Kolombangara Island, because recently up to nine birds were recorded off this island where all timed records have been in the afternoon or evening, the time when breeding birds of this species typically return to their nest sites from foraging excursions (Buckingham, *et al.* 1995, Gibbs 1996, Scofield 1994, as cited in BirdLife International 2000). Although not as conclusive as the other two sites due to only one observation, the species is also likely to breed on nearby Rendova Island, where one bird was seen flying out of the mountains at dawn. Since Procellariids occupy land only to breed, it is reasonable to conclude that this bird was leaving its nest site.

Based on the locations of inland sightings of the Heinroth's shearwater and a comparison to closely-related species, it is believed this species breeds in high mountains (Buckingham, *et al.* 1995, as cited in BirdLife International 2000). The three islands where this species is likely to breed are all mountainous, volcanic islands in a wet tropical climate.

Bougainville Island is 9,317.8 km<sup>2</sup> (3,598 mi<sup>2</sup>) in size (United Nations System-Wide Earthwatch 1998a), is thickly vegetated, and rugged. There are extensive areas of undisturbed lowland and montane rainforest. Most of the 175,160 people travel by foot or small boat, and live by subsistence agriculture and fishing [Central Intelligence Agency (CIA) 2007a; United Nations System-Wide Earthwatch 1998a; Wikipedia 2007a]. Exploitation of Papua New Guinea's natural resources has been hindered due to the islands' rugged terrain and the high cost of developing infrastructure (CIA 2007a). We are, therefore, unaware of any present or threatened destruction, modification, or curtailment of the Heinroth's shearwater's current breeding habitat on Bougainville Island.

The forests on the islands of Kolombangara and Rendova, with land areas of 687.8 km<sup>2</sup> (265.6 mi<sup>2</sup>) and 411.3 km<sup>2</sup> (158.8 mi<sup>2</sup>, United Nations System-

Wide Earthwatch 1998b,c), respectively, are threatened by deforestation. Timber is the Solomon Islands' most important export commodity. Unsustainable forestry practices, combined with clearing of land for agricultural and grazing purposes and over-exploitation of wood products for use as fuel, is resulting in the destruction of vast areas of forest throughout the Solomon Islands (CIA 2007b). All the lower slopes on Kolombangara Island have been logged except for one 500 m (1,640 feet) strip (United Nations System-Wide Earthwatch 1998b). In 2003, the World Resources Institute reported that none of the Solomon Island's total land area is protected to such an extent that it is preserved in its natural condition (Earth Trends 2003b). Because forests on the islands of Kolombangara and Rendova are the likely breeding habitat of the Heinroth's shearwater and these forests are being reduced through deforestation, we find that the destruction of the Heinroth's shearwater's breeding habitat on these two islands is likely to threaten the survival of the species.

The Heinroth's shearwater's range at sea is poorly known; up to 20 birds have been reported in the Bismarck seas, ranging to the Madang Province on the north coast of Papua New Guinea (Bailey 1992, Clay 1994, Coates 1985, 1990, Hornbuckle 1999, as cited in BirdLife International 2000). Observations have also been reported in the seas around Bougainville Island, including a flock of 250 birds (Coates 1985, 1990, as cited in BirdLife International 2000). We are unaware of any present or threatened destruction, modification, or curtailment of this species' current sea habitat or range.

B. Overutilization for Commercial, Recreational, Scientific, or Educational Purposes

We are unaware of any commercial, recreational, scientific, or educational purpose for which the Heinroth's shearwater is currently being utilized.

C. Disease or Predation

Although the Heinroth's shearwater's nest sites have not been located, all three islands where the species is most likely to breed have introduced rats, cats, and dogs (Buckingham, *et al.* 1995, as cited in BirdLife International 2000). All these introduced species contributed to drastic declines in the Galapagos petrel (see Galapagos petrel discussion of Factor C), and introduced cat and rats are known to have caused many local extirpations of other petrel species (Moors and Atkinson 1984, as cited in Priddel, *et al.* draft). Although the Heinroth's shearwater is believed to

breed in high, inaccessible mountains, rats have been observed to at least 2,953 feet (900 m) on Kolombangara Island and are a threat to this burrow-nesting species (Buckingham, *et al.* 1995, as cited in BirdLife International 2000).

Available information does not indicate that there have been attempts to eradicate introduced predators from these islands, which would be difficult due to the permanent habitation of humans on the islands. Even if the species were eradicated, there is still a high potential for cats and rats to be transported to the islands in boats transporting humans or other shipments.

Because the threat of predation by introduced rats and feral cats and dogs has severely impacted closely related petrel species, and there are records of these introduced predators on the three islands where the Heinroth's shearwater is most likely to breed, we find that predation is a significant threat to this species.

We are unaware of any threats due to predation on Heinroth's shearwaters during the non-breeding season while the species is at sea.

Although several diseases have been documented in other species of petrels (see Chatham petrel Factor C), disease has not been documented in the Heinroth's shearwater. Therefore, the significance of this threat to the Heinroth's shearwater is unknown.

#### D. The Inadequacy of Existing Regulatory Mechanisms

No regulatory mechanisms are known that contribute to or reduce or remove threats to this species.

#### E. Other Natural or Manmade Factors Affecting the Continued Existence of the Species

The population of the Heinroth's shearwater is estimated at 250 to 999 individuals, which is considered to be very small (BirdLife International 2007f). Species with such small population sizes are at greater risk of extinction. Once a population is reduced below a certain number of individuals, it tends to rapidly decline towards extinction (Franklin 1980; Gilpin and Soule 1986; Soule 1987).

The Heinroth's shearwater's small population size combined with its colonial nesting habits, as is typical of all Procellariid species, makes this species particularly vulnerable to the threat of adverse random, naturally occurring events (e.g., volcanic eruptions, cyclones, and earthquakes) that destroy breeding individuals and their breeding habitat. All three of the islands where the Heinroth's shearwater

is most likely to breed are in a geologically active area resulting in a significant risk of catastrophic natural events. These islands are subject to frequent earthquakes, tremors, volcanic activity, typhoons, tsunamis, and mudslides (CIA 2007a,b). Of these three islands, the species' habitat on Bougainville is at most risk from volcanic activity. There are seven volcanoes on Bougainville that have been active in the last 10,000 years. Bagana is an active volcano that has had 22 eruptions since 1842, with most being explosive. Some of these explosive eruptions have produced extremely hot, gas-charged ash, which is expelled with explosive force, moving with hurricane speed down the mountainside. Bagana has been erupting since 1972, creating slow-moving lava flows (Bagana 2005). These volcanic explosions and lava flows have great potential to destroy Heinroth's shearwaters and their breeding habitat in the mountainous areas where they are most likely to breed.

Landslides in mountainous area are associated with severe storms that are common in this geographic region (World Meteorological Organization 2004), and would be particularly threatening to breeding Heinroth's shearwaters and their breeding habitat during these extreme weather events.

While species with more extensive breeding ranges or higher population numbers could recover from adverse random, naturally occurring events such as volcanoes or typhoons, the Heinroth's shearwater does not have such resiliency. Its very small population size and restricted breeding range puts the species at higher risk for experiencing the irreversible adverse effects of random, naturally occurring events. Therefore, we find that the combination of factors—the species' small population size, restricted breeding range, and likelihood of adverse random, naturally occurring events—to be a significant threat to the species.

Although we are unaware of any documented cases of incidental take of Heinroth's shearwaters petrels by commercial long-line fishing operations or entanglement in marine debris, these long-line fishing operations have been identified as a threat to all seabird species (see analysis under Chatham petrel, Factor E). Moreover, the lack of data on these impacts to the Heinroth's shearwaters could be a result of the species' low population number. Therefore, we find the incidental take of Heinroth's shearwaters by commercial long-line fishing operations to be a significant threat to the species.

#### Conclusion

The best available information indicates that the Heinroth's shearwater is threatened by predation by introduced rats, and feral cats and dogs within the species' breeding range. The probability of these introduced predators preying on this species is high given that all these introduced species are on the islands where the species is likely to breed, and rats have been found in some of the high mountainous areas where the Heinroth's shearwater is most likely to nest. Furthermore, the devastating impact of predation by these introduced species has been documented in several closely-related species. Finally, there is no available information that indicates that efforts have been initiated to eradicate introduced predators from the three islands where the species is most likely to breed. This threat is magnified by the fact that this threat likely threatens the species throughout its breeding range.

The Heinroth's shearwater is also threatened on Kolombangara and Rendova Islands, approximately half of its breeding range, by habitat destruction. The species' low population size of 250 to 999 individuals further increases this species' risk of extinction, and combined with its colonial nesting habits makes the species particularly vulnerable to the threat of catastrophic naturally occurring events (e.g., volcanoes) that are known to occur with frequency in the species' breeding range.

The threats within the species' breeding range are compounded by the threat posed by long-line fishing in the species' non-breeding range. There is no available information to indicate that the governments of Papua New Guinea or Solomon Islands have implemented measures to protect the species from long-line fishery activities. Because the survival of this species is dependent on recruitment of chicks from its breeding range, the threats to this species within its breeding range put the species at risk.

Despite the lack of population trend information, due to the species' small population size, the lack of conservation measures and regulatory protections for this species, and the identified threats that have caused declines in closely related species, we find that the threats within its breeding range make the Heinroth's shearwater likely to become in danger of extinction within the foreseeable future throughout all of its range. Because we find that the Heinroth's shearwater is likely to become in danger of extinction within

the foreseeable future throughout all of its range, there is no reason to consider its status in a significant portion of its range.

#### Available Conservation Measures

Conservation measures provided to species listed as endangered or threatened under the Act include recognition, requirements for Federal protection, and prohibitions against certain practices. Recognition through listing results in public awareness, and encourages and results in conservation actions by Federal and State governments, private agencies and groups, and individuals.

Section 7(a) of the Act, as amended, and as implemented by regulations at 50 CFR part 402, requires Federal agencies to evaluate their actions within the United States or on the high seas with respect to any species that is proposed or listed as endangered or threatened, and with respect to its critical habitat, if any is being designated. However, given that the Chatham petrel, Fiji petrel, Galapagos petrel, magenta petrel, Cook's petrel, and Heinroth's shearwater are not native to the United States, no critical habitat is being proposed for designation with this rule.

Section 8(a) of the Act authorizes the provision of limited financial assistance for the development and management of programs that the Secretary of the Interior determines to be necessary or useful for the conservation of endangered and threatened species in foreign countries. Sections 8(b) and 8(c) of the Act authorize the Secretary to encourage conservation programs for foreign endangered species and to provide assistance for such programs in the form of personnel and the training of personnel.

The Act and its implementing regulations set forth a series of general prohibitions and exceptions that apply to all endangered and threatened wildlife. As such, these prohibitions would be applicable to the Chatham petrel, Cook's petrel, Fiji petrel, Galapagos petrel, magenta petrel and Heinroth's shearwater. These prohibitions, pursuant to 50 CFR 17.21 and 17.31, in part, make it illegal for any person subject to the jurisdiction of the United States to "take" (take includes: Harass, harm, pursue, hunt, shoot, wound, kill, trap, capture, or to attempt any of these) within the United States or upon the high seas; import or export; deliver, receive, carry, transport, or ship in interstate or foreign commerce in the course of commercial activity; or sell or offer for sale in interstate or foreign commerce any endangered or threatened wildlife species. It also is illegal to

possess, sell, deliver, carry, transport, or ship any such wildlife that has been taken in violation of the Act. Certain exceptions apply to agents of the Service and State conservation agencies.

Permits may be issued to carry out otherwise prohibited activities involving endangered and threatened wildlife species under certain circumstances. Regulations governing permits are codified at 50 CFR 17.22, for endangered species, and 17.32 for threatened species. With regard to endangered wildlife, a permit may be issued for the following purposes: For scientific purposes, to enhance the propagation or survival of the species, and for incidental take in connection with otherwise lawful activities.

#### Public Comments Solicited

The Service intends that any final action resulting from this proposal will be as accurate and as effective as possible. Therefore, comments or suggestions from the public, other government agencies, the scientific community, industry, or any other interested party concerning this proposed rule are hereby solicited. We are particularly seeking comments regarding biological information, population status, commercial trade, or other relevant data concerning any threat (or lack thereof) to these species. We also seek comments on the appropriate conservation status for the six bird species addressed in this proposed rule.

You may submit your comments and materials concerning this proposed rule by one of the methods listed in the **ADDRESSES** section. We will not accept comments you send by e-mail or fax. We will also not accept anonymous comments; your comment must include your first and last name, city, State, country, and postal (zip) code. Please note that we may not consider comments we receive after the date specified in the **DATES** section in our final determination.

Before including your address, phone number, e-mail address, or other personal identifying information in your comment, you should be aware that we will post your entire comment—including your personal identifying information—on <http://www.regulations.gov>. While you can ask us in your comment to withhold your personal identifying information from public review, we cannot guarantee that we will be able to do so.

Comments and materials we receive, as well as supporting documentation we used in preparing this proposed rule, will be available for public inspection on <http://www.regulations.gov>, or by

appointment, during normal business hours, at the U.S. Fish and Wildlife Service, 4401 N. Fairfax Drive, Room 110, Arlington, VA 22203, 703-358-1708.

Final promulgation of the regulations concerning the listing of these species will take into consideration all comments and additional information that we receive, and such communications may lead to a final regulation that differs from this proposal.

The Act provides for one or more public hearings on this proposal, if requested. Requests must be received within 45 days of the date of the publication of the proposal in the **Federal Register**. Such requests must be made in writing and be addressed to the Chief of the Division of Scientific Authority at the address given above.

#### Peer Review

In accordance with our policy, "Notice of Interagency Cooperative Policy for Peer Review in Endangered Species Act Activities," that was published on July 1, 1994 (59 FR 34270), we will seek the expert opinion of at least three appropriate independent specialists regarding this proposed rule. The purpose of such review is to ensure listing decisions are based on scientifically sound data, assumptions, and analysis. We will send copies of this proposed rule to the peer reviewers immediately following publication in the **Federal Register**.

#### Paperwork Reduction Act

This proposed rule does not contain any new collections of information that require approval by the Office of Management and Budget (OMB) under 44 U.S.C. 3501 et seq. The regulation will not impose new recordkeeping or reporting requirements on State or local governments, individuals, businesses, or organizations. We may not conduct or sponsor and you are not required to respond to a collection of information unless it displays a currently valid OMB control number.

#### National Environmental Policy Act

We have determined that Environmental Assessments and Environmental Impact Statements, as defined under the authority of the National Environmental Policy Act of 1969, need not be prepared in connection with regulations adopted pursuant to section 4(a) of the Act. A notice outlining our reasons for this determination was published in the **Federal Register** on October 25, 1983 (48 FR 49244).



Dated: November 30, 2007.

**Kenneth Stansell,**

*Acting Director, Fish and Wildlife Service.*

[FR Doc. E7-24347 Filed 12-14-07; 8:45 am]

BILLING CODE 4310-55-P

## DEPARTMENT OF COMMERCE

### National Oceanic and Atmospheric Administration

#### 50 CFR Part 648

[Docket No. 071130780-7564-01]

RIN 0648-AU32

#### Fisheries of the Northeastern United States; Atlantic Sea Scallop Fishery; Amendment 11

**AGENCY:** National Marine Fisheries Service (NMFS), National Oceanic and Atmospheric Administration (NOAA), Commerce.

**ACTION:** Proposed rule; request for comments.

**SUMMARY:** NMFS proposes regulations to implement measures in Amendment 11 to the Atlantic Sea Scallop Fishery Management Plan (FMP). Amendment 11 was developed by the New England Fishery Management Council (Council) to control the capacity of the open access general category fleet.

Amendment 11 would establish a new management program for the general category fishery, including a limited access program with individual fishing quotas (IFQs) for qualified general category vessels, a specific allocation for general category fisheries, and other measures to improve management of the general category scallop fishery.

**DATES:** Public comments must be received no later than 5 p.m., eastern standard time, on January 31, 2008.

**ADDRESSES:** A final supplemental environmental impact statement (FSEIS) was prepared for Amendment 11 that describes the proposed action and other considered alternatives and provides a thorough analysis of the impacts of the proposed measures and alternatives. Copies of Amendment 11, the FSEIS, and the Initial Regulatory Flexibility Analysis (IRFA), are available on request from Paul J. Howard, Executive Director, New England Fishery Management Council (Council), 50 Water Street, Newburyport, MA 01950. These documents are also available online at <http://www.nefmc.org>.

You may submit comments, identified by 0648-AU32, by any one of the following methods:

- Electronic Submissions: Submit all electronic public comments via the

Federal eRulemaking Portal <http://www.regulations.gov>

- Fax: (978) 281-9135, Attn: Peter Christopher

- Mail: Patricia A. Kurkul, Regional Administrator, NMFS, Northeast Regional Office, One Blackburn Drive, Gloucester, MA 01930. Mark the outside of the envelope, "Comments on Scallop Amendment 11 Proposed Rule."

Instructions: All comments received are a part of the public record and will generally be posted to <http://www.regulations.gov> without change. All personal identifying information (for example, name, address, etc.) voluntarily submitted by the commenter may be publicly accessible. Do not submit confidential business information or otherwise sensitive or protected information. NMFS will accept anonymous comments. Attachments to electronic comments will be accepted in Microsoft Word, Excel, WordPerfect, or Adobe PDF file formats only.

Written comments regarding the burden-hour estimate or other aspects of the collection-of-information requirement contained in this proposed rule should be submitted to the Regional Administrator at the address above and by e-mail to [David\\_Rostker@omb.eop.gov](mailto:David_Rostker@omb.eop.gov), or fax to 202-395-7285.

#### FOR FURTHER INFORMATION CONTACT:

Peter Christopher, Fishery Policy Analyst, phone 978-281-9288, fax 978-281-9135.

#### SUPPLEMENTARY INFORMATION:

##### Background

The general category scallop fishery is currently an open access fishery that allows any vessel to fish for up to 400 lb (181.44 kg) of Atlantic sea scallops (scallops), provided the vessel has been issued a general category or limited access scallop permit. This open access fishery was established in 1994 by Amendment 4 to the FMP (Amendment 4) to allow vessels fishing in non-scallop fisheries to catch scallops as incidental catch, and to allow a small-scale scallop fishery to continue outside of the limited access and effort control programs aimed at the large-scale scallop fishery. Over time, the overall participation in the general category fishery has increased. In 1994, there were 1,992 general category permits issued. By 2005 that number had increased to 2,950. In 1994, there were 181 general category vessels that landed scallops, while in 2005 there were over 600.

Out of concern about the level of fishing effort and harvest from the

general category scallop fleet, the Council recommended that a **Federal Register** notice should be published to notify the public that the Council would consider limiting entry to the general category scallop fishery as of a specified control date. NMFS subsequently established the control date of November 1, 2004. In January 2006, the Council began the development of Amendment 11 to evaluate alternatives for a limited access program and other measures for general category vessels. The Council held 35 meetings open to the public on Amendment 11 between January 2006 and June 2007. After considering a wide range of issues, alternatives, and public input, the Council adopted a draft supplemental environmental impact statement (DSEIS) for Amendment 11 on April 11, 2007. Following the close of the public comment period on June 18, 2007, the Council adopted Amendment 11 on June 20, 2007.

Amendment 11 would establish criteria and authority for determining the percentage of scallop catch allocated to the general category fleet and would establish the IFQ program. However, these specific allocation amounts have been being developed by the Council as part of Framework 19 to the FMP (Framework 19) which will establish scallop fishery management measures for the 2008 and 2009 fishing years. After proposing the allowable levels of fishing based on updated survey information and fishing mortality targets, the total allowable catches (TACs) described below would be specified through a separate rulemaking for Framework 19. Framework 19 also would specify management measures for the 2008 and 2009 fishing years that would be recommended if Amendment 11 is not approved.

A Notice of Availability (NOA) for Amendment 11 was published on November 30, 2007. The comment period on the NOA ends on January 29, 2008.

#### Proposed Measures

The proposed regulations are based on the description of the measures in Amendment 11. NMFS has noted several instances where it has interpreted the language in Amendment 11 to account for any missing details in the Council's description of the proposed measures. NMFS seeks comments on all of the measures in Amendment 11, particularly the noted instances.