

**FINDINGS AND RECOMMENDATIONS REGARDING THE PROPOSED
ISSUANCE OF AN ENDANGERED SPECIES ACT SECTION 1(a)(1)(B)
INCIDENTAL TAKE PERMIT FOR THE KAHEAWA WIND POWER II
HABITAT CONSERVATION PLAN FOR THE CONSTRUCTION AND
OPERATION OF THE KAHEAWA WIND POWER II WIND ENERGY
GENERATION FACILITY, MAUI, MAUI COUNTY, HAWAII**

The U.S. Fish and Wildlife Service (Service) proposes to issue an Incidental Take Permit (Permit) to Kaheawa Wind Power II, LLC (KWP II) under the authority of section 10(a)(1)(B) of the Endangered Species Act of 1973, as amended (Act). The term of the Permit is 20 years. The following documents were used in preparation of this statement of findings and recommendations and are incorporated by reference as described in 40 CFR §1508.13 (2011): (1) KWP II's Final Habitat Conservation Plan (HCP) for the Construction and Operation of the Kaheawa Wind Power II Wind Energy Generation Facility (KWP II), Maui, Hawaii (KWP II 2011); (2) KWP II's Final State Environmental Impact Statement for KWP II (Planning Solutions 2010); (3) the Service's Final Environmental Assessment for KWP II (USFWS 2011); and (4) the Service's Biological Opinion for KWP II (USFWS 2012). The decision record for these findings and recommendations is on file at the Service's Pacific Islands Fish and Wildlife Office (PIFWO) in Honolulu, Hawaii.

I. Description of the Proposed Action

The KWP II project consists of the construction and operation of a 21-megawatt (MW) wind energy generation facility in the Kaheawa Pastures area of the Ukumehame ahupuaa, above Maalaea, West Maui, Hawaii. KWP II will supply wind-generated electricity to Maui Electric Company Ltd. (MECO) under the terms of a State of Hawaii Public Utilities Commission (PUC) approved power purchase agreement (PPA). Power generated by the facility will be delivered from the proposed substation to the existing MECO 69 kilovolt (kV) transmission line that passes directly through the southern end of the project area.

KWP II will be located on approximately 143 acres (58 ha) of State Conservation Land, approximately 2,000 feet southeast of the southern end of the existing Kaheawa Wind Power project (KWP I). The subject property is located along an existing access road on portions of Tax Map Key Numbers 4-8-001: 001 (8 acres, 3 ha) and 3-6-001:014 (135 acres, 55 ha). Construction of the proposed facilities will disturb approximately 43 acres (17.4 ha) and development of 39.2 acres (15.9 ha) is anticipated. The development primarily involves the construction and operation of fourteen General Electric (GE) 1.5 megawatt (MW) wind turbine generators (WTGs), a permanent meteorological tower (met tower), a maintenance building, a Battery Energy Storage System (BESS), access roads, and renovation of the KWP I Operations and Maintenance (O&M) building.

Under the proposed action and Permit (TE27260A-0), KWP II will receive incidental take coverage for four listed species that are endemic to Hawaii and may be adversely

affected by KWP II. Of the four listed species, three are birds: the endangered Hawaiian petrel (uau, *Pterodroma sandwichensis* (= *Pterodroma phaeopygia sandwichensis*) the threatened Newell's shearwater (*Puffinus auricularis newelli*), and the endangered Hawaiian goose (nene, *Branta* (= *Nesochen*) *sandvicensis*). The fourth species is a mammal, the endangered Hawaiian hoary bat (*Lasiurus cinereus semotus*). These species are hereafter referred to as "Covered Species."

II. Analysis of Effects

The analysis of likely impacts of KWP II to the Covered Species is based on the best scientific information presently available including results from KWP I post-construction downed wildlife monitoring conducted since operations began in June 2006 (KWP 2008b, 2008c, KWP 2009, KWP 2010). The following five types of take causing injury and mortality are analyzed in the HCP: (1) direct take, (2) indirect take, (3) unobserved direct take, (4) unobserved indirect take, and (5) estimated total take. Although measures in the HCP and associated Permit describe how KWP II seeks to avoid and minimize the risk of take of Covered Species to the greatest extent practicable, some take is unavoidable. However, KWP II will mitigate for such take by implementing conservation actions to benefit the recovery of the Covered Species.

KWP II's proposed mitigation measures were selected in collaboration with the Service, Department of Land and Natural Resources - Division of Forestry and Wildlife (DLNR-DOFAW), and, pursuant to Hawaii State law, the State of Hawaii Endangered Species Recovery Committee (ESRC). Because some uncertainty regarding anticipated rates of take and the success of the proposed mitigation measures, KWP II proposes a tiered approach to mitigation that incorporates adaptive management. Although the Tier 1 level of mitigation will be implemented initially, adaptive management will allow for changes in the level of mitigation if warranted. Mitigation efforts will increase to the Tier 2 tier if monitoring demonstrates that incidental take is occurring above Tier 1 levels but at lower levels than the Tier 2 maximum amount of take allowed by the Permit. Mitigation project costs are estimated in the HCP.

If additional mitigation is warranted, mitigation efforts may be increased at an existing mitigation site or implemented at additional sites in Maui Nui. Selection of additional sites, identification of the appropriate mitigation initiatives, and level of effort will be determined in consultation with and approved by the Service and DLNR-DOFAW. If Tier 2 rates of take are found to occur annually and persist for more than three consecutive years, KWP II will conduct on-site investigations in an effort to determine the cause(s) of the unexpectedly high level of take, and identify and implement measures, where practicable, to reduce take levels.

Although minimization efforts will decrease if rates of take occur below Tier 1 levels, a minimum level of mitigation, which corresponds to the lower take scenario, will be implemented even if take is zero. Any changes in mitigation efforts will be made only with the concurrence of the Service and DLNR-DOFAW. Moreover, an adaptive

approach is also proposed for the specific type of mitigation to be implemented for each of the Covered Species.

The HCP establishes avoidance and minimization measures, and adaptive management procedures to avoid exceeding the take limit for each Covered Species authorized by the Permit. Avoidance and minimization measures, mitigation and adaptive management procedures, and the effects of the proposed action on the Covered Species are analyzed in depth in the HCP and Biological Opinion, which are incorporated herein by reference.

Effects of the Action on the Hawaiian Petrel and the Newell's Shearwater

Activities that may affect the Hawaiian petrel and the Newell's shearwater in the project area include construction and operation of turbines and met towers, lighting, new electrical collection lines, and implementation of HCP mitigation, monitoring, and adaptive management measures. However, take is estimated only for collisions with WTGs, met towers, and collection lines because either the level of risk associated with the other activities is considered negligible or the measures and procedures that KWP II plans to implement cause the level of risk to become negligible.

Hawaiian Petrel

Species Background

The Hawaiian petrel was listed as endangered on March 11, 1967 (USFWS 1983). Hawaiian petrels were abundant and widely distributed before humans inhabited the Hawaiian Islands; with petrel bones observed in archaeological sites throughout the State. Today Hawaiian petrels nest on at least five islands: Hawaii, Maui, Kauai, Lanai, and Molokai (Simons and Hodges 1998). As much as one quarter of the breeding population may be on Maui, and most of Maui's petrels nest along the rim of Haleakala Crater (Simons and Hodges 1998) in Haleakala National Park. Hawaiian petrels nest around Haleakala summit primarily because the National Park Service installed an ungulate-proof fence and has maintained predator control efforts since about 1982. The primary threats to the recovery of the Hawaiian petrel are: (1) predation by non-native species; (2) habitat degradation and destruction by feral ungulates; (3) lack of nesting habitat due to invasive plants; and (4) collisions induced by attraction to urban lighting (Simons 1983).

A current accurate estimate of the total Hawaiian petrel population is not available. Estimates range from the thousands to about 34,000 birds (Spear et al 1995, Ainley et al. 1995). Spear et al. (1995) estimated the at-sea population size of adult and sub-adult Hawaiian petrels of 19,000 birds (with a 95% confidence interval of 11,000 to 34,000). Ainley et al. (1997) estimates a breeding population of about 1,600 pairs on Kauai. Darcy Hu (pers. comm. 2009) located 115 active burrows within the Hawaii Volcanoes National Park in 2006. Jay Penniman (pers. comm. 2009) estimates that currently between 1,000 and 6,000 Hawaiian petrels come to shore each year on all islands. Radar data collected by Cooper and Day (2003) suggest at least 1,200 petrels fly inland on Maui

every night during June. Because their sampling area only covered 17.5% of the perimeter of Maui, they conclude that the actually breeding population on Maui is in fact much higher. There may be more than 1000 nesting pairs at Haleakala National Park (Mitchell et al. 2005, Tetra Tech Inc. 2008).

Estimated Take

Although Hawaiian petrels do not currently nest at the project site, the KWP II wind turbine structures will be constructed in airspace used by a subset of the 600 Hawaiian petrel breeding pairs occupying the upper reaches of the west Maui mountains (SWCA 2011a, Appendix 24, p. 2). These approximately 600 pairs constitute approximately 12 to 13% of the Hawaiian petrel’s range-wide population.

To facilitate mitigation planning and implementation, the KWP II HCP also has 5-year and 20-year take limits as well as a Tier 1 level of take. Exceeding the 5-year Tier 1 take limit within 5 years, or the 20-year take limit at any time will move the mitigation to a Tier 2 tier where additional mitigation measures will be implemented to address the impact.

Table 1. Authorized take at Tier 1 and Tier 2 levels for the Hawaiian petrel.

Tier	5-Year Limit	20-Year Limit
Tier 1	8 adults/immatures 4 chicks/eggs	19 adults/immatures 9 chicks/eggs
Tier 2	16 adults/immatures 8 chicks/eggs	29 adults/immatures 14 chicks/eggs

The results of fatality modeling presented in the KWP II HCP (on pages 57-61) indicate that up to 29 adult and 14 nestling Hawaiian petrels are likely to be killed or injured by operation of the KWP II project. This impact, if not mitigated, is likely to reduce the west Maui Hawaiian petrel population by up to 2.5% and result in the loss of from 1.4% and 2.15% of the total Hawaiian petrel population on Maui. Maui may harbor as much as one quarter of the breeding population of Hawaiian petrels. Mitigation to offset Tier 1 take will be implemented even if no Hawaiian petrel fatalities are detected. If the Tier 1 level of take is exceeded, additional mitigation will offset the increased level of take.

Mitigation

To offset take, KWP II has committed to funding and implementing a social attraction project at Makamakaole in west Maui, and a predator control project to protect Hawaiian petrels nesting on the Crater Rim at Haleakala National Park in east Maui. KWP II retained a team from New Zealand to design a social attraction project at Makamakaole in which predator-proof fencing will be installed and maintained for the 20-year life of the project in an area known as Uau hill (Hawaiian petrel hill). Extensive surveys by a team of New Zealand conservation dogs (Steve Sawyer, pers. comm., 2011) indicated the

airspace above the site is heavily used for socializing by Hawaiian petrels nesting farther upslope in west Maui and that birds landing to nest at the site appear to be exposed to extreme levels of mongoose predation. KWP II will fund the construction of two, approximately five-acre, predator-free, fenced enclosures (one for the Hawaiian petrel and one for the Newell's shearwater), attempt to attract passing birds using acoustics, install and maintain artificial burrows, and maintain a predator control program (Figure 2). Hawaiian petrel survival and reproductive success shall be monitored within the enclosure and mitigation credit shall accrue if the Hawaiian petrel population in west Maui increases above what it would have been in the absence of the social attraction and predator control projects based on modeling results. The best available information indicates the Makamakaole social attraction project is likely to offset the take of 18 adult and 10 fledgling Hawaiian petrels during KWP II's 20-year Permit term.

If, in year five of KWP II operation, the Service determines, in coordination with KWP II and based on the best available information including trigger points specified in the KWP II HCP, the Makamakaole social attraction project's projected 20-year benefits will be insufficient to offset the 20-year projected levels of Hawaiian petrel take caused by the project, KWP II shall manage as many burrows at an existing Hawaiian petrel colony at the Haleakala National Park's (Park) Crater Rim as necessary to offset the remainder of the anticipated take impacts. The Park has confirmed the locations of 99 Hawaiian petrel burrows at the Crater Rim site and their field studies indicate there are an additional 600 active burrows farther east along the South Rim which are exposed to predators. In addition, Hawaiian petrel burrows on State land, at the Advanced Technology Solar Telescope project site adjacent to the Park Crater Rim site may be available for management. Population modeling indicates the Hawaiian petrel population at the Crater Rim site, which contains 99 total burrows, would be occupied by 29 more adult petrels if predator control is implemented in years 6 through 20 of the Permit term than would have been there in the absence of project predator management. Management of the additional 600 active burrows on the Crater Rim over a 15-year period would boost the east Maui Hawaiian petrel population by 290 (far more than needed to offset KWP II mitigation offset needs).

Newell's Shearwater

Species Background

The Newell's shearwater was listed as a threatened species by the Service in 1975 (USFWS 1983). The Newell's shearwater nests on Kauai, Molokai, and Hawaii (Ainley et al. 1997, Day et al. 2003, Day and Cooper 2002), and may nest on Maui, Oahu, and Lanai (Cooper and Day 2003). Numbers of colonies and individuals are greatest on Kauai (Ainley et al. 1997). Spear et al. (1995) estimated the total year-round at-sea population of Newell's shearwaters in the Hawaiian Islands during the early 1990s at roughly 84,000 individuals (95% confidence interval of 57,000 to 115,000 for spring and 58,000 to 113,000 for autumn).

However, analyses of anthropogenic variables influencing Newell’s shearwater mortality (e.g., predation, light attraction, and power line collision) suggest the population on Kauai has declined sharply over the past 10 years; today there may be as few as 18,900 birds (Ainley et al. 2001; Day et al. 2003; Griesemer and Holmes, 2011). Significant range reduction is also documented; three colonies documented as active between 1980 and 1994 are now abandoned (Pyle and Pyle, 2009, Holmes et al. *in litt.*, 2009). The decline on Kauai is indicative of the species’ status as a whole.

The primary threats to the recovery of the Newell’s shearwater are: (1) predation by non-native species (Holmes et al. 2009, Telfer 1986); (2) habitat degradation and loss (including destruction of burrows by feral ungulates and an increase in non-native plants because of ungulates); (3) natural disturbance; and (4) collisions induced by attraction to urban lighting (Ainley et al. 2001). Loss of existing and potential nesting habitat due to clearing of forests for agriculture and urban development, mining of cinder cones, and recent volcanic eruptions on the Island of Hawaii are among the terrestrial factors believed to be contributing to the decline of Newell’s shearwater.

Estimated Take

To date, no Newell’s shearwater fatalities have been observed at KWP I. The results of fatality modeling presented in the KWP II HCP (SWCA 2011a, pp. 60-62) indicate a total of up to 5 adult or immature Newell’s shearwaters and up to 3 shearwater chicks or eggs are likely to be killed or injured, directly or indirectly, by operation of the KWP II project over the 20-year term of the proposed action. Those results are herein incorporated by reference. Of this total, Tier 1 includes the death or injury of 2 adult or immature shearwaters and 2 shearwater chicks or eggs; Tier 2 includes the death or injury of up to 5 adult or immature shearwaters and up to 3 shearwater chicks or eggs.

The KWP II HCP also has 5-year and 20-year take limits, to account for the impact of taking many individuals within a short period of time. Exceeding the 5-year Tier 1 take limit within 5 years, or the 20-year take limit at any time will move the mitigation to a Tier 2 tier where additional mitigation measures will be implemented to address the impact.

Table 2. Authorized Take at Tier 1 and Tier 2 levels for the Newell’s Shearwater.

Tier	5-Year Limit	20-Year Limit
Tier 1	2 adults/immatures 2 chicks/eggs	2 adults/immatures 2 chicks/eggs
Tier 2	5 adults/immatures 3 chicks/eggs	5 adults/immatures 3 chicks/eggs

Approximately 18,900 of the total range-wide 21,000, Newell’s shearwater nest on Kauai. Tier 1 take (4 birds) under the KWP II HCP represents approximately 0.2% of the estimated range-wide Newell’s shearwater population, and Tier 2 take (8 shearwaters)

represents approximately 0.4% of the estimated range-wide Newell's shearwater population. KWP II Project-related mortality is likely to have a significant impact on the population of Newell's shearwater in west Maui, which is believed to be composed of as few as 30 breeding pairs (SWCA 2011a Appendix 25, p. 2). Loss of five adult and three fledgling shearwaters under Tier 2 represents a loss of approximately eight percent of the west Maui Newell's shearwater population. If not mitigated, the proposed action is likely to contribute to the extirpation of the west Maui Newell's shearwater population and a reduction in the species' range.

Mitigation

The Applicant designed a social attraction project at Makamakaole in which predator-proof fencing will be installed and maintained, for the 20-year life of the project, in an area known as Uau Hill (Hawaiian petrel hill). Extensive surveys by a team of New Zealand conservation dogs (Steve Sawyer, pers. comm., 2011) indicated the airspace above the site is heavily used for socializing by Newell's shearwater nesting farther upslope in West Maui and that birds landing to nest at the site appear to be exposed to extreme levels of mongoose predation. The Applicant will construct two small (approximately five ac) predator-free fenced enclosures (one for the Hawaiian petrel and one for the Newell's shearwater), attract passing birds using acoustics, install and maintain artificial burrows, and maintain a predator control program (see Figure 2). Survival and reproductive success will be monitored and mitigation credit will accrue as the Newell's shearwater population in West Maui is bolstered above what it would have been in the absence of the social attraction project.

If, in year five of KWP II operation, the Service determines, in coordination with the Applicant and based on the best available information including trigger points specified in the KWP II HCP, the Makamakaole social attraction project's projected 20-year benefits will be insufficient to offset KWPI and KWP II 20-year projected Newell's shearwater take, the Applicant will implement an additional project or projects necessary to ensure offset of the remainder of the anticipated take. The Newell's shearwater projects, to be developed for possible implementation beginning in year six, are listed below in priority order:

1. KWP II shall fund implementation of a comprehensive plan for Newell's shearwater colony management at Makamakaole, located on West Maui near lower Kahakuloa Valley. Management actions shall include predator-proof fencing of a five-to 10-acre enclosure, predator eradication within the enclosure, and use of social attraction and artificial burrows to enhance the abundance of shearwaters nesting within the enclosures. The success of the social attraction project in establishing additional breeding pairs of shearwaters within the enclosures will be determined after five years. If unsuccessful, additional measures shall be implemented until these mitigation measures are determined to have offset the impacts of take of the shearwater by covered activities.

If additional mitigation is necessary to offset the impacts of Tier 1 take of the shearwater, KWP II shall:

2. Fund the construction of predator exclosures at an in-situ site at upper Kahakuloa or an alternative site in West Maui, if deemed feasible by the Applicant, with the approval of the Service.

If additional mitigation is necessary to offset the impacts of Tier 1 take of the shearwater, KWP II shall:

3. Fund the construction of predator exclosures at an in-situ site in East Maui, if deemed feasible by the Applicant with the approval of the Service.

If additional mitigation is necessary to offset the impacts of Tier 1 take of the shearwater, KWP II shall:

4. Fund the construction of predator exclosures and implement a social attraction project in East Maui.

If additional mitigation is necessary to offset the impacts of Tier 1 take of the shearwater, KWP II shall:

5. Fund the construction and management of predator exclosures at an in-situ site in West Maui or East Maui, if deemed feasible based on DOFAW and Service feasibility criteria.

And, if additional mitigation is necessary to offset the impacts of Tier 1 take of the shearwater, KWP II shall:

6. Provide funding support for colony-based protection and productivity enhancement, at an in-situ or social attraction nesting area for Newell's shearwaters on Molokai or Lanai.

Proposed mitigation measures will offset the anticipated take of Maui Newell's shearwater by conserving Newell's shearwater on Maui and other Maui Nui islands, where species genetics and phenology are believed to be similar. The Applicant's mitigation projects will offset all take resulting incidental to the KWP II project with conservation actions that increase the overall population of Newell's shearwater on Maui Nui. In the absence of the Applicant's Makamakaole social attraction project or in-situ management of Newell's shearwater breeding sites in West Maui, the best available information indicates the West Maui Newell's shearwater population will be functionally extinct within 20 years (SWCA 2011a, Appendix 25, p. 12) as a result of predator impacts. The Applicant's social attraction and in-situ management of the Newell's

shearwater will not only offset all project-related take, it will increase the likelihood the Newell's shearwater will persist in Maui Nui.

Hawaiian Goose or Hawaiian goose

Species Background

The Hawaiian goose was federally listed as endangered under the Endangered Species Protection Act on March 11, 1967 (USFWS 2004). Although Hawaiian geese are capable of inter-island flight, they do not migrate from the archipelago. The Hawaiian goose was once widely distributed among the main Hawaiian Islands; the fossil record indicates the prehistoric (prior to 1778) range of the Hawaiian goose was much greater than what was observed after colonization by Europeans (Banko et al. 1999). After nearly becoming extinct in the 1940s and 1950s, the population has slowly been rebuilt through captive-breeding programs. As of 2009, wild populations of Hawaiian goose exist on the islands of Hawaii (457 individuals), Maui (416 individuals), Molokai (165 individuals) and Kauai (850 to 900 individuals) (USFWS & NRCS 2010).

The primary threats to the recovery of Hawaiian goose are: (1) predation by introduced mammals; (2) insufficient nutritional resources for both breeding females and goslings; (3) limited availability of suitable habitat; and (4) human-caused disturbance and mortality. In order for Hawaiian goose populations to survive, they must be provided with relatively predator-free breeding areas and sufficient food resources; human-caused disturbance and mortality must be minimized and genetic and behavioral diversity maximized. At the same time, Hawaiian geese are highly adaptable, successfully utilizing a gradient of habitats, ranging from highly altered to completely natural, which bodes well for the recovery of the species. The goal in the Service's "Draft Revised Recovery Plan for the Hawaiian goose or Hawaiian Goose (*Branta sandvicensis*)" is to enable Hawaiian goose conservation by utilizing a mix of natural and human-altered habitats in such a way that meets the life history needs of the species and promotes self-sustaining populations at or above recovery target levels. Hawaiian goose translocation is one recovery strategy because it helps establish and supplement existing populations, the strategy is not easily implemented because releases must occur at appropriate locations and in conjunction with predator control (USFWS 2004).

Estimated Take

A population of Hawaiian goose, Hanaula, occurs in the general project area of KWP I and KWP II (Day and Cooper 1999; Cooper and Day 2004a; KWP 2007a, 2008a, 2008b); the population increased 106 birds (DOFAW 2009a) to 138 birds in 2010. Hawaiian geese are not expected to nest at KWP II due to a lack of suitable nesting habitat. Hawaiian geese commonly fly at altitudes that are within the rotor surface zone of the KWP I and proposed KWP II WTGs, with most birds observed during daylight and crepuscular periods (SWCA 2011a).

While observations indicate that Hawaiian geese can see and avoid the WTGs, nine Hawaiian goose mortalities from wind turbine collisions have been observed at KWP I since June 2006. No take has been observed associated with met towers and overhead lines. After adjusting the observed direct take at KWP for the effects of searcher efficiency and carcass removal by scavengers, the estimated total direct take at this facility after five years of operation has been 12.8 birds. However, the take has not been evenly distributed over the years, 2011 was an abnormally high year for Hawaiian goose take with more than twice the take of any of the previous years. This has been attributed to the hydroseeding of a work area at KWP which attracted Hawaiian goose to feed in this area resulting in a greater number of collisions with the turbines in 2011. No future hydroseeding is expected in the coming years and based on the consequences observed, other alternatives will be implemented if erosion control is needed, to avoid attracting Hawaiian goose to the project area.

To calculate the expected rate of take at KWP II, the average rate of take at KWP is calculated based only on years 2007 – 2010 and results in an expected mortality 0.5 birds/year for all 14 turbines combined at KWP II (SWCA 2011a). The risk of take due to vehicular traffic is expected to be negligible because KWP II trains its staff to avoid such collisions, and the project road speed limit is 10 mph.

Hawaiian goose have an extended breeding season with eggs reported from all months except May, June, and July, and the majority of Hawaiian goose nest between October and March (Banko et al. 1999). Adult Hawaiian goose are most likely to collide with turbines and associated structures during non-breeding periods (May through July) or at the end of their breeding period when the adults and young fledglings may travel as family groups. For the purposes of estimating indirect take it is assumed that males and females each contribute 50% towards the average annual productivity. Indirect take to account for loss of dependent young will be assessed for adult Hawaiian goose only when mortality occurs during the breeding season (August to April).

The KWP II HCP also has 5-year and 20-year take limits, to account for the impact of taking many individuals within a short period of time. Exceeding the 5-year Tier 1 take limit within 5 years, or the 30-year take limit at any time will move the mitigation to a Tier 2 tier where additional mitigation measures will be implemented to address the impact.

Table 3. Authorized Take at Tier 1 and Tier 2 levels for the Hawaiian goose.

Tier	5-Year Limit	20-Year Limit
Tier 1	8 adults/immatures 1 fledgling	18 adults/immatures 3 fledglings
Tier 2	12 adults/immatures 3 fledglings	27 adults/immatures 3 fledglings

The Tier 1 and Tier 2 rates of take requested for take of Hawaiian goose over the 20-year period represents approximately 1.0% and 2.1% of the species' population, respectively. The higher take level over 20 years is 27 Hawaiian goose adults and three fledglings, 6.5% of the Maui's Hawaiian goose population and 20% of the local population established in the vicinity of the Hanaula. Because the Hawaiian goose has a high rate of fecundity and birds are long-lived, this significant loss of birds over the 20-year Permit period is not expected to result in a decline in the Hanaula population. Between 2009 and 2010, the Hanaula population increased from 106 birds (Medeiros 2009) to 138 (DOFAW 2010).

Mitigation

Mitigation for take will be provided through replacement by fledglings and adults by releasing family units into new a release pen where predators and vegetation in and around the pen are managed. Proposed mitigation will offset all take to compensate for project impacts. In addition, benefits of the construction of release pens will extend beyond the KWP II's management period. Therefore, we assume Maui's Hawaiian goose population will be higher, as a result of project implementation, than it would have been in the absence of the project. The HCP discusses the mitigation options in detail (KWP II 2011).

Hawaiian Hoary Bat

Species Background

The Hawaiian hoary bat was listed as endangered on October 13, 1970, under the Endangered Species Conservation Act of 1969. The Hawaiian hoary bat, which is endemic to Hawaii, is the only existing native terrestrial mammal from the Hawaiian archipelago. The Hawaiian hoary bat has been documented historically on the islands of Hawaii, Maui, Molokai, Oahu, Kauai, and possibly Kahoolawe. This bat is now resident only on Hawaii, Maui, and Kauai, with the largest populations probably on Hawaii and Kauai. There are no population estimates for the Hawaiian hoary bat and few historical or current records because no feasible method currently exists for surveying the abundance and distribution of solitary, tree-roosting bats such as the Hawaiian hoary bat. Unsubstantiated population estimates across the State have ranged from hundreds to a few thousand individuals. The Hawaiian hoary bat's distribution may be broader than indicated by the current limited information resulting from localized search efforts (USFWS 1998).

While detailed information is lacking, threats are assumed to be the same as those that threaten many bat species in general: (1) habitat loss (availability of roost sites); (2) mortality of breeding age adults coupled with slow reproductive rate; (3) collisions with vehicles and other structures; (4) pesticide use (either directly or by impacting prey species); (5) predation by native hawks and non-native feral cats; and (6) lack of prey

availability due to introduction of non-native insects. Because Hawaiian hoary bats roost in trees, roost disturbance is also a likely threat (USFWS 1998).

There are reported instances of bats becoming caught on barbed wire in Hawaii (Burgett 2009, pers. comm.; Jeffrey 2007, pers. comm.; Mansker 2008, pers. comm.; Marshall 2008, pers. comm.). Fences with a top strand of barbed wire can entangle Hawaiian hoary bats during daily foraging activities and during seasonal migrations. Entanglement generally results in mortality of the bat. For fences that have been monitored, estimates of bat mortality range from zero bats caught on a 44- mile fence at the Hakalau National Wildlife Refuge between 1987 and 2007, to twelve bats caught on a 2- mile fence at Haleakala Crater at Haleakala National Park for the period between 1986 and 2004 (Jeffrey 2007, pers. comm.).

In their Northern American range, hoary bats are known to be more susceptible to collision with wind turbines than most other bat species (Johnson et al. 2000; Erickson 2003; Johnson 2005). Most mortality has been detected during the fall migration period. Hoary bats in Hawaii do not migrate in the traditional sense, although some seasonal altitudinal movements occur. Currently it is not known how susceptible Hawaiian hoary bats are to turbine collisions, however; two Hawaiian hoary bat mortalities have been observed at KWP I in four years of operation, and one mortality at Kahuku Wind Power

Estimated Take

It is likely that only a small number of Hawaiian hoary bats utilize the general KWP II area. Bats are not expected to breed or roost in the project area due to an absence of trees. Bat mortality at KWP II is expected to be similar to the mortality rates occurring at KWP I. Activities that may affect the Hawaiian hoary bat in the proposed project area include construction and operation of turbines and the meteorological towers.

The potential for take of the Hawaiian hoary bat is believed to be low because of results from surveys conducted at KWP I and KWP II, the limited available information regarding the species occurrence on West Maui, and the apparent relatively low susceptibility of resident (versus migrating) bats to collisions with wind turbines in general. However, the occurrence of at least a few individuals in the project area has been documented, and one observed fatality has been recorded at the KWP I facility over four years of project operation (KWP 2008b). Because the implementation of low wind speed curtailment is anticipated to reduce take at KWP I and II by at least 70% (Arnett et al. 2010), an average observed direct take of 0.25 bats/year is estimated for all 14 turbines proposed at KWP II (SWCA 2011a). No bats are expected to collide with the meteorological tower because the structure is immobile and readily detectable by the bats through echolocation.

Hawaiian hoary bats breed between April and August (Menard 2001). Females are solely responsible for the care and feeding of young, and twin pups are typically born each year. Considering the life history characteristics of the Hawaiian hoary bat, indirect take is

estimated to be 1.8 juveniles per adult female for pregnant or lactating female bats found during the months of April through August. Additional information on determination of indirect take is available in the HCP (SWCA 2011a).

The number of dead bats found during monitoring will be used to reach an extrapolated level of total direct take that accounts for individuals that may not have been found because of searcher efficiency and carcass removal by scavengers (i.e. unobserved direct take). Based on the assumptions regarding unobserved direct take, any one Hawaiian hoary bat will lead to an assessment of total direct take four bats (based on expected results from take monitoring and subsequent adjustments for searcher efficiency and scavenging rates).

For this project, it is assumed that all Hawaiian hoary bats taken through unobserved direct take are adults and have a 50% chance of being female (based on the sex ratio of males to females during the breeding season). In addition, because bats most likely would be flying through the project area from April through November, spanning a period of eight months, the likelihood of a female bat having dependent young is assumed to be 13%. This is based on the information that Hawaiian hoary bats have one brood a year, and are expected to have dependent young one month out of the eight months (parental care of one month after birth; NatureServe 2008) present on site. Further, parental care is limited to June through September. Consequently, indirect take will be assessed to bats lost through “unobserved direct take” at the rate of 0.1 juveniles/bat ($0.5 \times 0.13 \times 1.8 = 0.12$).

Consequently, direct take of Hawaiian hoary bats could be up to four adult bats and indirect take up to two dependent juvenile bats in a year. The KWP II HCP also has 5-year and 20-year take limits, to account for the impact of taking many individuals within a short period of time. Exceeding the 5-year Tier 1 take limit within 5 years, or the 30-year take limit at any time will move the mitigation to a Tier 2 tier where additional mitigation measures will be implemented to address the impact

Table 4. Authorized Take at Tier 1 and Tier 2 levels for the Hawaiian Hoary Bat.

Tier	5-Year Limit	20-Year Limit
Tier 1/Requested	6 adults and 3 juveniles	6 adults and 3 juveniles
Tier 2	9 adults and 5 juveniles	9 adults and 5 juveniles

Although take of four adults and three juveniles or less per year is unlikely to have an adverse impact on the overall population of the Hawaiian hoary bat, the Tier 2 take level over 20 years could adversely affect the west Maui bat population. However, if the Tier 2 take level is reached, the mitigation proposed for the Tier 2 take level is likely to offset the take.

Mitigation

KWP II will implement recommendations by the Service and DOFAW for mitigation for the Hawaiian hoary bat by implementing habitat restoration to improve or provide additional roosting, breeding and foraging habitat for bats on Maui. KWP II will provide funding to DOFAW to fence and manage and monitor for bats at a distinct area within the Kahikinui project. A 338 ac subunit at Kahikinui has been identified as a suitable mitigation site. The fencing, ungulate removal and habitat restoration of Kahikinui is expected to take six years with a subsequent yearly maintenance of the habitat and fence line throughout the remainder of the 20-year Permit period. However, if sufficient partnerships can be secured to ensure management of the whole of Kahikinui, KWP II will contribute to a portion of the cost for overall management.

KWP II mitigation will increase the native forest habitat available on Maui to help support recovery of the Hawaiian hoary bat. Benefits of habitat restoration will benefit the species beyond the Permit term.

III. Public Comment

The Service determined that the HCP qualifies for an environmental assessment (EA) under the National Environmental Policy Act (NEPA), as provided by the Department of Interior Manual (516 DM2, Appendix 1 and 516 DM 6, Appendix 1). The EA was made available for public review through publication of a Notice of Availability of an EA and receipt of an application for a Permit published in the *Federal Register* on November 9, 2010 (75 FR 68821). The notice and supporting documents were mailed to agencies and private organizations with interest in the proposed action. Although publication of the notice initiated a 30-day comment period, the comment period lasted 60 days because a request for an extension of the comment period for an additional 30 days.

The Service received 38 comment letters in response to the notice for the proposed action during the public comment period. Two letters were from non-profit environmental organizations: Ahupuaa Natives (AN), and the American Bird Conservancy (ABS), two were from private citizens: James R. Smith (JRS), and Clifton M. Hasegawa (CMH), one was from the State Department of Hawaiian Home Lands (DHHL), one is from the National Park Service (NPS), and thirty-two are from undergraduate and graduate students of the University of Washington (UWS). Because some similar topics were submitted by multiple commenters, all substantive comments related to the HCP or EA have been summarized in Table 5 in tabular format by topic rather than by commenter:

Table 5. The Service Responses to KWP II Draft HCP/Draft EA Comments by Topic

#	Comment/Topic	Submitted By*	Response
General HCP Comments			
1	Is worried about the cumulative effects on the Covered Species, and urges HCP to require applicant to commit to long-term funding and research.	UWS	<p>Cumulative impacts to the Covered Species are discussed in Section 5.3 of the HCP. Because incidental take may not exceed established take limits, adequate monitoring of take levels will occur, and mitigation programs that aim to provide a net benefit to the species will be implemented, the Service concludes that the cumulative impacts will not jeopardize the continued existence of the Covered Species. Mitigation measures for seabirds and bats will be implemented through the life of the project while Hawaiian goose management will be continued by DOFAW ensuring a long-term commitment to all mitigation actions.</p> <p>The Applicant is providing funding to implement avoidance and minimization measures that the Service has determined are sufficient to reduce risk of take to low levels. The Applicant is not required to conduct research, but may fund research efforts as part of its mitigation.</p>
2	Urges HCP to require regular surveys to track the status of the Covered Species' populations.	UWS	Covered Species will be regularly monitored at the mitigation sites to ensure that mitigation measures are effective. Regular monitoring of Hawaiian goose and bats at the KWP II facility is also provided for in the HCP.
3	<p>(1) Wants to know if alternative designs for the wind farm were considered, and if so, why they were not mentioned in the HCP.</p> <p>(2) Questions why the HCP does not discuss the</p>	UWS	<p>(1) Alternative designs are discussed in Section 4.2 under "Project Alternatives."</p> <p>(2) According to the Applicant there is currently no commercially tested and proven vertical-axis wind turbine that compares with the proposed horizontal-axis technology in terms of power output, reliability, and commercial availability.</p>

	<p>reasoning behind choosing the type of wind turbine chosen as opposed to the other types. Suggests the consideration of vertical-axis wind turbines because they: (1) are configured to minimize bird-strike hazards; (2) utilize a significantly wider range of wind speeds; (3) produce significantly less sound; and (4) do not require guy wires. Finds vertical-axis wind turbines may be better suited for the project because they may better protect the Covered Species.</p>		<p>Meeting these criteria is essential for a project to secure financing, and to be commercially viable. We are not aware of any peer-reviewed studies that support the claim of lower risk for birds for vertical-axis turbines.</p>
4	<p>Wants to know if any location alternatives were considered, and if so, why they were not discussed in the HCP. Also wants to know why the proposed site was chosen, and why other alternative sites were not chosen.</p>	UWS	<p>This is discussed in Section 4.2 under "Project Alternatives."</p>
5	<p>Wants to know if there is data on the distribution of the Covered Species in the project area, and if so why the information is not in the HCP. Thinks this information should be included in the HCP.</p>	UWS	<p>Distributions of Covered Species on site are discussed in: Section 3.8.1.4 "Occurrence of the Hawaiian Petrel in the Project Area"; 3.8. 2.4 "Occurrence of Newell's Shearwater in the Project Area; 8.8.3.3 "Occurrence of Hawaiian goose in West Maui and the Project Area"; and 3.8.4.3 "Occurrence of the Hawaiian Hoary Bat in West Maui and the Project Area."</p>
6	<p>The HCP should include a cost-benefit analysis to show that KWP II is</p>	UWS	<p>This is addressed in the EA, as well as in the EIS prepared under HRS 343.</p>

	worth the harm to the environment.		
7	The details of exactly where the surveys that search for downed Covered Species take place should be Stated in the HCP.	UWS	This is included in Appendix 2.
8	The portion of the HCP that explains how unobserved take will be assessed is not clear. The details of the calculations used should be available to the public. The explanation of how indirect take is assessed is not clear.	UWS	In response to this comment, tables have been added to the HCP to better explain how both direct and indirect take is assessed.
9	The HCP does not discuss the impact of the project on traffic; impacts to traffic could be minimized if the project area is moved closer to the existing KWP I access roads.	UWS	The proposed project is located immediately adjacent to the existing KWP I access road. The two projects will share the same entrance from the public highway. This is discussed in sections 3.14.6 and 4.14.1.6 of the EA, and the Service has determined that the project will not significantly increase traffic flow during construction or operations.
10	The HCP does not consider the potential evolutionary damage that could be done to the Hawaiian goose, which has low genetic diversity, in the unlikely event that a larger number of individuals are taken within a short time frame such as a few weeks, months, or a year. The HCP needs to include this type of analysis in its discussion of cumulative effects as a precautionary	UWS	Five years of monitoring of the adjacent wind farm (KWP) suggests that high levels of Hawaiian goose take within a short time frame are not likely to occur. The KWP II HCP also has 5-year take limits, to account for the impact of taking many individuals within a short period of time. Exceeding the 5-year Tier 1 take limit will move the mitigation to a Tier 2 tier where additional mitigation measures will be implemented to address the impact. Analysis by the Service has determined that the structure of the proposed take tiers and the outcome of the proposed mitigation will be more than sufficient to conclude that Permit

	measure to make sure the project provides a net benefit to the species.		issuance does not jeopardize the continued existence of the Covered Species.
11	Wants the HCP to include an adaptive management plan.	UWS	Section 7.3 of the HCP summarizes KWP II's adaptive management program. Adaptive management is also mentioned as a critical component of KWP II implementation throughout the HCP. Because the adaptive management plan exists to address uncertainties and thus enables the Applicant to respond to new information and improve project implementation over time, the Service finds the summary in the HCP to be an adequate adaptive management plan.
12	Wants the HCP to explain why the temporary met tower is guyed rather than non-guyed because non-guyed results in less risk of harm to Covered Species.	UWS	HCP applicants are required to minimize and mitigate impacts to listed species to the maximum extent possible and ensure that their actions do not appreciably reduce the likelihood of the survival and recovery of an endangered or threatened species in the wild by reducing the reproduction, numbers, or distribution of such species. While the Service agrees that an un-guyed temporary met tower would be less of a collision hazard, we have determined that the combination of marking the guy wires to increase visibility, plus the short term duration of deployment of the one proposed tower (3 months) will not significantly increase the risk of collision to the Covered Species.
13	The HCP does not adequately discuss the project's impacts on the Hawaiian short-eared owl.	UWS	The short-eared owl is not a Federally listed species under the Endangered Species Act, and addressing the impacts to non-listed species in the federal HCP is not required. However, as it is protected under the Migratory Bird Treaty Act (MBTA), and is also a native species of significance to the Hawaiian people, mitigation measures to address possible impacts to the species have been included (See Section 6.6 of HCP).

14	Does not find the risk to Hawaiian goose from road activity negligible.	UWS	The Service agrees with the Applicant that the risk to Hawaiian goose from road activity is negligible because a speed limit of 10 mph will minimize the risk of vehicular collisions with Hawaiian goose. In addition, all staff and temporary personnel on site will go through the Wildlife Education and Observation Program (WEOP) which will increase the awareness of personnel on site about the Hawaiian goose and other Covered Species. The WEOP will educate them on the rules and precautions in place to protect the Covered Species when on site. The Service has determined that these measures are sufficient to minimize the risk to Hawaiian goose from road activity. To date there has been no documented take of Hawaiian goose due to vehicle collision at the KWP I facility.
15	The HCP fails to specify under what circumstances night construction and its associated lighting will occur.	UWS	Night construction is most likely to occur during pouring of foundations (which depend on delivery of concrete from off-site and cannot be interrupted once started), and at times when turbine rotors need to be hoisted into place and daytime high winds create unsafe conditions for workers and equipment. In such cases biological monitors will be stationed on-site to ensure lighting is directed downward and kept to a minimum, and any downed wildlife are immediately recovered for possible rehabilitation. Night-time work will not be conducted during the seabird fledging season (October-November).
16	There should be further analysis of the impact of noise on the Covered Species and how such harm may be minimized; finds the HCP's analysis and discussion of the impact of noise on the	UWS	The project site of KWP II is not heavily utilized by the Covered Species. The two Covered seabirds transit the airspace of the facility at night in small numbers. Hawaiian goose are expected to be infrequently present either in the airspace or on the ground and bat activity at the site is low.

	<p>Covered Species to be unacceptable. Warns that the high increase in noise may adversely affect the reproductive success of the Covered Species. Notes that humans have been adversely affected by wind turbines; Wind Turbine Syndrome causes headaches, dizziness, nausea, and tinnitus. The HCP should consider sound cancelling technologies, alternative turbine structures, and insulated blades.</p>		<p>Noise due to construction may temporarily displace Hawaiian goose from the KWP II site, but is not expected to have a significant impact on the ground movements of Hawaiian goose once the construction is completed. As most construction is expected to occur during daylight hours, construction noise is not expected to impact the nocturnal behavior of seabirds or the Hawaiian hoary bat flying through the airspace of the site.</p> <p>Sound analysis shows that the KWP II facility when operating will be in compliance with the State Department Of Health's DOH 55 dBA daytime limit, but may exceed the Community Noise Control Rule, Class A nighttime property sound level limit of 45 dBA (see section 4.6 of the EA). Given that seabirds only transit the airspace, it is unlikely that the increase in sound levels will impact the flight of the birds; these birds regularly fly over urban areas and lighting has been shown to be a significant source of disorientation, but sound has not.</p> <p>The Hawaiian goose is found in urban settings such as golf courses or near airports, and so are not expected to be affected by noise levels common around human-modified habitats. Similarly, bats have been known to forage in urban and rural areas in Hawaii and are not expected to be affected by noise levels common in human-modified habitats. In addition, ambient sound levels in the project vicinity commonly approach or exceed predicted sound levels from the project (FEIS at page 24 and page 53 of the EA).</p>
17	<p>There is some evidence to show that wind turbines influence the</p>	UWS	<p>The Hawaiian goose population in the vicinity of KWP I and KWP II is monitored regularly by State biologists</p>

	nesting patterns of bird species in near proximity. The HCP has not delved enough into the topic of nesting, and should be amended to include reviews of the nesting sites near the project area, proximity to turbines, and plans for dealing with potential disturbance.		and KWP I biologists. In addition, all staff and temporary personnel on site will go through the WEOP (Wildlife Education and Observation Program) which will increase awareness of personnel on site about Hawaiian goose and other Covered Species. The WEOP will include measures to follow if a Hawaiian goose nest is encountered and how best to minimize disturbance. A protocol for monitoring Hawaiian goose and their nests during construction is provided in Appendix 12 of the HCP. Seabirds do not nest in the area of KWP II; they only transit the area and thus there nesting behavior is not expected to be influenced.
18	The Service should undertake a more comprehensive review because the HCP is inadequate; the HCP stems from insufficient facts and is based on erroneous environmental analyses.	JRS	The Service has examined the EA and the HCP and determined that the avoidance, minimization and mitigation measures proposed are sufficient and Permit issuance does not jeopardize the continued existence of the Covered Species or result in significant impacts to Covered Species.
19	Finds the minimization and avoidance measures and the mitigation described in the HCP totally inadequate, defective, and deficient. Desires a plan that clearly shows that the Covered Species will not be impacted.	CMH	The Service examined the HCP in accordance with the Service's issuance criteria and determined that the avoidance, minimization and mitigation measures proposed are sufficient and that Permit issuance does not jeopardize the continued existence of the species. The take of each species will be offset by mitigation, and the mitigation should result in a net-benefit to each Covered Species.
HCP Biological Background Comments			
20	Bats will not be able to detect the turbine blades during the day when they operate at low speeds. The location of the windmills should not be decided until further	UWS	Bats are nocturnal and thus are not expected to be at risk of colliding with the turbines during the day. Anabat detectors have been deployed at multiple stations around KWP I and KWP II over the last several years. Bat activity is very low throughout the site and there is no

	research on the habitat distribution of the Hawaiian hoary bat has been conducted.		apparent pattern that would be relevant to micro-siting of the wind turbines.
21	Before committing to fencing of the poorly understood existing west Maui Hawaiian Petrel colony, the Service should conduct an evaluation that addresses the colony's geographic limits, estimates numbers of active nests or breeding birds, characterizes present threats, evaluates the potential to use terrain (e.g., slopes, ridges, etc.) to help "shield" proposed fences, and evaluates potential fencing challenges such as streams. Such an evaluation will ensure the fencing has the adequate potential to benefit the species.	NPS	<p>Service biologists and seabird biologists in the State of Hawaii have agreed that Makamakaole is an important site for Hawaiian petrels on West Maui. The site is used by approximately 75 petrels for courtship flight and a number of birds transit the area. Extensive dog-assisted searches have shown that although nesting attempts still occur in the area, none are successful and birds attempting to nest are likely to be subject to predation. The remaining petrel colony in West Maui is in decline and most likely scattered along inaccessible areas. The suggested evaluation has been carried out and described in the HCP. The Makamakaole project represents the most, and possibly only viable option to successfully protect Hawaiian petrels in West Maui.</p> <p>An alternate Hawaiian petrel nesting site at Haleakala National Park has been identified for management, in case Makamakaole is determined to be infeasible or if management needs to be conducted at more than one colony to meet the mitigation obligations of KWP II.</p>
22	Studies on the correlation between elevation and occurrence of hoary bats in the project area should be conducted.	JRS	Anabat detectors have been deployed along the elevation range of KWP II and KWP I, but detections from both sites combined have been so few that a quantitative analysis of the distribution of bat activity yields inconclusive results. It is therefore assumed that bats are equally distributed throughout the elevational range of KWP II. Results show that KWP II is situated in an area where bat activity is low, which is expected given that that roosting habitat is absent, due to

			the lack of trees on site. Bats prefer to feed along water courses and edges (Section 3.8.4.1) and these habitat features are not present at KWP II.
23	Studies on the impact that the turbines may have on the prey species of bats should be conducted.	JRS	<p>A recent study in England suggests that some insects may be attracted to wind turbines due to their white color. It has been hypothesized that this may in turn attract bats which subsequently collide with the turbines. This is one hypothesis among many to explain the susceptibility of bats to turbine collisions and is currently not proven. It is not known if insects in Hawaii will be attracted to turbines, or what the consequences will be if they are. However, the take estimates for bats at KWP II are based on the susceptibility of bats to turbines on the continental U.S. The resultant fatality rates measured on the continental U.S. do not discriminate between causes of fatality, thus they essentially account for bat fatalities due to all causes (both known and unknown). Therefore, based on best available science at this time, Hawaiian hoary bats may not be as susceptible to collisions as their continental subspecies.</p> <p>No available research to date has measured the impacts of wind turbines on insect populations. However, if new information demonstrates that wind turbines significantly impact the availability of insects to bats, mitigation measures for KWP II can be modified to address this effect as part of the adaptive management plan of this HCP.</p>
24	The relationship between elevation and Newell's shearwaters does not seem to be considered in depth. Also, their specific nesting locations have not been identified.	JRS	<p>Very few Newell's shearwater-like targets were identified in any of the surveys conducted in the KWP/KWP II area over the last several years. Insufficient numbers of targets have been detected to evaluate an elevational relationship. No Newell's shearwaters</p>

			have been visually detected over the site.
HCP Minimization Comments			
25	KWP II should place bird deterrents on and around the turbines. Suggests that KWP II use radar, noise making devices, colored flags, and colored fences to warn and discourage birds from flying through the area.	UWS	Thank you for your suggestion. However, the suggested deterrent methods are not known to be effective for the Covered Species. The airspace of KWP II is infrequently utilized by the Covered Species and while attempting to divert the Covered Species might reduce the risk of collision, these methods are as yet untested on the Covered Species and it is currently not known what methods will be. The Service has determined that the avoidance and minimization measures in the HCP are sufficient to reduce risk of take to low levels, and by establishing take limits, ensuring adequate monitoring of take levels, and implementing a mitigation program that will provide a net benefit, the results will be more than sufficient to conclude that Permit issuance does not jeopardize the continued existence of the Covered Species.
26	The HCP should require that the turbine blades be painted to deter wildlife collisions. Perhaps the Hodos scheme would be appropriate (Hodos et al. 2001); staggered black and white patterns that reduce motion smear and thus make it easier for birds to avoid collisions.	UWS	The Federal Aviation Administration (FAA) determinations issued for the project turbines specify that the turbines should be painted white for daytime visibility. We are not aware of any conclusive study demonstrating that blades painted with black-and-white patterns as suggested decreases bird collisions. Smallwood and Thelander (2004) found an increase in mortality for turbines with painted blade tips.
27	The Service should research whether there are any whistles that can be heard by birds and bats but not by humans. If so, these whistles could be placed on the turbine arms to reduce the risk of take. If a	UWS	Thank you for your suggestion. However, the suggested deterrent methods are not known to be effective for the Covered Species. The airspace of KWP II is infrequently utilized by the Covered Species and while attempting to divert the Covered Species might reduce the risk of collision, these methods are as yet untested on the Covered Species and

	whistle would not work, other types of sounds should be considered to deter birds and bats from colliding with turbines.		it is currently not known what methods will be effective. The Service has determined that the avoidance and minimization measures in the HCP are sufficient to reduce risk of take to low levels, and by establishing take limits, ensuring adequate monitoring of take levels, and implementing a mitigation program that will provide a net benefit, the results will be more than sufficient to conclude that Permit issuance does not jeopardize the continued existence of the Covered Species.
28	The Service should consider using ultrasonic repellents and programmed predator calls to deter birds from using the area.	UWS	Thank you for your suggestion. However, the suggested deterrent methods are not known to be effective for the Covered Species. The airspace of KWP II is infrequently utilized by the Covered Species and while attempting to divert the Covered Species might reduce the risk of collision, these methods are as yet untested on the Covered Species and it is currently not known what methods will be effective. The Service has determined that the avoidance and minimization measures in the HCP are sufficient to reduce risk of take to low levels, and by establishing take limits, ensuring adequate monitoring of take levels, and implementing a mitigation program that will provide a net benefit, the results will be more than sufficient to conclude that Permit issuance does not jeopardize the continued existence of the Covered Species.
29	(1) The Service should consider minimizing take of bird species with bird repellents modeled after those used at the Seattle-Tacoma International Airport (Sea-Tac). The techniques used by Sea-Tac deter birds from nesting and feeding	UWS	(1) The Service appreciates this comment, however; smoke will be ineffective because the Covered seabird species fly at night, and the Hawaiian geese are present very rarely. This also makes the manual methods ineffective. (2) The Service agrees that radar is a good way to detect birds and this technique has already been used to

	<p>around the airfield. Like Sea-Tac airport, the HCP should require KWP II to hire a biologist who could use a gun to fire deterrents such as smoke.</p> <p>(2) Radar is also a good way to detect the birds.</p>		<p>determine seabird passage rates over KWP II.</p>
30	<p>The Service should consider translocating seabirds to mitigation sites established with ungulate exclusion and predator control.</p>	<p>ABC, UWS</p>	<p>The Service appreciates your suggestion; it is currently not a mitigation option as translocation protocols are still under early development. It is also not known if populations on different islands are genetically distinct. However, in the future, translocation may be considered as part of adaptive management for Newell's shearwater as more information becomes available.</p>
31	<p>The HCP needs more methods for minimizing and avoiding take.</p>	<p>UWS</p>	<p>The Service appreciates this comment, but finds that the HCP includes sufficient measures to minimize and avoid take.</p>
32	<p>The location of the wind farm should be reconsidered because the present location has a high soil erosion potential which could leave major damage and make potential restoration at the site after closure very time consuming and expensive. Also, the project will cause erosion and Manawainui Gulch is not large enough to accommodate this runoff which means that flooding could occur. The wind farm should be built in an area with less soil erosion potential and less runoff potential.</p>	<p>UWS</p>	<p>The construction of KWP II will result in 3 acres of additional hardened surfaces. The remaining 40 acres of surfaces will be permeable (roads and turbine pads) or revegetated. The revegetation and restoration plan is presented in Appendix 8 and Section 6.7 of the HCP, and erosion control measures are addressed therein. The project is required by State and federal law to comply with stormwater and erosion control standards and the National Pollutant Discharge Elimination System (NPDES).</p>

33	<p>(1) KWP II should consider using low intensity lights, unless this is in violation of FAA regulations, rather than medium intensity flashing red lights.</p> <p>(2) Lights should automatically turn off due to time or lack of movement in the area.</p>	UWS	<p>(1) Medium intensity flashing red lights are required by FAA regulations.</p> <p>(2) Thank you for your suggestions, the following was added to Section 4.3.1 in the HCP and Section 2.1 of the EA as follows:</p> <p>“Because complete avoidance of risk to the four Covered Species is impossible under the Proposed Action, the Applicant has sought to avoid and minimize the risk of collisions to the greatest extent practicable by making the turbines less attractive, more visible, and/or more likely to be avoided by birds and bats. These measures include:</p> <ul style="list-style-type: none"> • Having minimal on-site lighting at the operations and maintenance building and substation, using fixtures that will be shielded and/or directed downward and only utilized on infrequent occasions when workers are at the site at night. In addition, timers, motion sensors and similar devices should be employed where feasible to minimize the risk of unintended light emissions. These three lighting measures will be used not only to minimize impacts to wildlife, but also to reduce the visual impact as viewed from local communities at night.”
34	<p>The HCP does not consider an alternative site that would have less of an effect on the Hawaiian hoary bat or the view.</p>	JRS	<p>The alternatives are examined in Section 3.8.4.3 of the HCP. The analysis concluded that the potential for impacts to the Hawaiian hoary bat was likely to be similar regardless of location. The effects of the facility on scenic resources is discussed in Section 4.7 of the EA. KWP II identified the Downroad site as its preferred alternative for a variety of reasons. This alternative provides a</p>

			greater separation from existing Hawaiian goose habitat, endangered plant habitat, and sensitive cultural resources, and would result in substantially less (>50%) ground disturbance. In addition, the Preferred Site stretches along the existing access road to Kaheawa Pastures has experienced more previous and ongoing human disturbance than the alternative site. Although KWP II will increase the number of turbines, the existing turbines have been very visible, and have been in place for more than five years. The existing turbines may not be visible from all of the locations from which the proposed KWP II turbines will be visible, but they already are a visual component of the valley and East Maui viewsheds.
35	Fences installed at colony sites should be cat and mongoose proof.	ABC	A predator proof fence (excluding all predators except for mice) will be installed at the mitigation sites for seabirds.
36	Will all of the colony fencing be marked to prevent bird collisions? Will those markers be sufficiently visible at night?	ABC	The fencing used for this project is highly visible to te birds. It has been used in a number of projects with gongeneric species in New Zealand, and no collisions have been reported.
37	A predator control fence should be built around the project area before construction is allowed to proceed to ensure the fence is timely built.	UWS	Predator control on site is considered Appendix 2 under "Search Intervals" where it is stated that "Should SEEF trials indicate that mean carcass retention times are less than 7 days, trapping may be conducted to depress scavenger populations and increase carcass retention times. All applicable Permits will be obtained." A predator proof fence will not be built around the entire project area. However, a predator proof fence will be built at the seabird mitigation site within one year of Permit issuance.
38	How much would it cost to underground the	ABC	According to the Applicant, undergrounding the line across the gulch

	overhead power line that crosses Manewainui gulch? If undergrounding the overhead power line is not feasible, firefly-type line markers should be used rather than ball markers. The existing transmission line should also be marked with fire-fly type line markers rather than ball markers.		is impractical due to the steep rocky terrain. Ball markers on overhead lines are proposed as they are longer-lasting than fire-fly type markers. Replacing the fire-fly type markers when they deteriorate on the collector line will not be practicable as they span Manawainui gulch which is 150-240 feet deep. Adding markers to the existing transmission line is impractical because it is not under the Applicant's ownership or control.
HCP Take Estimation Comments			
39	Wants a State biologist to routinely visit the site to search for and document take of Covered Species.	UWS	Funds have been provided for to implement State compliance monitoring (See Appendix 6 of HCP).
40	The projected take for the Hawaiian petrel is probably too low because the two radar studies provided by KWP II did not use vertical scan radar and relied on Hawaiian petrel flight altitudes from other Hawaiian studies. Because flight altitudes are topography dependent, they should not be extrapolated from studies done in other locations. A new radar study that produces actual flight height data should be conducted.	ABC	As noted in the draft HCP (see Figure 3.2 b in the HCP) the seabird traffic rates documented at KWP II are very low compared to other sites and therefore do not provide adequate sample sizes to obtain flight-altitude data. Because sample sizes are inadequate the Service accepts the use of the average flight altitude of petrels/shearwaters from throughout the Hawaiian Islands for modeling seabird fatality.
41	Because gulch terrain and sensitive plant species make it impossible to search for bird and bat carcasses in certain areas, take estimates are inaccurate and should not be	ABC	These inaccessible areas constitute approximately 5% of the total search area, and occur at the outer edges of search plots where fatalities are less likely to fall. Searching these areas is accomplished by visual scanning from adjacent, accessible areas, which results in a lower searcher efficiency than

	dismissed as "low."		searches conducted on foot. The Applicant has been advised to adjust all take estimates to account for the lower searcher efficiency in these areas. Adjusting for these areas will have only a fractional effect on total take estimates.
42	Suggest that the HCP incorporate the use of trained dogs that could weekly, if not daily, locate taken Covered Species.	UWS	Trained dogs or other methods may be used if proven effective and necessary. To date using working dogs in Hawaii has been difficult due to terrain and working conditions. The Service has examined the HCP and determined that the monitoring methods proposed are sufficient to determine take levels. Monitoring protocols are based on best available science. .
43	Vegetation control should include the entire 73 meter search radius of each tower to improve downed wildlife search efforts and timely salvage.	AN	KWP II search plots will have a 75 meter radius because that is 75% of the total turbine height. Vegetation control at search plots for KWP II is provided for in Appendix 2 under "Plot Maintenance" where it States "All search plots will be maintained as bare ground or short stature grass (less than 24") for the life of the project."
44	KWP II should implement predator control in both KWP I and KWP II to reduce scavenging and carcass removal.	AN, UWS	This measure is considered in Appendix 2 under "Search Intervals" where it is Stated that "Should SEEF trials indicate that mean carcass retention times are less than 7 days, trapping may be conducted to depress scavenger populations and increase carcass retention times. All applicable permits will be obtained."
45	(1) The frequency and intensity of KWP I search efforts are insufficient and thus the KWP II efforts will also be insufficient. (2) Surveillance for both KWP I and KWP II should be increased to provide accurate collision mortality data.	AN	(1) The search intervals for KWP I have been in substantial compliance with the HCP for the last three years. (2) The Service and the State are working with KWP II and will approve the final search protocol before the project is operational. A preliminary search protocol is proposed in Appendix 2. Adaptive management in the HCP allows for modification of the search protocols as circumstances dictate.

46	USFWS and DOFAW should participate in monitoring efforts, and only USFWS, DOFAW, or a third party should conduct the monitoring during the first few years to establish accurate mortality rates.	UWS	<p>In response to questions the Applicant has agreed to work with DOFAW and the Service to fund an independent one-year audit of the monitoring program. The Service supports this proposal. If changes are required the adaptive management provisions of the HCP allow for modifications to be made to the monitoring program,</p> <p>In addition, the Service has examined the KWP II HCP and determined that the monitoring methods proposed are sufficient to determine take levels, the requested take levels are sufficient, and the mitigation measures proposed will cover the requested take and Permit issuance will not jeopardize the continued existence of the Covered Species. A contingency fund for 3rd party monitoring at KWP II has been budgeted for and will be used if deemed necessary. The funding can be found in Appendix 6 of the HCP.</p>
47	Wants the HCP to better explain the present methods used to detect downed wildlife at KWP I because currently it is not clear whether the methods are effective.	NPS	<p>In response to questions regarding the effectiveness of monitoring methods used to detect downed wildlife, the Applicant has agreed to work with DOFAW and the Service to fund an independent one-year audit of the monitoring program. If changes are required the adaptive management provisions of the HCP allow for modifications to be made to the monitoring program.</p>
HCP Mitigation Comments			
48	Concerned about whether mitigation for listed seabird species will be implemented in a timely manner because KWP I has not made much progress in regards to seabird mitigation. Wants KWP I to be held accountable for their lack	UWS	<p>Please be assured that KWP I is being held fully accountable for progress on the seabird mitigation effort. KWP I made substantial progress in finding a previously unknown colony. Since discovery of the colony studies have been underway to address important questions about the suitability of the site and the best options for management and protection of the colony. The Service</p>

	of mitigation efforts; clear temporal objectives should be established for KWP II to ensure timely implementation.		believes it is important to proceed carefully to avoid unintended adverse effects on the colony, and to derive the greatest possible benefit from the management and protection measures.
49	Mitigation for different wind energy projects should not be combined.	AN	Mitigation for different Applicants may be combined under Service HCPs. In this instance, the Service finds that a combined effort allows resources and effort to be combined, which improves effectiveness of the seabird mitigation measures.
50	The Service should consider evaluating the applicant's past performance on completing mitigation steps for KWP I before it decides who should carry out mitigation for KWP II.	NPS	The Service has determined that KWP I is currently in compliance with their HCP.
51	Concerned with the timescale of KWP II; feels that adverse consequences will last for more than 20 years and thus mitigation responsibilities should last longer than 20 years even if the wind-farm shuts down at that time.	UWS	The Permit will expire after 20 years, at which time the project will need a new Permit in order to continue operating. At that time there will be a reconsideration of take and appropriate mitigation.
52	Feels that it makes more sense financially and biologically for KWP II's Hawaiian goose mitigation to focus on protecting the current population in the area rather than establishing new populations.	UWS	The Service has determined that supporting the establishment of other self-sustaining populations of Hawaiian goose on other islands, such as Molokai, is currently of greater priority. The protection of the current population at KWP II is no longer a mitigation option. However, contingency measures exist to translocate the existing population in the vicinity if the population starts to decline due to the operation of KWP II (see Section 6.4.5)
53	Mitigation resources for KWP I, KWP II, and	UWS	We agree that combining the efforts of the projects has many advantages.

	Kahuku Wind Power could be combined effectively.		Mitigation for the Covered seabird Species will be a combined effort of KWP I and KWP II. Mitigation for Kahuku Wind Power will not be implemented jointly, because impacts occur on a different island..
54	The HCP should address fire prevention through habitat modification. Certain endemic species are less prone to fires than invasive species and habitat modification would prevent fires and thus benefit the Covered Species.	UWS	Section 4.10.1 of the EA discusses the fire hazards in the KWP II project area and minimization and mitigation measures that will be in place to prevent the spread of invasive species and the fire prevention measures. Reintroduction of native plant species on a limited basis is included in the development plan for the project.
55	Proposes the Service explore using citizen science for mitigation; a method of inexpensive research and data collection that allows the public to volunteer and assist with the research and data collection.	UWS	Thank you for your suggestion.
56	Worried that KWP II will not deliver on its promised mitigation because the project has not adhered to the Service's Interim Guidelines to Avoid and Minimize Impacts on Wildlife from Wind Turbines.	UWS	The Guidelines are discussed in Section 4.3.2 of the HCP. All recommendations have been voluntarily adhered to by the Applicant to the extent practicable.
57	Suggests the Service consider implementing the higher take scenario plan for the Hawaiian goose even if lower take occurs.	UWS	Tier 2 take mitigation obligations are only necessary and will only be required if take is demonstrated to be occurring at those levels.
58	Encourages the HCP mitigation efforts to be directed towards Hawaiian goose captive	UWS	Mitigation efforts to off-set the incidental take of Hawaiian goose under the HCP will be directed to achieve the most benefit for the species; currently, captive

	breeding programs. Suggest the Service consider the criteria for success outlined by Griffin et al. (1989). Suggests the Service consider using Piihoho Ranch as a release site for captive bred Hawaiian goose.		breeding of Hawaiian goose is no longer a priority and the translocation of birds to establish new populations is being implemented. The release site will be determined by the Service and State biologist and will be located in an area considered to be the most effective and likely to succeed. Thank you for your suggestion, Piihoho Ranch will be evaluated with other options.
59	The Service should consider supporting predator control efforts at Hawaiian petrel colony sites in Haleakala National Park if such support is needed.	ABC	The Applicant proposes such efforts in Section 6.3.3.1 of the HCP.
60	Seabird mitigation should be done at the Makamaka ole site if possible. Hawaiian petrel mitigation should not be done only at Haleakala National Park.	ABC	Makamakaole is the preferred site at which mitigation will take place. Mitigation measures may be implemented at Haleakala National Park if mitigation at Makamakaole does not meet the mitigation requirement.
61	The seabird mitigation funding should be increased; 60% for Hawaiian petrel and 40% for Newell's shearwater is acceptable.	ABC	The funding estimates in the HCP are based on the estimated costs to accomplish the anticipated mitigation for each species. Differences in funding allocated for the two species result primarily from differences in mitigation opportunities for each species within the State.
62	Social attraction should not be viewed as sufficient for mitigation in the absence of full, timely implementation of more proven methods.	ABC	Under current conditions both Hawaiian petrels and Newell's shearwater are undergoing continuous population decline on West Maui and, without intervention, are likely headed towards extinction on West Maui in the near future (HCP Section 6.3.1.7). Social attraction is considered the most viable option for ensuring that both species continue to exist on West Maui and is also expected to fully mitigate for the requested take. Alternatives have also been developed in case the mitigation is

			insufficient to meet mitigation requirements, whereupon additional measures will be implemented at other sites (HCP Section 6.3.2).
63	Has removal of strawberry guava, lantana, or other invasive plants interfering with native fern habitat from seabird colony sites been considered as seabird mitigation? Does the Service find that such mitigation would be appropriate at Makamaka ole or the Kahikinui Forest Reserve?	ABC	Invasive vegetation currently does not limit seabird nesting habitat at Makamakaole or Kahikinui and is currently not considered a significant threat that needs to be addressed at either area. Thus, the removal of invasives at Makamakole or Kahikinui is not considered a high priority mitigation measure at this time.
EA Comments			
64	The EA should include Lahaina in addition to Maalaea in its discussion of socioeconomic characteristics in the Environmental Justice section.	JRS	<p>The Environmental Justice Executive Order was issued in 1994 for the purpose of protecting low-income and minority residents of the United States from disproportionate exposure to environmental and health hazards. The Service concurs with Section 4.12.1.1 in the EA which States that "The proposed project is not expected to result in significant environmental, human health, or economic impacts on surrounding populations. No persons or populations will be displaced as a result of this project. Furthermore, since the Proposed Action would benefit the local economy, including the low number of low-income and minority persons in Ma'alaea, these individuals will not experience a disproportionate share of the impacts of the project."</p> <p>Maalea is 2 miles from the project site and since Lahaina is approximately four times farther away (approximately 9 miles from the project site - based on a straight line distance) environmental justice analysis for Lahaina is not</p>

			considered necessary. No visual impact is expected at Lahaina (the project site cannot be seen from Lahaina) and no other significant environmental, human health, or economic impacts are expected for the resident population or its low-income and minority residents.
65	Wants the EA to discuss how the noise created by KWP II will affect wildlife.	UWS	The EA addresses the impacts of noise in Section 4.6.
General Comments			
66	(1) The seabird mitigation for KWP I should be implemented before KWP II is allowed to proceed. (2) The Service will set a dangerous precedent if it allows KWP II to proceed prior to the implementation of all mitigation required under the KWP I HCP.	AN	(1) This would be inconsistent with KWP II implementing seabird mitigation in cooperation with KWP I. Combining the mitigation for the two projects provides the opportunity to implement more beneficial protection measures over a longer time period, and has the greatest potential to benefit to the species. (2) KWP I has been implementing its mitigation in consultation with the Service and DOFAW, and the Service considers KWP I to be in compliance with the terms of the HCP.
67	The Service should consult with Al Manville, Senior Wildlife Biologist-Division of Migratory Bird Management, at the SERVICE in Arlington, VA because he is the Service's acknowledged expert on wind energy-related and other mortality sources for birds.	ABC	Service biologists involved with reviewing the KWP II HCP researched the issues with due diligence before reaching any conclusions. In addition, the Service acknowledges that wind energy-related mortality of birds is affected by numerous factors, including species and location; the risk created by wind energy facilities in Hawaii may not be analogous to similar facilities on the mainland.
68	The draft HCP and the draft EA should be revised to note that: (1) threats to birds are cumulative and KWP II adds an additional threat;	ABC	(1) Cumulative impacts are addressed in Section 5.3 of the HCP. (2) and (3) Section 5.2 of the HCP and 4.15 of the EA were adjusted to include the following information:

	<p>(2) take of birds protected by the ESA and the Migratory Bird Treaty Act (MBTA) may occur if KWP II proceeds; and (3) take of protected birds has occurred at KWP I.</p>		<p>No Covered Species were found downed or dead during the first year of construction and operation of the KWP project (Kaheawa Wind Power 2007a, 2007b). During the second through fourth years of monitoring, KWP documented observed direct take of three Covered Species, including three adult Hawaiian petrel, nine full-grown Hawaiian goose, and two Hawaiian hoary bats (Kaheawa Wind Power 2008b, 2008c, 2009). Other documented fatalities at KWP include three native bird species protected by the MBTA: the species are the Hawaiian short-eared owl, great frigate bird, and white-tailed tropicbird. Construction and operation of the KWP II project creates the potential for the Covered Species to collide with the WTGs, temporary and permanent met towers, overhead collection lines and cranes used for construction of the turbines. Native birds protected under MBTA birds, such as the great frigate bird, white-tailed tropicbird, and Hawaiian short-eared owl may also be at risk of collision with project associated structures.</p>
69	<p>The Service set bad precedent when it allowed the construction of KWP II to commence before the Permit was issued and mitigation sites were confirmed.</p>	ABC	<p>The decision to allow construction to commence was made by the State of Hawaii in response to the Applicant's request. The Service advised the Applicant and the State that listed species are at risk of colliding with turbines, met towers, and other project components. The Service further advised both the Applicant and the State of Hawaii that all relevant avoidance and minimization measures prescribed in the draft HCP should be implemented, including speed limits, the wildlife education and observation program, and the Hawaiian goose construction monitoring protocol, before construction proceeds. The</p>

			Service also believes that the types of activities being undertaken by the Applicant do not represent an irreversible or irretrievable commitment of resources.
70	Advises against supplementing and promoting Hawaiian goose breeding in the vicinity of KWP II and KWP I because it is difficult to move Hawaiian goose from inappropriate areas once they are established.	NPS	The Service acknowledges this concern. This mitigation measure has been removed from the HCP.
71	Allowing KWP II to move forward without first considering public comments undermines the purpose of public participation.	JRS	The public comment provisions of NEPA and the ESA have been followed and satisfied with respect to the EA and HCP.
72	The State of Hawaii has acted outside the boundaries of its authority.	JRS	The public comment provisions of NEPA and the ESA have been followed and satisfied with respect to the EA and HCP. The Service does not feel this comment is clear enough for the Service to respond further.
73	KWP II presents significant impacts and an Environmental Impact Statement is required. The significant impacts were likely not considered because a Finding of No Significant Impact was published in the Federal Register.	JRS	The Service has examined the EA and the HCP and determined that the avoidance, minimization and mitigation measures proposed are sufficient. A Finding of No Significant Impact was not published in the Federal Register for KWP II when the EA was published. The proposed action resulted in a FONSI explaining the determination of no significant impact. The provisions of NEPA and the ESA have been followed and satisfied with respect to the EA and HCP.
74	Commenter requests to intervene and requests that a contested case hearing be held. Commenter requests that the Service respond to his	JRS	This comment refers to contested case hearings under the Hawaii Administrative Procedures Act (HAPA), § 91-1 <i>et seq.</i> (2011). The Service is not an “agency” as defined by § 91-1, and therefore is not subject to HAPA.

	request for a contested case hearing. KWP II should not move forward until the Service determines the merit of the proposed development based upon evidence presented in a contested case hearing.		
75	It is unlikely that the bird and bat mortality studies associated with KWP I were carried out in accordance with the HCP.	ABC	In response to questions the Applicant has agreed to work with DOFAW and the Service to fund an independent one-year audit of the monitoring program. If changes are required the adaptive management provisions of the HCP allow for modifications to be made to the monitoring program.
76	The Memorandum of Understanding entered into by former Governor Linda Lingle on January 28, 2008, may have subverted the duty of the Service to act impartially as a check and balance to application of State power and the effect has been a nullification of administrative rule.	JRS	The Service did not enter into this State only process, and adhered to their Federal mandates. The provisions of NEPA and the ESA have been followed and satisfied with respect to the EA and HCP, and thus the Service has satisfied its lawful duties with respect to this project.
77	An offshore wind-farm is a good alternative to KWP II because it could create just as much if not more energy at a lower cost to the environment. Offshore wind-farms are successful in Denmark and the U.K.	UWS	The Applicant's stated purpose is to construct an on-shore wind farm; an offshore wind farm would not meet the Applicant's project purpose. The potential environmental impacts of an offshore wind farm may or may not be less than the proposed project.
78	Suggests that KWP II add solar panels to enhance project efficiency and only operate wind turbines during times of high wind to minimize take of	UWS	Thank you for your suggestion. Only using the turbines during times of high wind will decrease the efficiency of the facility.

	Covered Species.		
79	<p>Because there have been problems related to the implementation of the KWP I HCP, the Service should not provide KWP II with an Permit until: (1) questions about take are resolved; (2) the Hawaiian goose release pen near KWP I is relocated; and (3) seabird mitigation sites are firmly decided upon.</p>	ABC	<p>(1) Questions regarding take at KWP I are addressed through the adaptive management plan prescribed in the KWP I HCP and thus do not preclude the Service from issuing an Permit for KWP II. Over five years of monitoring by the Applicant indicate that take at KWP I is at or below permitted levels for all four Covered Species. Moreover, the Applicant has agreed to work with DOFAW and the Service to fund an independent one-year audit of the monitoring program to determine whether it must be improved in accordance with the adaptive management provisions of the HCP.</p> <p>(2) The presence of the release pen near KWP I does not increase the risk of Hawaiian goose collisions at KWP II because the pen is no longer being used for releases of new birds into the area. Although the pen is occasionally used to temporarily house rehabilitated Hawaiian goose taken from the area, before their release back into the local population, the Service finds the risk associated with this infrequent use to be negligible.</p> <p>(3) It is desirable for an HCP to identify alternative mitigation sites because it allows for flexibility in response to future conditions and species recovery needs, and allows for a wider range of adaptive management measures. The Applicant has conducted population modeling to determine the number of burrows it needs to protect to satisfy its mitigation responsibilities under the KWP II HCP. The Service has reasonable confidence that the various alternatives identified as mitigation options will be sufficient for KWPII to fulfill its mitigation obligations.</p>

*Comments submitted by:

ABC – American Bird Conservancy

AN – Ahupuaa Natives

JRS – James R. Smith

CMH – Clifton M. Hasegawa

NPS – National Park Service

UWS – University of Washington students

IV. Incidental Take Permit Criteria – Analysis and Findings

Section 10(a)(2)(A) of the Act specifically mandates that “no Permit may be issued by the Secretary authorizing any taking referred to in paragraph (1)(B) unless the Permittee therefore submits to the Secretary a conservation plan that specifies—(i) the impact which will likely result from such taking; (ii) what steps the Permit will take to minimize and mitigate such impacts, and the funding that will be available to implement such steps; (iii) what alternative actions to such taking the Permittee considered and the reasons why such alternatives are not being utilized; and (iv) such other measures as the Secretary may require as being necessary or appropriate for the purposes of the plan.”

16 U.S.C. § 1539(a)(2)(A). Section 10(a)(2)(B) of the Act mandates that the Secretary shall issue a Permit if he finds

“..after opportunity for public comment, with respect to a Permit application and the related conservation plan that – (i) the taking will be incidental; (ii) the Permittee will, to the maximum extent practicable, minimize and mitigate the impacts of such taking; (iii) the Permittee will assure that adequate funding for the plan will be provided; (iv) the taking will not appreciably reduce the likelihood of survival and recovery of species in the wild; and (v) the measures, if any, required under subparagraph (A)(iv) will be met; and he has received such other assurances as he may require that the plan will be implemented...”

16 U.S.C. § 1539(a)(2)(B). With regard to the specific Project, Permittee action, and section 10(a)(2)(B) requirements the Service makes the following findings:

1. The taking of federally listed species will be incidental.

The take of Covered Species within the project area will be incidental to the otherwise lawful construction and operation of a twenty-one megawatt (MW) wind energy generation facility, as well as monitoring activities to detect direct take including estimates of unobserved direct take.

2. The Permittee will, to the maximum extent practicable, minimize and mitigate the impacts of taking federally listed species.

The Service finds that the HCP minimizes and mitigates the impacts of take of the Covered Species from the construction and operation of the wind energy generation facility to the maximum extent practicable. The Service also finds that the HCP represents the most practicable alternative to minimize and mitigate the impacts to the Covered Species.

The Service Interim Guidelines to Avoid and Minimize Wildlife Impacts from Wind Turbines (Service 2004b) have been incorporated into the HCP. Under the provision of the HCP, KWP II sufficiently reduces the risk of take because of: (1) facility design; (2) facility location; (3) facility operation; (4) placement and design of lines; (5) marking guy-wires and towers; (6) restrictions on construction activities; (7) lighting plans; (8) pre-construction surveys; (9) re-vegetation plans; (10) wildlife monitoring; and (11) enforcement of on-site vehicular speed limits. These minimization measures are discussed in detail in the HCP and Biological Opinion which are incorporated herein by reference.

KWP II proposes to offset the risks of project-related impacts and provide a net conservation benefit in accordance with Hawaii State law to the Covered Species through the implementation of the HCP mitigation measures. These mitigation measures were selected in collaboration with biologists from the Service, DLNR-DOFAW, First Wind, and SWCA Environmental Consulting, and with members of the Endangered Species Recovery Committee (ESRC). Because mitigation will be adjusted to account for rates of take found to differ from Tier 1 levels, the HCP identifies mitigation for two levels of take: Tier 1 and Tier 2. The proposed tiered approach to mitigation was designed with adaptive management in mind because of the uncertainty and assumptions associated with models used to estimate impacts to Covered Species, and the ability of take monitoring to detect the rare collision events involving the Covered Species. Similarly, an adaptive approach is also proposed for the specific type of mitigation to be implemented for each of the Covered Species.

The following measures summarize the types of mitigation that KWP II proposes to fund under the HCP: (1) seabird colony management that includes fencing, predator eradication and control, and social attraction projects; (2) Hawaiian goose translocation and release, monitoring or habitat enhancement; and (3) Hawaiian hoary bat research, as well as habitat management and restoration. As with the minimization measures, these mitigation measures are discussed in detail in the HCP and Biological Opinion.

3. The Permittee will ensure adequate funding for implementation of the HCP and provide procedures for dealing with unforeseen circumstances.

Although the overall expenditure at the Tier 1 level of take of the Covered Species is not expected to exceed a total of \$3.16 million, the budgeted amounts are estimates. KWP II will provide assurances of the required conservation and mitigation measures for the Tier 1 level of take in full, even if the actual costs are greater than anticipated. Current or future funds allocated to a specific Covered Species may be re-allocated where necessary

to provide for the cost of implementing conservation measures for another Covered Species, and funding for any individual listed species is not limited to those amounts estimated in the HCP (KWP II 2011). To adapt to the needs of the project, funding that is allocated for one year may be spent early or saved for future expenditure. For practical and commercial reasons, such reallocation of funds among years may require up to 18 months lead time in order to meet revenue and budgeting forecast requirements. However, if reallocation between species or budget years is not sufficient to provide the necessary conservation, KWP II will nonetheless be responsible for ensuring that the necessary conservation is provided. The funding assurances are discussed in detail in the HCP.

Pursuant to the Service's "No Surprises" regulations [50 CFR 17.22(b)(5) and 17.32(b)(5)], the HCP includes procedures to address unforeseen circumstances. In the event of unforeseen circumstances affecting the Covered Species, KWP II will not be required to provide additional land, water, or financial compensation or additional restrictions on the use of land, water, or other natural resources beyond the level otherwise agreed upon for the species covered by the HCP without their consent and provided that proper implementation of the HCP has occurred.

4. The taking will not appreciably reduce the likelihood of the survival and recovery of the federally listed species in the wild.

KWP II's Permit application was reviewed by the Service under section 7 of the Act because the Service finds that the meeting of the Permit issuance criterion constitutes a finding of "not likely to jeopardize the continued existence of any endangered species or threatened species or result in the destruction or adverse modification of [critical] habitat of such species..." Section 7(a)(2), § 1536(a)(2). The Service's Biological Opinion concluded that the approval of KWP II's Permit application is not likely to jeopardize the continued existence of the endangered Hawaiian petrel, Hawaiian goose (Hawaiian goose), and Hawaiian hoary bat, and the threatened Newell's shearwater. This conclusion was based on the following factors:

The results of fatality modeling presented in the KWP II HCP (on pages 57-61) indicate that up to 29 adult and 14 nestling Hawaiian petrels are likely to be killed or injured by operation of the KWP II project. This impact, if not mitigated, is likely to reduce the west Maui Hawaiian petrel population by up to 2.5% and result in the loss of from 1.4% and 2.15% of the total Hawaiian petrel population on Maui. As much as one quarter of the breeding population of Hawaiian petrels may be on Maui with most of the Maui petrels nesting at Haleakala National Park (Simons and Hodges 1998). The results of fatality modeling presented in the KWP II HCP (on pages 57-61) indicate that up to 29 adult and 14 nestling Hawaiian petrels are likely to be killed or injured by operation of the KWP II project. This impact, if not mitigated, is likely to reduce the west Maui Hawaiian petrel population by up to 2.5% and result in the loss of from 1.4% and 2.15% of the total Hawaiian petrel population on Maui. As much as one quarter of the breeding

population of Hawaiian petrels may be on Maui with most of the Maui petrels nesting at Haleakala National Park (Simons and Hodges 1998).

Approximately 18,900 of the total range-wide 21,000, Newell's shearwater nest on Kauai. Tier 1 take (4 birds) under the KWP II HCP represents approximately 0.2% of the estimated range-wide Newell's shearwater population, and Tier 2 take (8 shearwaters) represents approximately 0.4% of the estimated range-wide Newell's shearwater population. KWP II Project-related mortality is likely to have a significant impact on the population of Newell's shearwater in west Maui, which is believed to be composed of as few as 30 breeding pairs (SWCA 2011a Appendix 25, p. 2). Loss of five adult and three fledgling shearwaters under Tier 2 represents a loss of approximately eight percent of the west Maui Newell's shearwater population. Genotypic and phenotypic differentiation between the Maui and Kauai shearwater populations are likely, based on the results of studies of Hawaiian petrel (Welch *et al* 2011; Fleischer pers. comm. 2011). If not mitigated, the proposed action is likely to contribute to the extirpation of the west Maui Newell's shearwater population and a reduction in the species' range. Although the proposed take authorization levels are likely to adversely impact the overall population of the Newell's shearwater on Maui Nui, the proposed mitigation projects are likely to offset those impacts and should increase the Newell's shearwater population in the long-term. Such an outcome is likely because although there is significant uncertainty regarding the outcome of each individual mitigation project, it is unlikely that, when taken together, the Newell's shearwater projects will fail to offset project take (Tier 1: four Newell's shearwater; Tier 2: eight birds).

Hanaula, in the vicinity of KWP II, is one of only two main breeding and flocking areas for the Hawaiian goose on Maui. Persistence of this population is therefore important for the recovery of the species (Marshall pers. comm. 2011). The most current statewide population estimate for the Hawaiian goose is between 1,300 and 1,500 individuals, with 416 birds on Maui (Annie Marshall 2010, pers. comm.). The 138 Hawaiian geese at the Hanaula site, immediately adjacent to the KWP II project site, account for approximately 25% of the Hawaiian geese known to occupy Maui, and 8% of the Hawaiian goose range-wide population of 1,300 birds. The Tier 1 and Tier 2 rates of Hawaiian goose take requested under the KWP II HCP over the 20-year period of the proposed Permit term represent approximately 1.0% and 2.1% of the species' population, respectively. The higher take level over 20 years for KWP II is 27 Hawaiian goose adults and three fledglings, which represents 6.5% of the Hawaiian goose population on Maui and 20% of the local population established in the vicinity of the Hanaula release pen. Because the Hawaiian goose has a high rate of fecundity and it is long-lived, this significant loss of birds over the 20-year Permit period is not expected to result in a decline in the Hanaula population. Between 2009 and 2010, the Hanaula population increased from 106 birds to 138 (Marshall, pers comm 2011). The proposed pen management mitigation program is likely to offset all take impacts from the KWP II project by increasing Hawaiian goose reproductive success and adult survival using methods known to be effective.

Because the abundance and distribution of the Hawaiian hoary bat throughout its range is not well known, it is difficult to gauge the effect that take of Hawaiian hoary bats resulting from the proposed project may have on the population of this species. The potential for take of the Hawaiian hoary bat is expected to be low based on results from on-site surveys, and the limited documentation of the species within west Maui. Although the proposed take authorization levels are likely to adversely impact the overall population of the Hawaiian hoary bat in west Maui, the proposed reforestation project is likely to offset those impacts and should increase the carrying capacity of the west Maui area for the Hawaiian hoary bat. Such an outcome is likely because forest restoration has been implemented successfully in similar settings.

Based on the proposed minimization, mitigation, and adaptive measures to offset take, and anticipated overall net conservation benefit to each Covered Species, it is the Service's biological opinion that Permit issuance for the proposed wind energy generation facility is not likely to jeopardize the continued existence of the Covered Species.

5. Other measures, required by the Director of the Service as necessary or appropriate for purposes of the HCP, will be met.

The KWP II HCP incorporates all other elements determined by the Service to be necessary for approval of the HCP and issuance of the Permit.

6. The Service has received the necessary assurances that the HCP will be implemented.

The memorandum of Understanding (MOA) between KWP II and the Service, and the potential for the Service to revoke the Permit will help to assure that the HCP will be implemented.

V. General Criteria and Disqualifying Factors

The Service has no evidence that the Permit application should be denied on the basis of the criteria and conditions set forth in 50 CFR 13.21(b)-(c).

VI. Recommendations on Permit Issuance

Based on the foregoing findings with respect to the proposed action, I recommend approval of the issuance of Permit number TE27260A-0 to KWP II for the incidental taking of the Covered Species in accordance with the KWP II HCP to the extent that their take will be a violation of the Act.

Date January 3, 2012

Richard Hannan

Deputy Regional Director **RICHARD R. HANNAN**
U.S. Fish and Wildlife Service
Region 1, Portland, Oregon

VII. References Cited

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