United States Department of the Interior

FISH AND WILDLIFE SERVICE

Pacific Islands Fish and Wildlife Office
300 Ala Moana Boulevard, Room 3-122
Honolulu, Hawaii 96850

DEC 2 1 2016

In Reply Refer To:
2017-TA-0059

RECEIVED
DEC 27 2016
WILSON OKAMOTO CORPORATION

Wilson Okamoto Corporation
1907 South Beretania Street, Suite 400
Honolulu, HI 96826
Attn.: Mr. Earl Matsukawa, Project Manager

Mr. Earl Matsukawa and representatives of Wilson Okamoto Corporation:

The U.S. Fish and Wildlife Service (Service) is providing this letter in response to your request for early consultation in relation an Environmental Impact Statement (EIS) Preparation Notice for a proposed lease of State of Hawaii waters in the Nahiku, Keanae, Honomanu and Huelo license areas of Maui, Hawaii, pursuant to Hawaii Revised Statutes Chapter 343 (HRS 343). This letter has been prepared under the authority of and in accordance with provisions of the Endangered Species Act (ESA) of 1973 [16 U.S.C. 1531 *et seq.*; 87 Stat. 884]. These comments are also consistent with the National Environmental Policy Act of 1969 [42 U.S.C. 4321 et seq.; 83 Stat. 852], as amended, and other authorities mandating the Service's review of projects and provision of technical assistance to conserve trust resources.

Proposed Action

The proposed action involves diversion of flows from 31 perennial streams on the north flank of the Haleakala volcano on the eastern section of Maui island, Hawaii (referred to subsequently as "East Maui"). These stream flows originate from four separate license areas running from east to west along the mountain as follows: Nahiku, with an area of approximately 10,111 acres; Keanae, with an area of approximately 10,768 acres; Honomanu, with an area of approximately 3,381 acres; and Huelo, with an area of approximately 8,753 acres. In aggregate, these license areas comprise approximately 33,013 acres, or 51.6 square miles, much of it covered in native rain forest vegetation and inhabited by hundreds of native species, many of them endemic to the island of Maui, and some listed as Threatened or Endangered under the ESA. The diverted stream flows will be captured by the existing East Maui Irrigation Aqueduct System (referred to

subsequently as the "EMI system"), which consists of 388 separate intake structures, 24 miles of ditches, 50 miles of tunnels, 12 inverted siphons, and numerous other small intakes, pipes and flumes. This system is owned by the East Maui Irrigation Company, Limited (EMI), a wholly owned subsidiary of Alexander & Baldwin, Inc. (A&B), and has operated in various forms since 1878 (Wilcox 1996).

This system is currently authorized to divert up to 80 million gallons of water per day (80 mgd) based on a one-year revocable permit approved by the State of Hawaii's Board of Land and Natural Resources (BLNR) on December 9, 2016. Through the proposed action, A&B now seeks to obtain a long-term 30-year lease pursuant to Hawaii Revised Statutes (HRS) 171-58c for the "right, privilege, and authority to enter, and go upon" the four lease areas noted above "for the purpose of developing, diverting, transporting and using government-owned waters." In addition, the proposed action will involve access to State of Hawaii lands in order to maintain and repair existing roads and trails used as part of the EMI system. It is proposed that the waters diverted from the 31 streams on East Maui will be used to irrigate 26,600 acres of agricultural lands in central Maui owned by A&B and formerly devoted to sugarcane plantation use through its subsidiary Hawaiian Commercial & Sugar (HC&S), as well as to maintain current service to the Maui County Department of Water Supply (which also supplies the Kula Agricultural Park). The applicant has agreed that the proposed lease will not allow diversion of water in excess of the amount allowed under a set of Interim Instream Flow Standards that are currently pending before the State Commission on Water Resource Management (CWRM).

As a condition of this lease application, A&B was instructed by the BLNR on April 14, 2016 to produce a Scope of Work for the preparation of an EIS pursuant to HRS Chapter 343, the State of Hawaii's environmental review law. This Scope of Work was submitted to the BLNR on June 9, 2016, and accepted by the Board on July 8, 2016, with a request that A&B proceed with the preparation of an EIS "in as expeditious a manner as possible." It is the notice of intent to prepare this EIS which has triggered the current request for early consultation with the Service.

Background

Construction on what would eventually become the modern EMI system began in 1876, and was basically complete by 1923. Throughout this progression of development the ditch systems were extended progressively eastward along the northern flank of Haleakala, eventually reaching their current most eastward terminus at Makapipi Stream near Nahiku. For the past 93 years, the EMI system has thus represented a highly integrated water catchment system that diverts the majority of stream runoff from the north side of Haleakala to the agricultural lands of central Maui. At this time the EMI system represents the largest privately owned water company in the United States, and its Wailoa Canal has a higher median flow than any natural river in the state of Hawaii (Wilcox 1996). The total delivery capacity of the system in its current configuration is 445 mgd, and during the period when the HC&S plantation was in operation the average daily delivery was 160 mgd. In addition to the EMI system, HC&S has also developed a set of

groundwater wells that can supply up to 144 mgd of additional water. In total, at maximum output, it appears that the water delivery system available to HC&S can therefore provide up to 590 mgd.

The EMI system was operated under long-term licenses for the four license areas mentioned previously until 1986, when the last of these leases expired. From that point onward, the State of Hawaii has issued the company one-year revocable permits for continued diversion. On May 14, 2001, A&B, the owner of the system, filed for a 30 year long-term lease in the four license areas. This action was opposed by a number of groups, who requested a contested case hearing on the matter, and establishment of Interim Instream Flow Standards (IIFS) for 27 of the 40 officially recognized streams lying within the license areas EMI is seeking to divert from. As a consequence of this, the BLNR deferred action on the long-term lease, but continued to approve the existing revocable permits in a "holdover" status on a month-to-month basis, pending resolution of the dispute, a practice that continues to the present time. The IIFS petitions, which are still pending before CWRM, have the potential to significantly influence the amount of water that the EMI system is allowed to divert from these license areas. The contested case hearing on the 30-year lease proposed by A&B has been in abeyance pending CWRM action on the IIFS petitions, and the completion of the proposed EIS under HRS 343, but will resume on January 9, 2017.

On December 9, 2016, A&B went before the BLNR for approval of their current holdover permit, asking permission to divert 100 mgd. After considerable public testimony and an executive session, the Board granted the holdover permit, but capped the allowed diversion at 80 mgd. This amount of water is half of the EMI system's historical median delivery volume when the HC&S plantation was in operation, and only 18 percent of the system's maximum delivery capacity. Significant questions thus arise regarding the future allocation of water previously diverted by this system to instream versus off stream uses; the license areas in which future diversions will occur; the total volume of water that will need to be diverted to serve the current and reasonably projected needs of Maui in the near term; the period of time over which such future diversions will be permitted before being re-evaluated; and the ecological consequences of these decisions.

Anticipated Impacts

The EIS Preparation Notice provided to the Service indicates that EMI intends to request a 30-year long term lease to divert 100 mgd for agricultural uses in central Maui, and to continue service to the Maui Department of Water Supply, which supplies drinking water to many of the island's citizens. The Service would note that the amount of diversion proposed is 20 percent in excess of that granted to A&B in the holdover permit approved by the BLNR on December 16, 2016. It is also five times more than the amount of water that A&B is currently taking from East Maui, according to its opening brief filed in October 2016 for the resumption of the IIFS contested case hearing for the 27 streams in the four license areas under consideration. In that

document, A&B states that it is currently diverting only 20-25 mgd, primarily for basic land maintenance uses including dust control and firefighting, that no diversions are occurring in the Nahiku or Keanae license areas, and that the previously diverted flow volume is now being returned to various streams in these sectors. Therefore, resumption of diversions at a rate of 100 mgd would represent a significant increase over currently prevailing rates, with associated ecological consequences.

The long history of stream diversions by the EMI system on East Maui has created an array of impacts to trust resources, including both the native stream biota, other species which inhabit the adjacent upland forests, and nearshore marine ecosystems that rely on streams for nutrient inputs. Several native stream-associated insect species occurring on East Maui water lease areas are now listed under the Endangered Species Act, specifically the damselflies *Megalagrion pacificum*, *Megalagrion nesiotes*, and *Megalagrion xanthomelas*, all three designated as Endangered. The first mentioned species breeds in stream pools and side channels, with adults patrolling the margins of the stream corridor, and therefore suffers direct impacts from loss of habitat linked to diminished stream flows. The breeding habitats of the second mentioned species are not known, but the adults also utilize the stream corridor, and are not present in areas where diversions have created dry streambeds in the place of a formerly flowing channel. The third mentioned species breeds in pools along stream terminal reaches, and although not currently known from windward East Maui, has the potential to occur there. Higher rates of diversion will therefore lead to higher rates of direct impact to all these listed species.

In addition, based on information provided in the EIS scoping packet and pertinent information in our files, including data compiled by the Hawaii Biodiversity and Mapping Project, there are 9 listed birds, 2 listed reptiles, 1 listed mammal, 7 listed insects, and 21 listed plants with final designated Critical Habitat within or near the vicinity of the license areas proposed for diversion. These listed species are as follows:

Birds	Status
Band-rumped storm-petrel (*Oceanodroma castro*)	Endangered
Crested honeycreeper (*Palmeria dolei*/'akohekohe)	Endangered
Hawaiian coot (*Fulicia alai*)	Endangered
Hawaiian duck (*Anas wyvilliana*)	Endangered
Hawaiian goose or nene (*Branta sandvicensis*)	Endangered
Hawaiian petrel (*Pterodroma phaeopygia sandwichensis*)	Endangered
Hawaiian stilt (*Himantopus mexicanus knudseni*)	Endangered
Maui parrotbill (*Pseudonestor xanthophrys*, kiwikiu)	Endangered
Newell's shearwater (*Puffinus auricularis newelli*)	Threatened

Reptiles	Status
Green sea turtle (*Chelonia mydas*)	Endangered
Hawksbill sea turtle (*Eretmochelys imbricata*)	Endangered

Mammals	Status
Hawaiian hoary bat (*Lasiurus cinereus semotus*)	Endangered

Insects	Status
Blackburn's sphinx moth (*Manduca blackburni*)	Endangered
Flying earwig Hawaiian damselfly (*Megalagrion nesiotes*)	Endangered
Orangeblack Hawaiian damselfly (*Megalagrion xanthomelas*)	Endangered
Pacific Hawaiian damselfly (*Megalagrion pacificum*)	Endangered
Yellow-faced bee (*Hylaeus anthracinus*)	Endangered
Yellow-faced bee (*Hylaeus assimulans*)	Endangered
Yellow-faced bee (*Hylaeus longiceps*)	Endangered

Plants	Status	Critical Habitat Unit
Bidens campylotheca ssp. *pentemera*	Endangered	Montane Wet 2
Bidens campylotheca ssp. *waihoiensis*	Endangered	Lowland Wet 1
Clermontia samuelii	Endangered	Lowland Wet 1, Montane Wet 2
Cyanea asplenifolia	Endangered	Lowland Wet 1
Cyanea copelandii ssp. *haleakalaensis*	Endangered	Lowland Wet 1, Montane Wet 2
Cyanea duvalliorum	Endangered	Lowland Wet 1, Montane Wet 1, Montane Wet 2
Cyanea hamatiflora ssp. *hamatiflora*	Endangered	Lowland Wet 1, Montane Wet 2
Cyanea horrida	Endangered	Montane Wet 2, Montane Wet 2
Cyanea kunthiana	Endangered	Lowland Wet 1, Montane Wet 2
Cyanea maritae	Endangered	Lowland Wet 1, Montane Wet 1
Cyanea mceldowneyi	Endangered	Lowland Wet 1, Montane Wet 1, Montane Wet 2
Cyperus pennatiformis	Endangered	Coastal 4
Geranium hanaense	Endangered	Montane Wet 2
Geranium multiflorum	Endangered	Montane Wet 2
Huperzia mannii	Endangered	Lowland Wet 1, Montane Wet 1
Ischaemum byrone	Endangered	Coastal 3
Melicope hallii	Endangered	Lowland Wet 1, Montane Wet 1
Melicope ovalis	Endangered	Lowland Wet 1
Peucedanum sandwicense	Threatened	Coastal 1
Phyllostegia pilosa	Endangered	Montane Wet 1
Wikstroemia villosa	Endangered	Montane Wet 2

Among the major threats to the survival in the wild of the two listed forest bird species is mortality caused by avian malaria, which is vectored by the introduced mosquito *Culex quinquifasciatus*. This mosquito species breeds in stagnant pools free from fish in dewatered stream beds, and is by contrast uncommon along stream channels with continuous flow and healthy fish populations. By converting continuously flowing streams into nearly dry beds with scattered small pools, the current EMI diversions thus create corridors of habitat by which *Culex* mosquitoes can penetrate uphill more deeply into the native forest, and more readily reach susceptible native forest bird populations. This represents a significant, although indirect, impact of the proposed diversions to this set of listed species.

The Service therefore has a clear interest in addressing the amount of future water diversion proposed for East Maui, the license areas in which it will occur, and the impacts to native ecosystems and species that may result from the continued operation and maintenance of the EMI system. The native forest habitat becomes progressively more extensive and of higher ecological integrity as one moves eastward from the Huelo and Honomanu license areas and into the Keanae and Nahiku areas. The native species richness in the stream communities follows a similar west-to-east progression. Therefore, diversions from the Nahiku and Keanae license areas are likely to be of higher impact to ESA-listed species, and native Hawaiian plant and animal species in general, than are diversions from the Huelo and Honomanu areas.

Discussion Points

The Service strongly recommends that the following topics, listed individually below, be thoroughly evaluated in the context of the proposed EIS.

Duration of Lease – The EIS should evaluate multiple temporal alternatives in regard to the length of the proposed lease, in relation the following:

1) Although A&B projects significant growth in diversified agriculture on its newly-abandoned sugarcane lands over the next 30 years, the Service would note that large expanses of former sugarcane plantation lands on Oahu that were idled over 20 years ago remain fallow, despite their close proximity to an affluent urban market that would drive demand for diversified crops. To expect a different result on Maui, where transportation costs to potential markets are higher, at least in the near term, seems unlikely. Therefore, the EIS should evaluate alternative 5, 15 and 30-year lease scenarios, in terms of their environmental costs and benefits, and consider the likely rate at which alternative agricultural enterprises are likely to become established on fallowed sugarcane lands.

2) Projected changes in climate over the next 30 years in the Hawaiian Islands indicate the likelihood of a drier overall precipitation regime, with rainfall occurring more episodically. Because such predictions have a modest degree of uncertainty at this time, it will best serve the interests of adaptive management for the State to grant a shorter lease

period than is currently being requested, which will allow more regular assessment of evolving societal demands and ecological impacts. Once again, the Service recommends that multiple lease length alternatives be analyzed in this regard.

Amount of Water to be Diverted – The EIS should examine in detail the current level of water diversion in the EMI system, the environmental impacts of diversion, and the subsequent uses of the diverted water, including the following:

1) The degree of loss that is sustained through seepage along the system as a whole or in its various components. The EIS should identify those individual ditches or structures with the highest seepage rates, and whether these can be repaired, bypassed, or retired from service in order to render the diversion more efficient, and reserve the maximum amount of water for aquatic ecosystems and their associated native species.

2) The environmental impacts of alternative diversion volumes, including the current volume of 25 mgd as stated in the recent A&B contested case opening brief, a higher volume of 50 mgd that is double the current rate, the 80 mgd currently mandated by the BLNR, and the 100 mgd proposed by A&B. The impacts assessed should include the degree to which the diversion structures may represent barriers to upstream or downstream faunal passage of native Hawaiian fishes and other migratory stream biota.

3) The actual uses to which the diverted water is being put, and the reasonably foreseeable changes in such demand over varying time spans, as discussed above in regard to diversified agriculture. The Service maintains that proposed amounts of stream diversion should not be predicated on speculative future use at the expense of current ecosystem services and integrity, but should instead be fully justified based on robust data and economic models. If future demand justifies additional off-stream diversion, the current law allows A&B to petition CWRM for further allocations of water at any point in the future. By contrast, the Service does not support locking in excessive off-stream allocations for prolonged periods of time in advance of proven demand. The Service notes that natural resources are defined as a public trust under Article 11, Section 1 of the State of Hawaii Constitution, and that the State Water Code (HRS 174C) specifically mandates that public trust uses such as minimum instream flows for ecological integrity and traditional cultural practices must be fully addressed before off-stream allocations can be granted. The Service also notes that under HRS 174C, agricultural diversions are not considered a public trust use. As stated by the Hawaii State Supreme Court in its Waiahole Ditch decision of August 22, 2000: "Although its purpose has evolved over time, the public trust has never been understood to safeguard rights of exclusive use for private commercial gain."

4) The degree to which water from other sources available to A&B, specifically pumped wells, can be substituted for water diverted from streams, thus significantly reducing impacts to stream ecosystems. With its currently installed well capacity of 145 mgd, it appears that all current and future uses projected by A&B could be served by these sources, and the use of well water should thus be considered as an alternative.

Lease Areas Subject to Diversion – The EIS should evaluate whether diversions from particular water lease areas will have higher environmental impacts than diversions from others:

1) As noted previously, on the whole the Keanae and Nahiku lease areas support a greater extent of native forest and streams with higher levels of native biodiversity than do the Huelo and Honomanu license areas. Therefore, the EIS should examine alternatives that involve curtailing diversion from either one or two of these lease areas.

2) The EIS should evaluate the comparative environmental impacts and benefits of fully restoring flow to some stream systems while completely diverting others, versus restoring some level of base flow to all streams impacted by the EMI system.

Impacts to Federally Listed Species and their Recovery – The EIS should evaluate in detail the potential direct and indirect impacts to federally listed species of plants, birds, bats and insects occurring in the four water license areas on windward East Maui, including:

1) The direct effects of stream flow reduction or restoration on native *Megalagrion* damselflies, and whether the proposed diversions will impede the recovery of these species.

2) The indirect effects of stream flow reduction or restoration on native forest birds, and whether additional diversion rates above those currently prevailing will result in additional risk to these populations.

3) The degree to which current and future maintenance activities necessary to keep the EMI system functional will impact ESA-listed plants, birds or bats.

Summary

In summary, the Service recommends that the EIS consider the following alternatives:

1) Alternative leasing periods shorter than that currently proposed, including 5, 15 and 30 years.

2) Alternative diversion volumes less than that currently proposed, including 25, 50, 80 and 100 mgd.

3) Alternative use of pumped well water in place of diverted stream water.

4) Alternative geographical diversion scenarios in regard to particular water lease areas, including termination of diversions from the Nahiku and/or Keanae water lease areas.

The Service also recommends that the EIS make specific reference to how the proposed diversions may affect federally listed plant, bird, bat and insect species occurring in the four water lease areas under consideration.

The Service also notes that if there is a federal action agency funding, permitting, or assisting in the implementation of this project, we recommend in addition to compliance under HRS 343, that the agency consult with the Service to address potential project impacts to listed species pursuant to section 7(a)(2) of the Endangered Species Act. If there is no federal action agency associated with the project, but impacts to listed species cannot be fully avoided, the project should coordinate with the Service directly pursuant to section 10 (a)(1)(B) of the Endangered Species Act.

The Service appreciates the opportunity to comment on this EIS Preparation Notice. If you have any questions regarding this letter, please contact Fish and Wildlife Biologist Dan Polhemus by telephone at (808) 792-9415 or by electronic mail at dan_polhemus@fws.gov, or alternately Fish and Wildlife Biologist Michelle Bogardus by telephone at (808) 792-9473 or by electronic mail at michelle_bogardus@fws.gov.

Sincerely,

FOR Mary M. Abrams, Ph.D.
Field Supervisor

cc:
NMFS
EPA
DAR

References:

Bassiouni, M. and Oki, D. S. 2013. Trends and shifts in streamflow in Hawaii, 1913-2008. Hydrological Processes 27: 1484-1500.

Chu, P. S. and H. Chen. 2005. Interannual and interdecadal rainfall variations in the Hawaiian Islands. Journal of Climate 18: 4796-4813.

Hamilton, K. 2013. High resolution dynamical projections of climate change for Hawaii and other Pacific Islands. University of Hawaii, Honolulu, HI. Available from: https://www.sciencebase.gov/catalog/item/54b82e9ee4b031f52703e95e

State of Hawaii Commission on Water Resource Management. 2016. Case No. CCH-MA13-01. Hawaiian Commercial and Sugar Company's opening brief regarding re-opened evidentiary hearing; certificate of service. 18 pp.

Wilcox, C. 1996. Sugar Water. Hawaii's Plantation Ditches. University of Hawaii Press, Honolulu. xii + 191 pp.