

## MEMORANDUM

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**TO:** Dennis Saito  
Tesoro Hawaii Corp.

**DATE:** October 2, 1998

**FROM:** Joan Duffield *J.Duffield*  
ENTRIX, Inc.

**SUBJECT:** *Survey Results of Adult Wedge-tailed Shearwaters (Puffinus pacificus) at Kilauea Point, Kauai National Wildlife Refuge*

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Wedge-tailed shearwaters are a common pelagic seabird found in the Hawaiian Islands. Wedge-tailed shearwaters feed during the day primarily by contact dipping, that is, they fly close to the surface, plunging their head and neck several inches under the surface in pursuit of prey such as larval forms of goatfishes, mackerel scad, flying fish, squirrelfish and flying squid. Wedge-tailed shearwaters also feed from the surface while in a sitting position. During the parental care period of the breeding season, adults return to colony to feed the young after sunset and leave before sunrise.

Due to the foraging habits and daily patterns of this species, Beth Flint of the U.S. Fish and Wildlife Service (USFWS), raised concerns that the extent of oiling on wedge-tailed shearwaters had gone undetected. To address this potential issue, a nocturnal survey of adult wedge-tailed shearwaters was conducted on September 21, 1998 at the Kilauea Point as part of the pre-assessment activities for the SPM Hose Tesoro Spill.

The colony at Kilauea Point was surveyed from approximately 1900 to 2200 by six biologists, including Joan Duffield (ENTRIX) and Wendy Sangiacomo (International Bird Rescue Research Center) from the Tesoro Spill Response Team, and four local biologists (Kathleen Viernes, Christen Melger, Carolyn Moody, and Doug Spinner). Participation of the trustees was requested through Beth Flint (USFWS) and Tom Alexander (Kilauea Point refuge manager), however, due to their time constraints and lack of personnel, they were not able to provide any biologists. Nonetheless, they verbally approved the field effort, as the collection of this data was time critical.

There were five survey areas which included the following: 1) Visitor's Center/ironwood to Naupaka; 2) north of West Cove to the albatross sign; 3) east of the lighthouse; 4) west of the lighthouse; and 5) the west slope to the Visitor's Center. There were three teams of two biologists censusing a sampling area. The census in each sampling area was limited to no more than 30 minutes to avoid extensive disturbance to the birds. Thus, all adults and/or burrows in a survey area were not surveyed. Although the birds were not marked, the two surveyors in the sampling area made every attempt to avoid double counting.

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The adults were either sitting inside or outside the burrows. For those birds outside the burrow, the individual was caught by hand. For birds inside the burrow, the adult was either grabbed by the bill or rump area, depending on the bird's orientation in the burrow, and gently pulled from the burrow. While in the biologist's hand, each bird was examined over its entire body (plumage, feet and bill) for any evidence of oiling. After examining the bird, the bird was returned to the location where it was captured. In the event that a surveyor collapsed a burrow, the burrow was quickly dug out to rescue any chick that could have been buried. The burrow was then re-excavated, and if there was a chick, it was returned to the re-contoured burrow.

A total of 399 adult wedge-tailed shearwaters were examined for oil. These included 108 adults in the area from the Visitor's Center/ironwood to Naupaka; 18 adults in the area north of West Cove to the albatross sign; 10 adults in the area east of the lighthouse; 64 adults in the area west of the lighthouse; and 169 adults in the area from the west slope to the Visitor's Center. None of the birds examined had any evidence of oiling.

Based on the absence of oiling on the 399 adult wedge-tailed shearwaters examined on September 21, 1998, the need for additional surveys at this colony is probably not warranted, especially when considering the disturbance to the colony. If further assessment of the extent of oiling on this species is necessary, these surveys should be conducted at other colonies on Kauai and/or Oahu.