PROJECT ABSTRACT

State the objectives, specific aims and the significance of the project, and describe the methodology used to achieve these goals. Avoid summaries of past accomplishments. The abstract is meant to serve as a succinct and accurate description of the work when separated from other portions of the proposal. Do not exceed the space allowed; 10 pt. font and single-spacing is allowed for this section only. Do not use abbreviations in the title.

P.I. NAME and AFFILIATION: James T. Harvey

FUNDING AMOUNT REQUESTED: $22,511.00

PROJECT TITLE: Quantifying health parameters of Northern Fulmar (Fulmarus glacialis) to improve Procellariid rehabilitation

Abstract:

The Northern Fulmar is one of the most abundant Procellariid species in the world, and individuals are commonly observed in offshore California waters during winter months. Despite its abundance, baseline health parameters such as body condition indices and blood parameters including packed cell volume, total protein, and blood glucose, commonly used to diagnose health of birds submitted to rehabilitation facilities, are lacking. Reference value ranges among these basic parameters of population health are needed to diagnose individual health of birds submitted to rehabilitation facilities, to aid in assessing response to treatments while in rehabilitation, and to determine the potential for successful release. Fulmars are frequently injured during oil spills along the California coast, especially in winter, and are also subject to periodic large-scale die-offs. Fulmars were the second most numerous seabird killed in both the M/V Kure oil spill in Humboldt Bay in 1997 and the Point Reyes Tar Ball incidents in 1997-98 (i.e., S.S. Luckenbach). Most recently, a mass stranding of fulmars during November 2007 in Monterey Bay was complicated by two concurrent events: the M/V Cosco Busan oil spill in San Francisco Bay and the Santa Cruz Mystery Spill. Rehabilitation protocols were modified to accommodate the increased numbers of affected fulmars, and efforts ultimately resulted in a greater release rate (33%). However, the post-release success, and ultimate efficacy of the adjusted rehabilitation protocols remain unknown.

We propose to utilize existing data from the rehabilitation of fulmars acquired during bird stranding events, mass die-offs, and oil spills to compare treatment protocols and assess relative success (e.g., post-rehabilitation release rate). Further, we will compile existing hematological data from individuals that underwent rehabilitation, and compare these with hematological parameters from wild fulmars in Monterey Bay, California. We also will assess diet among wild fulmars by collecting regurgitations, and obtain body condition indices including body mass, external morphological measurements, and fat scores. We hypothesize that body condition indices including body mass are highly variable, particularly during winter months in Monterey Bay, California. Because fulmars surface-forage over wide ranges, they likely experience periods of low food availability regularly and have adapted to being periodically anemic, whereas diving birds (e.g., Common Murres) rely on greater packed cell volume for diving and foraging. Therefore, we also expect that blood values typically used to diagnose health in rehabilitation do not compare well with the normal range observed in wild fulmars. By developing baseline reference ranges of health parameters including body condition and hematological values of fulmars, we will improve rehabilitation protocols for procellariid seabirds and refine the “window of opportunity” for successful rehabilitation and release criteria for fulmars.

To accomplish this, we will work with regional rehabilitation centers to obtain archived data for analysis. We will also conduct four separate capture trips to sample fulmars in Monterey Bay, California from October 2008 to March 2009. We aim to sample over the course of the winter season, and therefore will sample 20 fulmars during each trip, to obtain a total of 80 samples. We will collect blood, external measurements, and diet samples from individual birds, and release the captured seabirds shortly after sampling.