MARINE MAMMAL STUDY NUMBER 6

Study Title:Assessment of Magnitude, Extent, and Duration of Oil Spill Impacts on Sea Otters

Lead Agency: USFWS

PROJECT JUSTIFICATION

The major NRDA studies on sea otters included: (a) estimates of distribution and abundance through aerial and boat surveys; (b) estimates of reproductive rates, survival rates and documentation of sea otter movements; (c) recovery of carcasses in the spill zone to determine age and evaluate patterns of mortality; (d) toxicology and pathology work such as histological examination of tissue samples, necropsy of several hundred carcasses, and analysis of blood, fat and milk for hydrocarbon content; (e) standard clinical evaluation of blood samples to determine the health/physiological status; (f) determination of prey species and collection of samples for hydrocarbon analysis; and (g) modeling work to estimate numbers of otters exposed to oil and population recovery.

Injury to sea otters resulting from the oil spill included 1,011 dead sea otters recovered from within the spill zone. A synthesis of loss estimates suggests that between 3,500 and 5,500 sea otters may have died from acute exposure to oil. Chronic injury to sea otters may result from either sublethal initial exposure and continued exposure to environmental hydrocarbons. Preliminary findings of the Coastal Habitat and Shellfish NRDA studies have identified elevated levels of hydrocarbons in intertidal and subtidal sediments and in several species of benthic marine invertebrates eaten by sea otters. Continuing injury is indicated by significantly higher numbers of prime age sea otter carcasses being recovered in comparison to pre-spill in western Prince William Sound and continued declines in sea otter abundance in oiled areas. Post-weaning pup mortality in the winter of 1990-91 was significantly higher in western Prince William Sound than eastern Prince William Sound. Significant differences in blood parameters were detected for adult males between eastern and western Prince William Sound; results suggest systemic hypersensitivity reactions in males sampled in western Prince William Sound.

A preliminary report of results has been prepared for this study but comprehensive data synthesis and analysis have not been completed.

The preparation of a final report will be essential for understanding the injuries the spill caused to sea otters. If

this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource.

	BUDGET ($K)
Salaries	$ 127.2
Travel	0.0
Contractual	50.0
Commodities	0.0
Equipment	0.0
Other Non-Contractual	0.0
Subtotal	$ 177.2
General Administration	22.5
Total	$ 199.7