

AVILA BEACH OIL SPILL SOUTHERN SEA OTTER RESTORATION PLAN

**U.S. Fish and Wildlife Service
California Department of Fish and Game
Office of Spill Prevention and Response**

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Introduction

The rupture of a Union Oil Company of California (Unocal) pipeline near Avila Beach, San Luis Obispo County, California, on August 3, 1992, caused a discharge of approximately 600 barrels of San Joaquin Valley crude oil. The oil flowed along a gully, down a cliff face into a small cove and eventually entered the Pacific Ocean. The spill resulted in contamination of valuable natural resources both in the water and on several beaches in the area. Prior to the spill, this rocky portion of the coastline near San Luis Obispo, California existed in a relatively natural condition with no history of marine spills.

Unocal, along with several State and Federal agencies, responded to the spill by placing booms around some of the small beaches and temporarily closing Avila, Olde Port, and Pirates Cove beaches due to a persistent sheen on the water and tar balls on the shoreline. It was estimated that approximately 180 barrels of spilled oil were recovered during the cleanup operations.

The United States Fish and Wildlife Service (Service) and the California Department of Fish and Game (CDFG) are the Natural Resource Trustees (collectively the "Trustees") designated or authorized pursuant to the Oil Pollution Act of 1990. Additionally, the CDFG is the Trustee for fish, wildlife, and their habitat under State Law. As Trustees for natural resources, the Service and CDFG act on behalf of the public to assess injuries to natural resources following an oil spill and are charged with developing and implementing restoration plans to restore injured resources.

The Unocal discharge directly affected Service and CDFG trust resources including five federally-listed threatened southern sea otters (*Enhydra lutris nereis*) and 11 federally-listed endangered California brown pelicans (*Pelecanus occidentalis*). Approximately 73 marine birds from six species other than brown pelicans died following the spill and were either recovered as carcasses on the beach during spill response or died later at wildlife care centers. In addition, approximately 10,000 State-owned king salmon (*Oncorhynchus tshawytscha*) being reared near the spill site developed vibriosis (a bacterial infection) as a result of the spill. The indirect impacts from the spill include long-term adverse effects to the intertidal and subtidal ecosystems from residual oil.

Unocal and the State of California signed a State Settlement Agreement in November 1994 and a parallel Consent Decree was signed by the Federal government in March 1996. These agreements stipulated that Unocal would pay \$1.4 million to the Trustees to fund natural resource restoration projects. The Consent Decree and State Settlement Agreement specified that \$100,000 of the total settlement would be spent on sea otter restoration. The Service was designated the lead Trustee for developing and implementing that portion of the settlement.

Purpose

The purpose of this restoration plan is to evaluate and select the preferred restoration alternatives for the injury that occurred to the southern sea otter due to the Avila Beach oil spill. These restoration actions are being conducted under the authority of the Oil Pollution Act of 1990 (33 U.S.C. 2701 et seq.) and the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act (Government Code 8670.1 et seq.). The goal of the Oil Pollution Act is to make the environment and public whole for injuries to natural resources and their services resulting from the discharge of oil. This goal is consistent with the goal of the Lempert-Keene-Seastrand Oil Spill Prevention and Response Act, which is to fully mitigate the injury caused to wildlife, fisheries, wildlife habitat, and fisheries habitat through implementation of restoration projects and to make the public whole for lost use and enjoyment of natural resources and public beaches caused by the discharge of oil into marine waters. These goals are achieved through the implementation of restoration alternatives that restore, rehabilitate, replace, or acquire the equivalent of injured natural resources.

Sea Otter Recovery

After the listing of the southern sea otter as a federally threatened species under the Endangered Species Act of 1973, as amended (Act), the Service developed and later revised the Draft Southern Sea Otter Recovery Plan (Recovery Plan) (Service 1996). The overall goal of the Recovery Plan is to manage the sea otter so that its population fully recovers, and therefore, would not require continued protection under the Act.

The southern sea otter population currently contains about 2,278 individuals. The southern sea otter population had, until recently, been growing at an annual rate of 5 to 7 percent. Annual surveys now indicate that the growth rate has slowed and in some years the growth rate has been static or negative. If the growth rate had continued at or above the 5 to 7 percent increase annually, the southern sea otter could have met delisting criteria as early as 1999. However, because population growth in recent years has been slower than expected, it is now unlikely that recovery will be achieved so soon (Estes 1990).

According to the Recovery Plan, the threats to this species and its recovery are habitat degradation (including oil spills and other environmental contaminants), low population growth rate, and human take (including shooting, entanglement in fishing gear, and harassment). A major oil spill poses the largest single threat to the long-term recovery and viability of sea otters in southern California (Service 1996).

Proposed Alternatives

To support the goal of sea otter restoration, as outlined in the Avila Beach Oil Spill Consent Decree, the Service has developed a set of proposed restoration alternatives. These alternatives can be classified as: direct on-site; indirect on-site; and no action. Direct on-site alternatives are

the preferred type of restoration. These types of alternatives occur within the affected population and are aimed at benefitting the target species directly. Indirect alternatives can benefit the target species by reducing other species' impacts to the target species or enhancing species upon which the target species depend. The no action alternative compels the species to attempt to recover naturally, that is without human intervention. The Trustees have considered four direct on-site alternatives, one indirect on-site alternative, and a no action alternative. The following is a brief synopsis of these alternatives.

Direct on-site

Sea Otter Rehabilitation Program: The goal of this alternative is to rehabilitate orphaned or injured sea otter pups for their eventual release into the wild. Funding would be provided to support an existing program at the Monterey Bay Aquarium (MBA) specializing in the rehabilitation of sea otter pups. Sea otter pups found stranded on California beaches would be brought to the MBA and cared for until they are considered rehabilitated to the point where they are able to survive in the wild.

Baseline Health Studies:

Part I: Baseline Health Studies on Southern Sea Otters and Comparison to Otters Injured in the Avila Beach Unocal Spill: The goal of this alternative is to enhance the survivability of oiled sea otters following future oil spills by comparing health data from normal sea otters with data from oiled sea otters. Scientists would accomplish this objective by generating baseline health information such as contaminant loading, blood chemistry, and immunological functions from wild otters. The information gained from this restoration alternative would be used to help the resource management agencies to begin to ascertain why this population is growing so slowly. Resource management agencies can then develop additional management recommendations to enhance the long-term viability of these sea otters and eventually help remove them from the endangered species list.

Part II: Analysis and Comparison of Existing Blood Samples for Polycyclic Aromatic Hydrocarbons by Enzyme Linked Immunosorbent Assay and Gas Chromatography Mass Spectroscopy: By refining the blood hydrocarbon testing methodology, the resource management agencies would be able to evaluate the impact that oil from natural seeps and human spills have on the southern sea otter population. This can be effectively done by developing a rapid, simple, and inexpensive assay that would determine if a sea otter has been exposed to oil and is in need of cleaning. This assay also would be able to determine if oil and subsequent hypothermia contributed to a sea otter's death.

Genome Resource Banking: The goal of this alternative is to support current recovery efforts and prepare for the recovery of the southern sea otter following a catastrophic oil spill. The Genome Resource Bank (GRB) Program was established to replace and potentially restore the genetic diversity lost from the wild sea otter population from disasters such as oil spills. The

GRB is a systematic collection of biological materials stored in appropriate long-term storage media. Germplasm (genetic material) is lost to a population when individuals die. This loss of genetic diversity can be moderated by impregnating animals with germplasm that has been previously collected and appropriately stored. The GRB can be used to store germplasm without removing animals from the wild. The funding sought through this proposal would be used to fund the initial aspects of the program. Additional funding would be sought to complete the project.

The work performed under the GRB Program would consist of behavioral studies, hormone assays, and semen collection and evaluation. The overall objective of this program is to correlate behavioral observations of captive animals with blood hormone levels. A behavioral observation program would be initiated to monitor reproductive behavior in captive California sea otters that would parallel studies carried out at two other aquaria exhibiting Alaskan sea otters. In addition, endocrine status (steroid production) would be monitored on a sub-set of otters over a year to assist in defining reproductive cycles. The definition of reproductive cycles would support another component of the program which would focus on developing and refining methods for semen collection, processing and cryopreservation.

Establish the Factors that Affect Survivability of Wild and Rehabilitated Sea Otters: This effort would aid restoration efforts by providing information on what affects the baseline or natural rates of mortality in wild southern sea otters. This information then would be compared with survival data from otters that have been rehabilitated and released. Currently, the behavior of released pups, their adaptation to the wild, and their subsequent survival, including causes of mortality, are poorly understood. By gathering baseline data on what affects the survivability of wild otters and comparing it to the fates of rehabilitated orphaned sea otter pups released in central California, researchers would be able to effectively evaluate the success and value of the rehabilitation program. If the success rate of rehabilitated sea otters is low, researchers may be able to use the information obtained from the wild animal studies to develop a rehabilitation program which releases more otters that integrate into the population and successfully reproduce. This proposal calls for the capture, tagging, release and monitoring of up to 30 wild caught southern sea otters and several rehabilitated and released sea otters. The exact number of rehabilitated and released otters would be a function of the number of otters brought to the Monterey Bay Aquarium for care.

Indirect On-site

Education: The goal of the education alternative is to increase the reproductive rate of sea otters by reducing the level of human disturbance. This would be accomplished through a variety of methods aimed at different target audiences. Information would be made available to local commercial and sport fishermen and divers about the ecological value of sea otters in the coastal ecosystem and actions they can take to avoid unintentional impacts to sea otters from fishing activities. Tourists, private boaters, kayakers, and others would be made aware of the potential deleterious effects their actions may have on sea otters and alternative ways they can continue to recreate and enjoy viewing otters while minimizing or eliminating these impacts.

No Action

Under this alternative, no action would be taken to restore, rehabilitate, replace, or acquire the equivalent of sea otters injured as a result of the Avila Beach oil spill. Selection of this alternative would provide no information to managers about why the southern sea otter population is growing so slowly. In addition, this alternative provides no benefits to the public or the injured southern sea otter population from the settlement in this case. In contrast, all other alternatives may provide tangible benefits to the southern sea otter thereby moving it closer to recovery.

PREFERRED ALTERNATIVES

Evaluation Criteria

The merits of each restoration alternative presented above were considered in relation to the following criteria as established in the Natural Resource Damage Assessments; Final Rule (15 CFR Part 990): 1) extent to which each alternative is expected to meet the trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensate for interim losses; 2) likelihood of success of the alternative; 3) extent to which each alternative will prevent future injury as a result of the incident, and avoid collateral injury as a result of implementing the alternative; and 4) the cost to carry out the project. Furthermore, the Trustees are required to select the most cost-effective of two or more equally preferable alternatives. The table below shows which criteria each potential alternative satisfies.

	Criteria 1	Criteria 2	Criteria 3	Criteria 4
Sea Otter Rehabilitation Program	X	X		X
Baseline Health Evaluation: Part I	X	X	X	X
Baseline Health Evaluation: Part II	X	X	X	X
Genome Resource Banking		X		
Evaluation of the Factors That Affect Survivability of Wild and Rehabilitated Sea Otters	X	X		X
Education	X	X		X
No Action				X

Using the criteria in the Final Rule in combination with an evaluation of which alternatives provide the most cost effective direct benefits to the injured southern sea otter population, the Trustees selected the following restoration projects: Baseline Health Evaluation: Part I and II; and Evaluation of the Factors That Affect Survivability of Wild and Rehabilitated Sea Otter.

The Sea Otter Rehabilitation Program was the pre-designated restoration project for otters in the Consent Decree (Attachment A), and it met three of the four evaluation criteria. However, this project was not selected as a preferred alternative by the Trustee Council because the only potential implementing organization, the Monterey Bay Aquarium, does not presently have a rehabilitation program.

The alternative, Establish the Factors That Affect Survivability of Wild and Rehabilitated Sea Otters was selected over the Education alternative because it is an on-site alternative that provided more direct benefits to the injured population.

BASELINE HEALTH EVALUATION - Part 1

BASELINE HEALTH OF SOUTHERN SEA OTTERS AND COMPARISON TO OTTERS INJURED IN THE UNOCAL AVILA BEACH SPILL

Justification: The Draft Southern Sea Otter Recovery Plan released in June 1996 and draft reports from the National Wildlife Health Center (NWHC) in Madison, Wisconsin, have identified problems that are slowing the recovery of the southern sea otter (Thomas and Cole 1996). In recent years population growth, especially at the extreme ends of the range, has been slower than many researchers believe appropriate (Estes, 1990), in some years it has been static. Since 1992, the California Department of Fish and Game (CDFG), the Service and the NWHC have cooperated on intensive studies of sea otter health and mortality. These agencies have identified unusual diseases and parasites that are causing significant mortality in sea otters. Between 1992 and 1995, five percent of sea otters necropsied at NWHC died from disseminated coccidioidomycosis (San Joaquin Valley fever), a systemic fungal infection (Thomas and Cole 1996). Ten percent died from protozoal encephalitis and 21 percent died as a result of invasive acanthocephalan (thorny headed worm) infestation. The first two diseases are usually seen only in people or animals with reduced immunologic function, and the later parasite, while present in sea otter populations for many years, has only recently been documented to cause mortalities in large numbers of animals. Over the last five years, approximately 40 percent of sea otters necropsied by NWHC have died of infectious diseases, a level unprecedented for free-ranging marine mammals (Thomas and Cole 1996). However, experts do not know if this rate of infectious disease is unnatural or a threat to the recovery of the southern sea otter.

An unusual mortality event occurred in Monterey Bay during the summer of 1995 when 14 female sea otters died within a two week period. This alternative will allow management agencies to better understand this type of phenomena and the prevalence of diseases that potentially limit population numbers. This alternative also affords the opportunity to further characterize the immune response of sea otters, something that has not been accomplished to date.

The objectives of the 1992 Avila Beach sea otter injury determination study were to investigate whether the patterns of sublethal organ damage seen in Alaska otters also occurred in sea otters in California. The study focused on evaluating external or internal signs of exposure to oil such as

damage to the liver, kidney, hematopoietic or immune system, and to determine if these effects were cumulative, especially when combined with other toxins. A complete characterization of baseline values in southern sea otters was needed to make comparisons with the southern sea otters potentially injured by the Unocal Avila Beach spill. The data generated by this alternative will provide the necessary information to make these kinds of comparisons.

Studies conducted in Alaska after the Exxon Valdez oil spill indicated that in addition to immediate and lethal effects, otters sustained adverse sublethal effects as a result of exposure to oil (Ballachey *et al.* 1994). Sea otter mortality patterns shifted from predominately young and old age individuals to include prime age animals and pup survival also was likely reduced. Changes in length to body weight ratios and elevated levels of haptoglobins and interleukin-2 in blood of river otters from areas of Prince William Sound exposed to oil suggest oil also caused sublethal effects on their inflammatory and immune system (Duffy *et al.* 1994). Oiled and rehabilitated Alaskan sea otters suffered from severe acute anemia, but approximately 60 days after cleaning these otters appeared to be near normal. Although petroleum hydrocarbons can cause immediate formation of Heinz bodies in red blood cells and subsequent hemolysis, their effect on bone marrow precursor cells was not explored (Leighton *et al.* 1983). Additionally, the effect of petroleum exposure on acute phase inflammatory products such as fibrinogen and haptoglobin is unclear.

Sea otter specific reagents, recently developed by the International Marine Mammal Immunology Program at University of California, Davis under CDFG's Office of Oil Spill Prevention and Response (OSPR) funding, including anti-IGG, anti-CD3 (universal T-cell marker), anti-CD-11b and anti-CD 18 (universal leukocyte markers), anti-MHC class II (B-cells and monocytes markers), and an IL-6 bioassay will be used to determine immunologic function in white blood cells of captured southern sea otters to establish baseline health information. These new reagents, combined with existing laboratory technologies, will allow the determination of the numbers of all classes of white blood cells in sea otters, the responsiveness or function of all types of t-lymphocytes, and provide an indirect measure of b-cell function (immunoglobulin electrophoreses).

The proposed study will generate baseline health information important to southern sea otter recovery efforts, may help explain a die-off of southern sea otters in Monterey Bay in 1995, will allow the testing of immunologic reagents recently developed on samples from free-ranging animals, and will provide samples for comparison to those taken after the Avila Beach oil spill.

Several areas of investigation (e.g., clotting and immunologic studies) go a step beyond what was done following the Exxon Valdez oil spill and beyond that which has previously been done to establish baseline health data on southern sea otters. This type of work may be helpful in exploring potential reasons for the apparent slow growth rate of southern sea otter populations which may be due, in part, to immune suppression and exposure to unusual pathogens. In addition, this work adds to a body of scientific data that will assist biologists working on southern sea otter recovery to determine whether health problems may limit potential recovery and

delisting of this species. For these reasons, the study will include taking samples from at least 20 adult male sea otters and 10 adult female sea otters from the Monterey Bay area. To the greatest extent possible, the capture and sampling of otters in this effort will be coordinated with the effort in the other alternatives.

Proposed Action: OSPR has the appropriate federal and state permits to capture and take blood samples from up to 30 southern sea otters. Each sea otter captured will be aged and sexed, visually inspected for general health and evidence of external oil contamination and tested by enzyme-linked immunosorbent assay (ELISA) for polycyclic aromatic hydrocarbons (PAH) in fur. The ELISA test is made by swabbing the otters fur with a cloth disk that is used to test for the presence of PAHs. Sterile blood samples will be obtained from the femoral vein using two 35cc syringes and a 1 inch 20 gauge needle. The blood will be split into five additional tubes. The hematopoietic system will be evaluated with a complete blood count and a clotting panel. These data will assist in evaluating the health of this and several other organ systems. Blood hydrocarbons will be determined from a subset of samples.

The packed white blood cell fraction available after centrifugation will be frozen so they remain viable for future evaluation of lymphocyte subpopulations. In addition, mitogens will be used to determine the responsiveness at key lymphocyte subpopulations. Some indications of sublethal and cumulative effects of oil and other stressors on the immune response of Alaskan sea otters, including the outbreak of a herpes viral disease, suggest that this key organ system may have been affected by petroleum exposure.

Whole blood mercury, cadmium, and lead levels will be determined at the University of California, Davis or commercial laboratories. Serum will be saved to test for antibodies that may suggest exposure to coccidioidomycosis, leptospirosis, morbiliviruses, herpes viruses and other organisms of interest.

Budget:

CBC, serum chemistry, clotting panel \$100 x 30 samples	\$3,000
Immunologic evaluation \$300/sample x 30 samples	\$9,000
Blood hydrocarbons \$600/sample x 20 samples	\$12,000
Surface hydrocarbons \$40/sample x 30	\$1,200
Disease serology \$200/sample x 40 samples	\$8,000
Heavy metals \$70/sample x 20 samples	\$1,400
Minor equipment and supplies \$110 x 30	\$3,300
Travel, lodging/per diem, boat use	\$2,100
Total	\$40,000

Matching Funds:

Provided by CDFG-OSPR

Wages: one week (Diver, boat driver, veterinarians (2) and technician).	\$4,800
data analysis, report and publication	\$900
5 staff days of veterinarian, follow-up observations, 5 staff days boat crew (2)	\$1,400
Drugs, transponder chips, tags and supplies (not covered in budget)	\$950
Additional disease serology (not covered in budget)	\$320
Total	\$8,370

BASELINE HEALTH EVALUATION - Part II**ANALYSIS AND COMPARISON OF EXISTING BLOOD SAMPLES FOR PAH'S BY ELISA AND GCMS**

Justification: At the present time, the only way to quantify the amount of petroleum hydrocarbons absorbed by an animal (either for medical triage, treatment, or for Natural Resource Damage Assessment (NRDA)) is to assay blood or tissues by Gas Chromatography Mass Spectroscopy (GCMS) (Jessup *et al.* 1996). This is a cumbersome (full laboratory needed), expensive (\$1000/sample), and lengthy procedure (weeks to months) and results are difficult to interpret. Several studies have indicated that the group of hydrocarbons that are probably most important to the health of animals, are the polycyclic aromatic hydrocarbons (PAHs). In the Exxon Valdez incident, PAH levels appeared to be useful in predicting survival and verifying the extent of petroleum hydrocarbon absorption, but obtaining this information was extremely expensive and time intensive. .

Testing blood or tissue extracts by ELISA appears to be an alternative procedure for determining PAH absorption. This method of analysis is simple (technician with small kit), inexpensive (\$40/sample), quick (30 minutes) and still semiquantitative.

Proposed Action: American mink have been established as a model for exposure of sea otters to petroleum in the marine environment because mink are closely related to sea otters and are commercially bred and readily available. We propose to analyze and compare PAH levels in serum samples from 20 mink experimentally exposed to Alaska North Slope crude oil and Bunker-C fuel oil in 1993-94. This comparison has the potential to greatly reduce costs, speed analysis, and improve triage and treatment of oil exposed sea otters in future oil spills or in the case of oiling from natural seeps.

Budget:

PAH analysis by GCMS \$420 per sample x 20	\$8,400
PAH analysis by ELISA \$40 per sample x 20	\$800
Analysis and write up \$40 per sample x 20	\$800
Total	\$10,000

EVALUATION OF THE FACTORS THAT AFFECT SURVIVABILITY OF WILD AND REHABILITATED SEA OTTERS

Justification: The Southern Sea Otter is listed as a "Threatened Population" under the Endangered Species Act. This is due, in part, to the threat of catastrophic loss from future oil spills in central California, and to the small size and limited distribution of the California sea otter population. In the event of a major oil spill in California, contaminated sea otters will be brought into captivity for cleaning, rehabilitation, and eventual release back to the wild. While considerable progress has been made in the development of methods to clean and rehabilitate oiled sea otters (Williams and Davis 1995), little is known about how to reintroduce these animals back to the wild to maximize their probability of survival. In addition, preventive capture may be necessary in the event of a major spill and long-term retention of captive animals may become necessary. A likely outcome of this latter scenario is the birth of sea otter pups in captivity, or the accumulation of significant numbers of orphaned pups. In either case, a long-term conservation strategy would necessitate release of these pups into the wild.

The goal of a rehabilitation and release program for oiled sea otters in California should be to match the rates of survival and reproduction that occur in nature. To achieve this goal, resource management agencies and scientists need to know the rates of mortality and behavior patterns of animals in the wild population. The natural rates of mortality in wild California sea otters is thought to be fairly high for all age classes, and it is probably very high for juveniles during their first year of life (Riedman *et al.* 1994, Estes *et al.*, in press). However, this supposition is based largely on indirect information--the long-term growth rate of the California sea otter population (Estes 1990) and the age composition of beach-cast carcasses (Pietz *et al.* 1988). These rates should be documented to provide a baseline to compare the success of any rehabilitation program. Currently, a small number of orphaned sea otters are raised in captivity and released back to the wild each year. This is part of ongoing efforts to assist with the recovery of Southern Sea Otters. The behavior of released pups, their adaptation to the wild, and subsequent survival, including causes of mortality, are poorly understood. The goal of this project will be to gather comparative baseline data on wild sea otters and to follow and compare the fates of any rehabilitated orphaned sea otter pups released in central California from 1997 through 1999 to wild pups.

Proposed Action: This study will be based on observations of radio-tagged wild caught sea otters. The capture techniques, surgical procedures, and methods of following tagged animals in the field are well developed from previous work on sea otters in Alaska and California. These techniques, procedures, and methods are described in detail in approved permit applications and funded proposals (Service 1995). Captured otters will be taken to a near-by shore station where they will be anesthetized and equipped with a radio transmitter by a qualified veterinarian. Upon completion of surgery, the otters will be given an anesthetizing reversing drug and released in the same area where they were captured. All radio-tagged animals will be tracked by shore-based observers using radio receivers and high quality optical equipment for the life of the radio transmitters, approximately two years. Information recorded will include resightings to determine movements and mortality; diet and foraging patterns; and activity-time budgets. These data will be entered into a standardized data base and analyzed using procedures from ongoing and

previous studies. For mature animals, reproduction and loss of dependent pups will also be recorded.

The same tagging and field observation techniques described above will be used on orphaned pups that are raised in captive facilities (e.g., Monterey Bay Aquarium) and released back to the wild. Comparing the behavior patterns and mortality rates of these two groups of otters should yield new insights into the factors that affect survival of released otters and assist managers in establishing protocols to maximize the success of sea otter reintroduction efforts.

Budget:

Implantable radios (30 @ \$500 each)	\$15,000
Veterinary services (20 days @ \$300 per day)	\$6,000
New equipment (radio receivers and transmitters)	\$5,000
Repair or upgrade of existing equipment (optical and dive equipment)	\$5,000
Field expenses	\$15,000
Data analyses, report preparation, publication costs	\$4,000
Total	\$50,000

Matching Funds:

Provided by Biological Resources Division of the USGS

Salaries	\$15,000
Equipment (vehicles, boats, radio receivers, diving equipment, etc.)	\$20,000
Office support	\$5,000
Total	\$40,000

National Environmental Policy Act Compliance

The U.S. Fish and Wildlife Service has determined that the proposed alternatives are categorically excluded from the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 et seq., according to the Department of the Interior's Departmental Manual, 516 DM 6, Appendix 1 (62 FR 2375, 1/16/97) and 516 DM 2, Appendices 1 and 2. These alternatives are categorically excluded from NEPA since they are part of a natural resource damage assessment restoration plan prepared under the Oil Pollution Act where only minor or negligible change in the use of the affected areas and species are planned.

Summary

The Trustees have selected the Part I and II Baseline Health Evaluation and the Evaluation of Factors that Affect Survivability of Wild and Rehabilitated Sea Otters as the preferred restoration alternatives for the Southern Sea Otter population injured as a result of the Unocal Avila Beach Oil Spill. These alternatives were selected because they: 1) support ongoing sea otter restoration and rehabilitation activities; 2) establish a baseline which resource agencies can use to evaluate the effectiveness of present and future rehabilitation and reintroduction efforts; and 3) provide additional protection for the threatened Southern Sea Otter from catastrophic disasters such as large scale oil spills.

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Response to Public Comments on the Draft Avila Beach Oil Spill Sea Otter Restoration Plan

Public comments were categorized based on similar context. Those comments and the response from the Trustee Council are listed below.

Comment 1: Avila Beach Trustee Council is not "local". Residents of Avila Beach feel left out of the process as no member of Avila Beach Trustee Council is a resident of Avila Beach. Citizens of Avila Beach need representation on the Avila Beach Trustee Council.

Response: The title of the trustee council may lead people to erroneously conclude that the Avila Beach Trustee Council is a group acting as a trustee for the citizens of Avila Beach. This is not the case. The Avila Beach Trustee Council is made up of trustees for the natural resources that were impacted by the oil spill and clean-up at Avila Beach. As defined in the Consent Decree, "Natural Resource Trustees' or 'Trustees' means those federal and state agencies designated or authorized pursuant to the Oil Pollution Act of 1990, and state law to act on behalf of the public as Trustees for the natural resources belonging to, managed by, controlled by or appertaining to the United States or State of California. Specifically, as used in this Decree the Trustees are the United States Department of the Interior, acting through the U.S. Fish and Wildlife Service, the California Department of Fish and Game, and the State Lands Commission." While the State Lands Commission is a trustee, they declined to participate in the Avila Beach Trustee Council.

Residents of Avila Beach and other members of the public have been invited to participate in developing and selecting proposals for restoration of affected natural resources through a public meeting held in San Luis Obispo on March 31, 1997, and through public comment on the draft restoration plans.

Comment 2: Restoration actions proposed by the Avila Beach Trustee Council do not follow the direction of the Court's decree or the initial direction of Unocal.

Response: The federal Consent Decree paragraph 7 states, "The \$100, 000 payment, plus the interest thereon, to the Natural Resource Damage Assessment and Restoration Fund shall be used by the United States for sea otter enhancement, as further described in Attachment 2 to this Decree." Paragraph 9 of the Consent Decree states, "If, in applying the provisions of the Oil Pollution Act and other applicable federal and state law, and examining the scientific and engineering objectives of the planned Restoration projects, and taking into account the available funds, the Trustees determine to expend funds in a manner different from that described in paragraph 7 or in Attachment 2, the Trustees

will proceed with other Restoration projects that the Trustees deem to be reasonable and necessary to restore Natural Resources directly impacted by the Oil Spill.”

The Trustees initially sought to pursue the restoration project outlined in Attachment 2 of the Consent Decree, the sea otter rehabilitation program at the Monterey Bay Aquarium. However, as stated in the restoration plan the Monterey Bay Aquarium has withdrawn its restoration proposal from consideration for funding. With respect to Unocal’s initial direction, the Consent Decree states, “The Trustees retain the ultimate authority and responsibility to determine the use of funds received for Natural Resource Damages in accordance with the provisions of the Oil Pollution Act, 33 U.S.C. § 2701 *et seq.*, other relevant federal or state law, and the regulations governing use of recoveries for Natural Resource Damage.” The trustees have selected restoration projects that comply with these regulations.

Comment 3: Avila Beach Trustee Council is only composed of non-residents of Avila Beach and does not have the interest of the local citizens and the local property owners in mind, but the agencies the Avila Beach Trustee Council represents. The Avila Beach Trustee Council jurisdiction is too broad because of the broadness of the agencies the Avila Beach Trustee Council represents.

Response: See response to comment 1.

Comment 4: Money should be spent where the injury occurred.

Response: Restoration should be in the area where injury occurred whenever possible. The preferred alternatives selected by the Trustee Council will benefit not only the individual sea otters in the Avila Beach area but the entire Southern Sea Otter population. The affected population of sea otters is contiguous. The death of a few individuals in the area of Avila Beach represent a loss to the entire population as lost genetic diversity. Therefore, projects that benefit the affected population, not just the local area, are considered to be onsite restoration. The preferred alternatives will most effectively and efficiently be carried out in the Monterey area. Data from the otters within the immediate area of the spill needs to be compared to a control population. Therefore, this data collection can not be carried out in the immediate area of the spill. Other projects need to be carried out in Monterey because of facilities and the support network available in that area.

Comment 5: Concern about awarding Unocal monies to projects that only indirectly affect Avila Beach and its residents without representation of the local community.

Response: The money Unocal agreed to pay the trustees in the Consent Decree is to compensate for injury to natural resources and will be used for restoration of those resources. Compensation for the socio-economic effects of the oil spill on Avila Beach and its residents are not part of the natural resource settlement. Only the natural resources (i.e., sea otters, anadromous fish) injured in the oil spill are addressed by the Avila Beach Trustee Council and the money spent on restoration of those resources.

Comment 6: Use Unocal monies to control sea otter population so that shellfish populations will increase.

Response: The Southern Sea Otter is federally listed as a threatened species under the Endangered Species Act and as a species in need of protection under the Marine Mammal Protection Act. Natural resource claims against Unocal from the Avila Beach Oil Spill included damages awarded for injury to the sea otter. The Consent Decree specifically states that \$100,00.00 is to be spent for sea otter enhancement. Controlling the Southern Sea Otter population is not enhancement and would be contrary to the direction of the Consent Decree.

Comment 7: Use the \$100,000 to promote abalone populations, increase kelp forests, and/or create offshore reefs.

Response: As stated above, the money is to be spent on sea otter enhancement. Researchers have not established that the food base nor available habitat are a limiting factor on the growth and expansion of the Southern Sea Otter population. Therefore, the Trustee Council could not justify using restoration funds for projects to provide more habitat or prey base for the sea otter until it can be demonstrated that these factors are limiting Southern Sea Otter recovery.

Comment 8: Investigate enhancing the breeding of sea otters.

Response: Researchers have not found any evidence that Southern Sea Otters reproduction is at a depressed or lower than normal rate. Research needs to be done to determine why the Southern Sea Otter population is growing (recruitment) at a slower rate than expected before measures can be taken to enhance recruitment.

Comment 9: Establish a marine research lab.

Response: The cost of establishing a marine research laboratory is much greater than the funds available from the Avila Beach Oil Spill. Fortunately, other funding sources have been filling the need for this valuable resource. For instance, the California Department of Fish and Game's Office of Oil Spill Prevention and Response (OSPR), the University of California (UC) Santa Cruz, and the State Department of General Services, have recently opened the State's Oiled Wildlife Veterinary Care and Research Center (Center) in Santa Cruz, California. Besides providing care and rehabilitating oiled wildlife, the Center will be used for sea otter and marine wildlife health research. This research will include: Field-based studies on sea otters' population dynamics, ecology, and habitat; Studies of the basic physiology of captive otters and other coastal animals; and Toxicological studies on the effects of oil and synergistic toxicants on marine animals.