EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number:	93-031		
Project Source:			
Project Title:	Red Lake Mitigatio	n For Red Salmon Fishery	
Project Category:	Restoration, Manip	ulation and/or Enhancement	
Project Type:	Fish		
Lead Agency:	Alaska Department	of Fish and Game	
Cooperating Agenci	es:		
Project Term:	Start Date: 1/10/93	Finish Date: 9/30/96	

INTRODUCTION:

Red Lake, located on the southwest side of Kodiak Island, has historically been one of the most consistent producers of sockeye salmon for Kodiak's commercial purse seine fishermen The Department of Fish and Game's annual escapement goal for the system ranges from 200 to 300 thousand sockeye salmon Since 1980, the catch has ranged from 25,000 to 15 million with an average of 450,000 This fishery has had an average annual value to fishermen of about \$22 million and has reached as high as \$10 million

Careful management of the number of spawning fish is required to maintain this fishery at a high level Young sockeye salmon spend at least their first year of life (up to 3 years) living and growing in lakes where they rely on microscopic-sized animals (plankton) for food These animals, in turn, graze on tiny plants If too many adult salmon spawn in the lake system, an overabundance of the young sockeyes will deplete their limited food source before they migrate to sea When this happens, large numbers of young salmon die, survivors grow more slowly and smaller numbers migrate to the ocean to mature So, large numbers of spawners in one year may result in an unusually small run in the next cycle

In 1989, as a result of the <u>Exxon-Valdez</u> oil spill, commercial salmon fishing was closed over most of Kodiak Island waters The closure resulted in an escapement of 768,000 sockeye salmon into Red Lake, a 25 fold increase over the maximum desired Data gathered showed low survival for the 1989 escapement year Surveys showed low numbers of juveniles in the lake in the fall of 1990 and 1991, and in the spring of 1990, 1991, and 1992 reduced numbers of migrant smolts were observed The 1989 brood year failure could result in a collapse or weakness of the sockeye return in 1993, 1994, and 1995 Minimum escapements may not be reached resulting in fishery closures and the purse seine fleet being displaced to other fishing areas

This project will be undertaken at Kitoi Bay Hatchery where early run sockeye will be net pen reared in brackish water for accelerated growth and released as age zero smolt Returns from smolt releases will provide a fishery in Northeast Afognak district The commercial purse seine fleet and associated business communities of Kodiak Island will have an opportunity to benefit from this project Village residents of Afognak Island and other areas will also have increased subsistence fishing opportunities The expected return of 4.8 million smolt released annually will be 100,000 sockeye At a value of \$1.00/pound and 5 pound average, the total value of the program is \$500,000

WHAT: The goal of this project is to provide an alternative commercial fishery to mitigate the impact of lost fishing opportunities as a result of possible collapse or weakness of the Red Lake sockeye run in 1993, 1994, 1995

The objectives of this project are

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- 1) Modify existing incubation modules at Kitoi Bay Hatchery for receiving Afognak Lake sockeye eggs.
- 2) Collect 6 million early run sockeye salmon eggs from Afognak Lake and transport them to Kitoi Bay Hatchery
- 3) Increase sockeye fry/smolt rearing capabilities at Kitoi Hatchery to accommodate 5 million fry/smolt.
- 4) Mark 10 15% of fry prior to net pen rearing for evaluation of returns, imprinting success and possible straying
- 5) Net pen rear fry/smolt in brackish water to a target size of 4-5 grams and release by June 30
- 6) Evaluate growth, diet and behavior of age zero smolt releases at Kitoi Bay until migration is complete
- 7) Evaluate survival, imprinting and straying of returning adults in 1995 and 1996 by operating weirs at Little Kitoi, Paul's Bay, sampling at Afognak Lake weir, sampling at Little Afognak lake

WHY: If immediate actions are taken, alternative commercial sockeye salmon fishing opportunities can be provided beginning in 1994 The focus is to develop alternative fisheries in other areas where returns would be most manageable and wild stocks would be

least affected This proposal will mitigate the impact of the <u>Exxon-Valdez</u> oil spill on future Red Lake commercial sockeye fisheries

The Trustees should fund this project because immediate action is needed to offset the fishery loss in 1994 and 1995 as a result of failure of 1989 brood year

HOW: Kitoi Bay Hatchery will be modified by the addition of an incubation module and incubation water disinfection capability Six million early run Afognak lake sockeye eggs will be collected in August under sockeye culture guidelines, and transported by float plane to Kitoi Hatchery for incubation After emergence and ponding in freshwater troughs, 10 -15% of the total sockeye fry will be marked by ventral fin clipping, prior to rearing in brackish water net pens Marking quality will be monitored to assure valid marks Following seawater challenge tests, fry (fingerlings) will be ponded into net pens in Little Kitoi Bay and reared to achieve 4 - 5 gram smolt with growth rate monitored on a weekly basis Smolt will be released into Little Kitoi Bay after achieving target size and timed to parallel Afognak smolt out-migration timing Once released, smolt movements will be monitored, samples will be collected for stomach content analysis and additional growth information To evaluate returns from smolt releases as well as imprinting, a weir will be operated at Little Kitoi where escapement will be enumerated and age, sex and length data collected Returning adults will be examined for marks Also, the commercial harvest will be sampled in the same manner Returning sockeye at Paul's Bay, Little Afognak, and the parent system at Afognak Lake will be sampled to assess possible straying Paul's Bay will be weired and returns will be examined for marks as well as age, sex and length data collected At Little Afognak, samples will be collected by beach seining and post spawning surveys Samples will be collected and examined for marks at the Afognak River weir currently operated by ADF&G

This project will be coordinated with NRDA F/S 27 which will continue damage assessment of Red Lake Information from this study will determine the long term effects of overescapement, and the length that mitigation for fishing loss will be necessary Also, a current zero check sockeye program in place at Kitoi will provide technical assistance in the mitigation project

ENVIRONMENTAL COMPLIANCE: The following steps will be taken to comply with environmental regulations

1) completion of General Waterway/Waterbody application to be submitted to Habitat Division of ADF&G for the weirs at Little Kitoi and Paul's Bay

2) completion of Coastal Zone Consistency Review Questionnaire to be submitted to State of Alaska for both weired systems

WHEN: <u>Event</u> permitting (FTP, Habitat)	<u>Time</u> 1 month	<u>Completion</u> 1/93
Kitoi modifications (incubation, rearing)	2 months	3/93
Egg take preparation and supply orders	1 month	7/93
Egg take at Afognak Lake (6 million eggs)	5 month	8/93
Incubation of eggs at Kitoi	7 months	3/94
Marking of fry	15 months	5/94
Net pen rearing of fry	15 months	6/94
Smolt released in Little Kitoi Bay	5 months	6/94
Adult weirs installed and operated at Little Kitoi and Paul's Bays	4 months	8/97
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Report writing

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EXXON VALDEZ INUSTEE COUNCIL

Project Description This project will mitigate fishery displacement and/or loss due to the possible collapse of the Red Lake fishery A mitigation fishery of approximately 125,000 sockeye salmon will be created by rearing undergearling (age zero) smolt in water net pens to accelerate growth and increase survival

NOTE Budget increases from 1 page proposal reflect increased project evaluation expenses. Cost to benefit ratio still remains 1 2 3

	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Jan-93	l otal	514.04	514.05		5.4.07	FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnal	40.0	450.4	AE0 4	4120.0	A110.0	4110.0	A115 0	4110.0
Traval	\$0 0 \$0 0	\$59.4	\$594	\$120.9	\$1196	\$118.0	\$115.8	\$1100
Travel	\$0.0	\$07	\$0 /	\$1.2	\$1.2	\$1.1	\$12	\$12
Contractual	\$0.0	\$51	\$5 1	\$10.8	\$11.2	\$10.4	\$10.6	\$10 5
Commodities	\$0 0	\$16 8	\$16 8	\$40 0	\$41 6	\$40 2	\$41 3	\$40 8
Equipment	\$0 0	\$62 4	\$62 4	\$30 7	\$32 3	\$34 8	\$27 8	\$24 7
Capital Outlay	\$0 0	\$0.0	\$0 0	\$0.0	\$0 0	\$0 0	\$0.0	\$0.0
Sub-total	\$0 0	\$144 4	\$144 4	\$203 6	\$205 9	\$205 1	\$196 7	\$193 8
General Administration	\$0 0	\$93	\$9 3	\$18 9	\$18 7	\$18 5	\$18 1	\$18 2
Project Total	\$0 0	\$153 7	\$153 7	\$222 5	\$224 6	\$223 6	\$214 8	\$212 0
Full-time Equivalents (FTE)	0 0	1 2	1 2	18	18	1 8	17	17
Budget Year Proposed Personnel		Months						I
Position		Budgeted	Cost					
5 FWT II		2 75	\$8 7			Comment		
2 FWT III		2	\$7 8	* FY 93 is a	transition ve	ar from the pr	eviously used	oil fiscal
1 FB I		3	\$12.3	vear to the f	ederal fiscal y	ear This nev	w project also	includes
1 F Culturist I		3	\$12.6	proposed fur	nding for Jan	ary and Febr	uarv	
1 Program Manager 0.6			\$4.9	** If not fun	ded in FY 94	no closeout	costs are ant	icinated
1 A/PIV		1 25	\$6.7	in not run		, 110 01000000		ioiputou
		0.75	\$3.1					
1 PS II		0 75	\$3 3					

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Project Number 93-031 Project Title Red Lake Mitigation Agency ADF&G FORM 2A PROJECT DETAIL

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Travel	Two trips to Anchorage from Koo	diak for meetings	
Contractual	Aır charters, freight, egg picker		
Commodities	Egg take equipment, formalin, ma groceries, rain gear, hip boots, fis	arking supplies, propane, gas, camp supplies, lumber and mater sh food	als for module,
Equipment	Inflatable boat, outboard motor, I and weir panels	beach seine, net pens, frames, weatherport tents, autofeeders,	raceways
17 Jul 92	····		
		Project Number 93-031	FORM 2B
1993	page 2 of 2	Project Title Red Lake Mitigation Agency ADF&G	PROJECT DETAIL

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number:	93-032	93-032				
Project Source:						
Project Title:	Pink and Cold Creek	Pink Salmon Restoration				
Project Category:	Project Category: Restoration, Manipulation and/or Enhancement					
Project Type:	Fish	Fish				
Lead Agency:	Alaska Department of	Fish and Game				
Cooperating Agence	cies:					
Project Term:	Start Date: 1/10/93	Finish Date: 9/30/94				

INTRODUCTION: This project will target Pink Salmon stocks (will also indirectly target Coho salmon at Cold Creek) at Cold and Pink Creeks on Afognak Island (see map) Pink Creek drains into Afognak River which enters Afognak Bay on southeast Afognak Island Cold Creek drains into Danger Bay, adjacent to Duck and Izhut Bays on northeast Afognak Island Restoration Study 105 surveyed these system in 1992 to determine fishpass feasibility A falls blocks pink salmon from reaching a potential spawning area in Pink Creek Cold Creek has a steep gradient that blocks upstream migration at low to moderate water periods Spawning area above the barrier at both Pink and Cold creeks has been determined to be of good to excellent quality and in sufficient quantity to support 3,000 and 9,000 spawners, respectively Both systems currently have limited Pink Salmon production due to these barriers preventing access to spawning areas Escapements to each of these systems have been limited to several hundred spawners each year

Afognak Bay was contaminated by F/V <u>Exxon Valdez</u> oil in 1989 Izhut Bay and other areas on northeast Afognak as well as Shuyak Island were also heavily oiled in 1989 and significant amounts of oil were again found in 1990 in these areas Resource damage assessment was not conducted in these areas, however, in Prince William Sound, damage to pink salmon eggs and juveniles has been documented under similar conditions of oil contamination

This project will be undertaken at Pink Creek (252-342) and Cold Creek (252-331) which are located on Afognak Island The benefits from this project will be realized by increased Pink (and Coho) returns to these systems, providing up to 17,000 (pinks) for commercial and subsistence harvest The villages of Port Lions, Ouzinkie, and the City of Kodiak will benefit economically from this project through direct fishery receipts and all

associated fisheries business enhancement

WHAT: The goal of this project is to increase Pink salmon spawning capability, and overall pink salmon (and coho) returns, by enhancing fish passage above barriers in Pink and Cold creeks

The objectives of this project are

- 1 Evaluate pink salmon escapement and spawning distribution in Cold and Pink creeks
- 2 Bypass barriers in Cold and Pink creeks by installing steeppass sections or cutting channels in substrate
- 3 Evaluate fish passage through barrier bypasses by conducting peak spawning surveys

WHY: Oil contamination by F/V Exxon Valdez was significant on Afognak and Shuyak Islands This project will be a simple, economical way to increase wild Pink and Coho stocks in specific areas contaminated by oil or areas in close proximity to impacted areas In PWS, Pink salmon stocks were damaged by direct oil contamination as well as being negatively impacted through indirect results of the oil spilled These damages and negative impacts were documented in PWS. In the waters near Afognak and Shuyak Islands, similar impacts most likely occurred Since a significant amount of spawning area is presently unavailable to Pink (and Coho) salmon on these systems due to barrier falls, this project will realize a measurable benefit by making these areas available to spawning Pink salmon

This project should be funded by the Trustees since it achieves a specific benefit economically in a short time period and targets pink salmon, which were affected by the oil spill in PWS as well as Kodiak It should benoted that after this project (2 years) is completed net benefits will continue to be realized with minimum cost allowing a positive cost to benefit ratio

HOW: Initially prior to construction, a peak spawning survey would be conducted to define peak salmon distribution in Pink and Cold creeks Bypass construction materials would be staged at each project site Construction would require steeppass sections resulting in a 15 foot rise to bypass the barrier falls at both Cold and Pink creeks Channels also would be cut leading into the upstream end of the steeppasses Water diversion structures such as gabions, reinforced with steel pipe and rebar, would divert water into the channels and steeppasses Cables would be anchored into the rock substrate to secure the steeppasses This project would be evaluated by stream surveys during the peak pink salmon spawning period

Project Number: 93-032

This project will be directly related to previous feasibility work conducted through Restoration Project 105 Feasibility stages of this project were defined through R105 In addition, Alaska Department of Fish and Game, FRED Division, in cooperation with Kodiak Regional Aquaculture Association operates other fishpass projects on Afognak Island Efforts for this project will be assisted through technical assistance and offered by these ongoing projects

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MATCHING ELEMENTS: The Department of Fish and Game has already purchased from other funding sources the needed steep pass components which are valued at approximately \$70,000

ENVIRONMENTAL COMPLIANCE: The following steps will be taken to comply with environmental regulation

- 1) completion of General Waterway/Waterbody application to be submitted to Habitat Division of ADF&G for both Pink and Cold Creeks
- 2) completion of Coastal Zone Consistency Review Questionnaire to be submitted to State of Alaska for both creeks
- 3) compliance with any environmental land use regulations imposed by Afognak Natives (land owners) will be strictly adhered to

WHEN: <u>Event</u>	Start Date	<u>Completion</u>
Peak spawning survey	8/15/92	8/20/92
DSP	11/1/92	12/1/92
Habitat application	1/1/93	1/15/93
Equipment order, steeppass		
fabrication	2/15/93	2/30/93
Stage steeppass section		
at sites	3/15/93	3/30/93
Construction, steeppass		
installation	7/1/93	8/1/93
Peak spawning survey	8/15/93	8/30/93
Report writing	11/1/93	12/1/93
Follow up construction		
modification	7/1/94	8/15/94
Final peak spawning survey	8/15/94	8/30/94
Final report writing	11/1/94	12/1/94

Project Description This project will enhance pink (and coho) salmon returns to Pink and Cold creeks on Afognak Island by construction of steeppasses to bypass barriers that currently prevent utilization of significant amounts of spawning habitat

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	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Jan-93	Total	**				FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel	\$0 0	\$21.3	\$21 3	\$15.4	\$0 0	\$0.0	\$0.0	\$0.0
Travel	\$0 0	\$0.0	\$0 0	\$0.3	\$0 0	\$0.0	\$0.0	\$0.0
Contractual	\$0 0	\$36	\$3 6	\$17	\$0.0	\$0.0	\$0.0	\$0.0
Commodities	\$0.0	\$2.3	\$2 3	\$1.8	\$0.0	\$0.0	\$0.0	\$0.0
Equipment	\$0.0	\$5 4	\$5 4	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Capital Outlay	\$0 0	\$0.0	\$0 0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
Sub-total	\$0.0	\$32.6	\$32 6	\$19.2	\$0.0	\$0.0	\$0.0	\$0.0
General Administration	\$0.0	\$3 5	\$3 5	\$2.4				
Project Total	\$0 0	\$36 1	\$36 1	\$21 6	\$0 0	\$0 0	\$0 0	\$0 0
Full-time Equivalents (FTE)	0 0	04	04	03				
Budget Year Proposed Personnel		<u> </u>		<u> </u>				<u></u>
		Months						
Position		Budgeted	Cost			Comment		
1 FB II		2	\$10 0	\$10.0 * FY 93 is a transition year from the previously used oil fiscal				
1 FT III		2 5	\$8 8	\$8.8 year to the federal fiscal year. This new project also proposed				
1 Program Manager		03	\$2 5	\$2.5 funding for January and February, 1993				
				** If not fun	ded for FY 94	4, no closeou	t costs are an	iticipated

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- 1993

Project Number 93-032 Project Title Cold Creek Pink Salmon Restoration Agency ADF&G FORM 2A PROJECT DETAIL

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Travel	None		
Contractual	Air charters, freight, helicopter time to sling steeppasses		
Commodities	Groceries, fuel, cable, gabions, rock bolts, pipe, cement, and lumber		
Equipment	Steeppass sections		
17 Jul 92	Project Number 93-032		EORM 28
1993	Project Title Cold Creek Pir Agency ADF&G	nk Salmon Restoration	PROJECT
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XXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number	93-033 A			
Project Source	297-31, 279-15, & 273-02			
Project Title	Harlequin Duck Restoration Monitoring Study in Prince William Sound and and Afognak Oil Spill Areas			
Project Category	Restoration Monitoring			
Project Type	Birds			
Lead Agency	Alaska Department of Fish and Game			
Cooperating Agencies	National Park Service (NPS), U S Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Auke Bay Laboratory, Alaska Department of Natural Resources			
Project Term	Start Date 1/10/92 Finish Date 9/30/95			

...ITRODUCTION The <u>Exxon Valdez</u> oil spill (EVOS) significantly affected Harlequin Ducks (<u>Histrionicus</u> <u>histrionicus</u>) Not only was there direct mortality of at least 200 Harlequins in Prince William Sound (PWS), but there has been a nearly complete reproductive failure of residents of the western PWS oil spill area from 1990 to 1992 (No study was conducted in 1989) This is a significant and unexpected long-term effect Because some Harlequins spend their entire lives in the oil spill area, where they breed, feed, and overwinter, it is possible to detect and study this impact of EVOS (Non-resident Harlequins and other seaducks that over-winter in oiled areas may be similarly effected, but because they breed in areas remote from the spill, it is impractical to study them)

Harlequins are intertidal feeding diving ducks The Harlequin Duck population in the Prince William Sound and Afognak areas contains both residents and non-resident migrants The residents breed along forested streams within a few kilometers of saltwater, molt in secluded bays and lagoons, and roost on offshore rocks Broods are found with hens on saltwater in summer Non-resident Harlequin Ducks which winter on the south coast of Alaska breed elsewhere on mountain streams They arrive in the south coastal area in October and depart in May Harlequin Ducks return to the same breeding and wintering areas year after year Breeding Harlequin Ducks were formerly distributed throughout PWS, including the spill area, with broods commonly observed in shoreline habitats (Isleib and Kessel, 1973, Isleib, pers comm.)

Project Number 93-033

Damage Assessment studies of Harlequin Ducks through 1992 have been limited to Prince William Sound Harlequin Ducks reproduced normally in unoiled areas Using new radio telemetry techniques, nine Harlequin nests have been located unoiled PWS on steeply sloping stream banks in old growth forest In contrast, the Harlequin Duck population continued to decline in the PWS oil spill area 1989-91, but remained stable in other areas of PWS A few broods were found on the periphery of the EVOS area in 1991

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The reproductive failure of Harlequin Ducks in the oil spill area is postulated to be a chronic effect of petroleum exposure through contaminated intertidal food Blue mussels (Mytilus) appear to be the most likely source of contamination. They are well known to concentrate and hold pollutants in their tissues Restoration Study #103 has documented high concentrations of polynuclear aromatic hydrocarbons (PAHs) in mussel flesh, byssal thread mats, and underlying substrates in western PWS in 1992. Because Harlequin Ducks consume entire mussels, ingesting petroleum hydrocarbons in mussel tissue, on the shell surface, and in attached byssal threads and sediment, Harlequin Ducks collected in 1989-90 in western PWS and SW Kodiak contained oiled food items in their guillets and petroleum residues in liver tissue and bile. Experimental studies have demonstrated that single small doses of petroleum can cause reproductive failure in some seabirds. A search of the files of U.S. Coast Guard Federal On-Scene Coordinator indicated that approximately 130 blue mussel beds may retain EVOS oil in western PWS. However, field evidence collected in 1992 has shown additional previously unreported oiled mussel beds in PWS and along the Kenai coast. EVOS oil also remains associated "th dispersed blue mussels in a number of sheltered locations currently under investigation"

WHAT The goals are to 1) study Harlequin reproductive failure in western PWS and 2) characterize Harlequin Duck nesting habitat on Afognak Island

The objectives are to 1) radio-track Harlequin Ducks to nest sites on Afognak, 2) determine the distribution of breeding Harlequins, using pair counts and brood surveys, in oiled and non-oiled areas, 3) compare characteristics of streams on which successful Harlequin reproduction is occurring in unoiled areas to those of similar streams, in both oiled and unoiled areas of Afognak Island, having no Harlequin reproduction, 4) determine the diet of Harlequin Ducks found dead during the oil spill, 4) obtain new information on movements of resident breeding and non-breeding Harlequins, including documentation of spring and summer habitat use, home ranges, foraging behavior and nest site selection, and 5) determine diet and petroleum residues in tissues of Harlequin Ducks to be collected and live-trapped

WHY The ultimate goal of this project is the restoration of breeding Harlequin Ducks to the oil spill area. To achieve restoration we need 1) determination of the geographic extent of the reproductive failure, 2) definition of habitat requirements to guide restorations, 3) determination of whether hydrocarbon residues are currently present in Harlequins in order to clarify the link to persistant oil contamination. If the observed failure of reproduction is related to the contaminated food chain, remaining oil pollution <u>must be corrected</u> before restoration can take place, otherwise measures to increase productivity will be fruitless. In some cases these mussel beds remain grossly contaminated Fechnical knowledge of habitat requirements of breeding Harlequin Ducks may prove valuable for nabitat acquisition and mitigation measures, protection of non-Federal lands in National Park Service

~- as, development of marine sanctuaries, or other restoration actions

HOW We will use methodology developed during previous Harleguin Duck studies The 1993 project will determine whether the reproductive failure extends outside of Prince William Sound in the Afognak Island area The expanded geographical area will involve less survey intensity per unit area, but will include initial boat surveys for identification of pairs at stream mouths in late spring, followed by trapping of selected stream estuaries Harlequin females flying to streamside nest sites in early summer will be mist-netted and radio-tagged Nest sites, broods, and feeding areas will be located by following the radio-tagged hens through the summer nesting and brood-rearing period Brood count surveys will be conducted in shoreline habitats in late summer in western PWS and selected areas of Afognak Island Breeding survey results from the oil spill areas will be compared to unoiled control areas on If nests are located in the Afognak area, habitat characterization work will be Afognak Island conducted at each site Blood samples will be collected from breeding Harlequins in unoiled areas and from molting Harlequins in oiled areas Blood and tissue samples may also be taken from collected ducks Blood samples will be analyzed for normal blood parameters and presence of elevated levels of haptaglobins and interleukins Tissue samples (fat, liver, bile) from 40 collected ducks from the Prince William Sound and Afognak oil spill areas will be analyzed for presence of petroleum hydrocarbons Feather samples will be examined for presence of vanadium, a trace metal indicating petroleum exposure Fecal samples from flightless birds trapped during the molt will be collected to determine presence/absence of petroleum exposure (i e through contaminated blue mussels) by means of florescence testing The Harlequin diet will be studied by examination of gullet contents of Harlequin carcasses from the EVOS bird morgue in Anchorage This project will coordinate with Pestoration Study # 051 (Quantification of Stream Habitat for Harlequin Ducks from Remotely Sensed ata) to ground-truth aerial photographs and satellite imagery in the PWS and Afognak areas There

is no financial or operational overlap with #051

ENVIRONMENTAL COMPLIANCE This project will comply with requirements of the National Environmental Policy Act No environmental analysis is required to conduct this study, because it is a research project State and Federal collecting permits will be obtained through regular procedures

WHEN This project will be conducted during 1993-1995 Field work will be completed each year by August 30 Report preparation will begin in September, and the annual progress report will be completed before January 30 Literature review and study plan revisions will be conducted during February Preparation for field work will continue during March-April Field work and camp set-up will begin in early May Resident pair counts will be conducted in late May Stream sampling, capture and radio-tracking of females will be carried out during June, radio-tracking non-breeders will continue until mid-July Molt surveys will be carried out between July 15-August 15 Capture and blood sample of flightless molters will take place July 20-August 10 Brood counts will take place between August 15-September 1 Final Report Preparation will be between September 1, 1994-January 29, 1995

Project Description The goals of this project are to 1) study Harlequin duck reproductive failure in western PWS 2) conduct Harlequin duck nesting habitat characterization on Afognak Island

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Budget Category	1-Oct-92	1-Mar-93						FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	<u>FY 97</u>	Beyond
Personnel	\$0 O	\$239 0	\$239 0	\$225 7	\$109.2			
Travel	\$0 0	\$23 0	\$23 0	\$40 0	\$3 0			
Contractual	\$0 0	\$156 8	\$156 8	\$165 4	\$54 8			
Commodities	\$0 0	\$21 0	\$21 0	\$21 0	\$7 0			
Equipment	\$0.0	\$20.0	\$20 0	\$20 0	\$20 0			
Capital Outlay	\$0.0	\$0.0	\$0 0	\$0.0	\$O O			
Sub-total	\$0.0	\$459 8	\$459 8	\$472 1	\$194 0	\$0.0	\$0 0	\$0.0
General Administration	\$0.0	\$46 8	\$46 8	\$45 5	\$20 2			
Project Total	\$0.0	\$506 6	\$506 6	\$517 6	\$214 2	\$0 0	\$0.0	\$0.0
Full-time Equivalents (FTE)								
					Amounts	s are shown ir	n thousands o	of dollars
Budget Year Proposed Personnel		Months						
Position		Budgeted	Cost					
1 WBIII - PI		70	\$40 4			Comment		
4 FWT III		43 0	\$170 4					
1 A/P IV		13	\$6 7	** If not fun	ded in FY 94	, \$64 8K will	l be needed fo	or data
1 A/P II		08	\$3 1	analysis, lab	work and rep	ort preparatio	on	
1 P/S II		0 8	\$3 3					
1 Program Manager		2 0	\$15 0					
* FY 93 is a transition year from	the previously	used oil fiscal vea	r to the federal fis	cal year Th	is new projec	t also includes	s proposed fu	inding for
January and February, 1993		•		-			• •	-
17 Jul 92								· ·
		Project Numb	er 93-033					FORM 2A
		Project Title	Harlequin Duc	k Restoratio	n			PROJECT
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Travel	Travel and transportation costs are in (PWS and Afognak), also includes D from Juneau to Anchorage 2 X RT	mportant componenets because of remote field locations to be invest Data Base Management travel and per diem @ 1 4K	tigated ,
Contractual	Contractual services include air chart supply, shipment of field gear, gasoli	ter for radio-tracking, vessel charters for surveys, camp installation, a ine and mileage for vehicles	and fuel
Oregon Dept Fi RSA fro Dr Rob 1 gradu	State University sheries and Wildlife m ADF&G to commence Jan 93 ert Jarvis for Harlequin Expertise ate student (Crowley)	20К	
Universi RSA fro analysis and inte analysis	ty of Alaska, Fairbanks m ADF&G for avian blood chemistry , including blood sera haptaglobins rleukins (L Duffy) and statistical (T Boyer)	25K	
Softwar	e Licensing	5К	
Commodities	Includes food for field camp veterinary supplies, softwar	os, boat gasoline, oil and parts, office & scientific supplies, capture e re	quipment,
Equipment	One 20' inflatable hard-chin communication radios, radio	ne boat, 115 hp outboard, backup outboard for use in open sea cond o telemetry transmitters and receivers, stream flow meters	itions,
17 Jul 92	page 2 of 2	Project Number 93-033 Project Title Harlequin Duck Restoration and Monitoring Study Agency ADF&G	FORM 2B PROJECT DETAIL

TXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number	93-033 <i>B</i>				
Project Source	297-31, 279-15, & 273-02				
Project Title	Harlequin Duck Restoration Monitoring Study in Prince William Sound, Kenai, and Afognak Oil Spill Areas				
Project Category	Restoration Monitoring				
Project Type	Birds				
Lead Agency	Alaska Department of Fish and Game				
Cooperating Agencies	National Park Service (NPS), U S Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Auke Bay Laboratory, Alaska Department of Natural Resources				
Project Term	Start Date 1/10/92 Finish Date 9/30/95				

...VTRODUCTION The <u>Exxon Valdez</u> oil spill (EVOS) significantly affected Harlequin Ducks (<u>Histrionicus</u> <u>histrionicus</u>) Not only was there direct mortality of at least 200 Harlequins in Prince William Sound (PWS), but there has been a nearly complete reproductive failure of residents of the western PWS oil spill area from 1990 to 1992 (No study was conducted in 1989) This is a significant and unexpected long-term effect Because some Harlequins spend their entire lives in the oil spill area, where they breed, feed, and overwinter, it is possible to detect and study this impact of EVOS (Non-resident Harlequins and other seaducks that over-winter in oiled areas may be similarly effected, but because they breed in areas remote from the spill, it is impractical to study them)

Harlequins are intertidal feeding diving ducks The Harlequin Duck population in the Prince William Sound, Kenai, and Afognak areas contains both residents and non-resident migrants The residents breed along forested streams within a few kilometers of saltwater, molt in secluded bays and lagoons, and roost on offshore rocks Broods are found with hens on saltwater in summer Non-resident Harlequin Ducks which winter on the south coast of Alaska breed elsewhere on mountain streams They arrive in the south coastal area in October and depart in May Harlequin Ducks return to the same breeding and wintering areas year after year Breeding Harlequin Ducks were formerly distributed throughout PWS, including the spill area, with broods commonly observed in shoreline habitats (Isleib and Kessel, 1973, Isleib, pers comm.)

Project Number 93-033

Damage Assessment studies of Harlequin Ducks through 1992 have been limited to Prince William Sound Harlequin Ducks reproduced normally in unoiled areas Using new radio telemetry techniques, nine Harlequin nests have been located unoiled PWS on steeply sloping stream banks in old growth forest In contrast, the Harlequin Duck population continued to decline in the PWS oil spill area 1989-91, but remained stable in other areas of PWS A few broods were found on the periphery of the EVOS area in 1991

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The reproductive failure of Harlequin Ducks in the oil spill area is postulated to be a chronic effect of petroleum exposure through contaminated intertidal food Blue mussels (Mytilus) appear to be the most likely source of contamination They are well known to concentrate and hold pollutants in their tissues Restoration Study #103 has documented high concentrations of polynuclear aromatic hydrocarbons (PAHs) in mussel flesh, byssal thread mats, and underlying substrates in western PWS in 1992 Because Harlequin Ducks consume entire mussels, ingesting petroleum hydrocarbons in mussel tissue, on the shell surface, and in attached byssal threads and sediment, Harlequin Ducks collected in 1989-90 in western PWS and SW Kodiak contained oiled food items in their gullets and petroleum residues in liver tissue and bile Experimental studies have demonstrated that single small doses of petroleum can cause reproductive failure in some seabirds A search of the files of US Coast Guard Federal On-Scene Coordinator indicated that approximately 130 blue mussel beds may retain EVOS oil in western PWS However, field evidence collected in 1992 has shown additional previously unreported oiled mussel beds in PWS and along the Kenai coast EVOS oil also remains associated rith dispersed blue mussels in a number of sheltered locations currently under investigation Extensive iling of Kenai Fjords National Park is also well documented, and there may be some degree of continuing injury to Harlequin Ducks occupying suitable habitat in this park unit

WHAT The goals are to 1) study Harlequin reproductive failure in western PWS, 2) determine whether there is reproductive failure elsewhere in the oiled area (Kenai coast and Afognak Island) and 3) characterize Harlequin Duck nesting habitat on Afognak Island

The objectives are to 1) radio-track Harlequin Ducks to nest sites on Afognak, 2) determine the distribution of breeding Harlequins, using pair counts and brood surveys, in oiled and non-oiled areas, 3) compare characteristics of streams on which successful Harlequin reproduction is occurring in unoiled areas to those of similar streams, in both oiled and unoiled areas, having no Harlequin reproduction, 4) determine the diet of Harlequin Ducks found dead during the oil spill, 4) obtain new information on movements of resident breeding and non-breeding Harlequins, including documentation of spring and summer habitat use, home ranges, foraging behavior and nest site selection, and 5) determine diet and petroleum residues in tissues of Harlequin Ducks to be collected and live-trapped

WHY The ultimate goal of this project is the restoration of breeding Harlequin Ducks to the oil spill area. To achieve restoration we need 1) determination of the geographic extent of the reproductive failure, 2) definition of habitat requirements to guide restorations, 3) determination of whether hydrocarbon residues are currently present in Harlequins in order to clarify the link to persistant oil contamination. If the observed failure of reproduction is related to the contaminated food chain, remaining oil pollution must be corrected before restoration can take place, otherwise measures to ncrease productivity will be fruitless. In some cases these mussel beds remain grossly contaminated

Tochnical knowledge of habitat requirements of breeding Harlequin Ducks may prove valuable for bitat acquisition and mitigation measures, protection of non-Federal lands in National Park Service areas, development of marine sanctuaries, or other restoration actions

HOW We will use methodology developed during previous Harlequin Duck studies The 1993 project will determine whether the reproductive failure extends outside PWS in the Kenai coast and Afognak Island areas We will concentrate more on broods than nests outside PWS except on Afognak The expanded geographical area will involve less survey intensity per unit area, but will include initial boat surveys for identification of pairs at stream mouths in late spring, followed by trapping of selected stream estuaries Harlequin females flying to streamside nest sites in early summer will be mist-netted and radio-tagged Nest sites, broods, and feeding areas will be located by following the radio-tagged hens through the summer nesting and brood-rearing period Brood count surveys will be conducted in shoreline habitats in late summer in western PWS and selected areas of the outer Kenai coast and Afognak Island Breeding survey results from the oil spill areas will be compared to unoiled control areas on Afognak Island If nests are located in the Afognak area, habitat characterization work will be conducted at each site Blood samples will be collected from breeding Harlequins in unoiled areas and from molting Harlequins in oiled areas Blood and tissue samples may also be taken from collected ducks Blood samples will be analyzed for normal blood parameters and presence of elevated levels of haptaglobins and interleukins Tissue samples (fat, liver, bile) from 40 collected ducks from the Prince William Sound and Afognak oil spill areas will be analyzed for presence of petroleum hydrocarbons Feather samples will be examined for presence of vanadium, a trace metal indicating petroleum exposure Fecal samples from flightless birds trapped during the molt will be collected to determine presence/absence of petroleum exposure (i e through contaminated blue mussels) by neans of florescence testing The Harlequin diet will be studied by examination of gullet contents of Harlequin carcasses from the EVOS bird morgue in Anchorage This project will coordinate with Restoration Study # 051 (Quantification of Stream Habitat for Harlequin Ducks from Remotely Sensed Data) to ground-truth aerial photographs and satellite imagery in the PWS and Afognak areas There is no financial or operational overlap with #051

ENVIRONMENTAL COMPLIANCE This project will comply with requirements of the National Environmental Policy Act No environmental analysis is required to conduct this study, because it is a research project State and Federal collecting permits will be obtained through regular procedures

WHEN This project will be conducted during 1993-1995 Field work will be completed each year by August 30 Report preparation will begin in September, and the annual progress report will be completed before January 30 Literature review and study plan revisions will be conducted during February Preparation for field work will continue during March-April Field work and camp set-up will begin in early May Resident pair counts will be conducted in late May Stream sampling, capture and radio-tracking of females will be carried out during June, radio-tracking non-breeders will continue until mid-July Molt surveys will be carried out between July 15-August 15 Capture and blood sample of flightless molters will take place July 20-August 10 Brood counts will take place between August 15-September 1 Final Report Preparation will be between September 1, 1994-January 29, 1995

Project Description The goals of this project are to 1) study Harlequin duck reproductive failure in western PWS 2) determine if there is reproductive failure on the outer Kenai coast, 3) conduct Harlequin duck nesting habitat characterization on Afognak Island

	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Mar-93	lotal		-		514 67	FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel	\$0.0	\$298.0	\$298.0	\$299 7	\$124.0			
Travel	\$0.0	\$27 0	\$27 0	\$27 0	\$6 O			
Contractual	\$0.0	\$261 8	\$261 8	\$261 8	\$59 8			ļ
Commodities	\$0.0	\$28.0	\$28 0	\$28 0	\$10 0			
Equipment	\$0.0	\$40 0	\$40 0	\$25 0	\$25 0			
Capital Outlay	\$0.0	\$0.0	\$0 0	\$0 0	\$0 0			
Sub-total	\$0.0	\$654 8	\$654 8	\$641 5	\$224 8	\$0.0	\$0 0	\$0.0
General Administration	\$0.0	\$63 1	\$63 1	\$63 2	\$22 8			
Project Total	\$0.0	\$717 9	\$717 9	\$704 7	\$247 6	\$0 0	\$0.0	\$0 0
Full-time Equivalents (FTE)								
					Amounts	s are shown ii	n thousands	of dollars
Budget Year Proposed Personnel		Months						
Position		Budgeted	Cost					
1 WBIII - PI		70	\$40 4			Comment		
6 FWT III		60 0	\$230 4					
1 A/P IV		13	\$6 7	** If not fun	nded in FY 94	, \$64 8K wil	l be needed f	or data
1 A/P II		0 8	\$3 1	analysıs, lab	work and rep	ort preparation	on	
1 P/S II		0 8	\$3 3					
1 Program Manager		2 0	\$15 0					
* FY 93 is a transition year from	the previously	used oil fiscal yea	ar to the federal fis	cal year Th	is new projec	t also include:	s proposed fu	inding for
January and February, 1993		•		•			• •	U U
17 Jul 92		·· ··	· <u></u>					
		Project Numb	er 93-033					FORM 2A
		Project Title	Harlequin Duc	k Restoratio	n			PROJECT
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Travel	Travel and transportation costs are (PWS, Kenai coast and Afognak), from Juneau to Anchorage 2 X R	e important componenets because of remote field locations to be in also includes Data Base Management travel and per diem T @ 1 4K	vestigated
Contractual	Contractual services include air cha supply, shipment of field gear, gas	arter for radio-tracking, vessel charters for surveys, camp installation oline and mileage for vehicles	on, and fuel
Oregor Dept F RSA fr Dr Rol 1 gradu Univers RSA fr analysi and int	n State University Fisheries and Wildlife om ADF&G to commence Jan 93 bert Jarvis for Harlequin Expertise uate student (Crowley) sity of Alaska, Fairbanks rom ADF&G for avian blood chemistry is , including blood sera haptaglobins terleukins (L Duffy) and statistical	20К 25К	
analysi Softwa	is (T Boyer) are Licensing	5K	
Commodities	Includes food for field car veterinary supplies, softw	nps, boat gasoline, oil and parts, office & scientific supplies, captu vare	re equipment,
Equipment	Two 20' inflatable hard-c communication radios, radi	hine boats, 115 hp outboard, backup outboard for use in open sea dio telemetry transmitters and receivers, stream flow meters	conditions,
17 Jul 92		Project Number 92 022	
1993	page 2 of 2	Project Number 93-033 Project Title Harlequin Duck Restoration and Monitoring Study Agency ADF&G	FORM 2B PROJECT DETAIL

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XXON VALDEZ OIL SPILL PROJECT DESCRIPTION

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Project Number	93-033 C
Project Source	297-31, 279-15, & 273-02
Project Title	Harlequin Duck Restoration Monitoring Study in Prince William Sound, Kenai, Afognak and Alaska Peninsula Oil Spill Areas
Project Category	Restoration Monitoring
Project Type	Birds
Lead Agency	Alaska Department of Fish and Game
Cooperating Agencies	National Park Service (NPS), US Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Auke Bay Laboratory, Alaska Department of Natural Resources
Project Term	Start Date 1/10/92 Finish Date 9/30/95

...TRODUCTION The Exxon Valdez oil spill (EVOS) significantly affected Harlequin Ducks (<u>Histrionicus</u> <u>histrionicus</u>) Not only was there direct mortality of at least 200 Harlequins in Prince William Sound (PWS), but there has been a nearly complete reproductive failure of residents of the western PWS oil spill area from 1990 to 1992 (No study was conducted in 1989) This is a significant and unexpected long-term effect Because some Harlequins spend their entire lives in the oil spill area, where they breed, feed, and overwinter, it is possible to detect and study this impact of EVOS (Non-resident Harlequins and other seaducks that over-winter in oiled areas may be similarly effected, but because they breed in areas remote from the spill, it is impractical to study them)

Harlequins are intertidal feeding diving ducks The Harlequin Duck population in the Prince William Sound, Kenai, Afognak and Alaska Peninsula areas contains both residents and non-resident migrants The residents breed along forested streams within a few kilometers of saltwater, molt in secluded bays and lagoons, and roost on offshore rocks Broods are found with hens on saltwater in summer Non-resident Harlequin Ducks which winter on the south coast of Alaska breed elsewhere on mountain streams They arrive in the south coastal area in October and depart in May Harlequin Ducks return to the same breeding and wintering areas year after year Breeding Harlequin Ducks were formerly distributed throughout PWS, including the spill area, with broods commonly observed in shoreline habitats (Isleib and Kessel, 1973, Isleib, pers comm.)

Project Number 93-033

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The reproductive failure of Harlequin Ducks in the oil spill area is postulated to be a chronic effect of petroleum exposure through contaminated intertidal food Blue mussels (Mytilus) appear to be the most likely source of contamination They are well known to concentrate and hold pollutants in their tissues Restoration Study #103 has documented high concentrations of polynuclear aromatic hydrocarbons (PAHs) in mussel flesh, byssal thread mats, and underlying substrates in western PWS in 1992 Because Harlequin Ducks consume entire mussels, ingesting petroleum hydrocarbons in mussel tissue, on the shell surface, and in attached byssal threads and sediment, Harlequin Ducks collected in 1989-90 in western PWS and SW Kodiak contained oiled food items in their gullets and petroleum residues in liver tissue and bile Experimental studies have demonstrated that single small doses of petroleum can cause reproductive failure in some seabirds A search of the files of US Coast Guard Federal On-Scene Coordinator indicated that approximately 130 blue mussel beds may retain EVOS oil in western PWS However, field evidence collected in 1992 has shown additional previously unreported oiled mussel beds in PWS and along the Kenai coast EVOS oil also remains associated ith dispersed blue mussels in a number of sheltered locations currently under investigation Extensive iling of the outer Kenai coast and Alaska Peninsula is also well documented, and there may be some degree of continuing injury to Harlequin Ducks occupying suitable habitat in these areas

WHAT The goals are to 1) study Harlequin reproductive failure in western PWS, 2) determine whether there is reproductive failure elsewhere in the oiled area (Kenai coast, Afognak Island, and Alaska Peninsula) and 3) characterize Harlequin Duck nesting habitat on Afognak Island

The objectives are to 1) radio-track Harlequin Ducks to nest sites on Afognak, 2) determine the distribution of breeding Harlequins, using pair counts and brood surveys, in oiled and non-oiled areas, 3) compare characteristics of streams on which successful Harlequin reproduction is occurring in unoiled areas to those of similar streams, in both oiled and unoiled areas of Afognak Island, having no Harlequin reproduction, 4) determine the diet of Harlequin Ducks found dead during the oil spill, 4) obtain new information on movements of resident breeding and non-breeding Harlequins, including documentation of spring and summer habitat use, home ranges, foraging behavior and nest site selection, and 5) determine diet and petroleum residues in tissues of Harlequin Ducks to be collected and live-trapped

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WHEN This project will be conducted during 1993-1995 Field work will be completed each year by August 30 Report preparation will begin in September, and the annual progress report will be completed before January 30 Literature review and study plan revisions will be conducted during February Preparation for field work will continue during March-April Field work and camp set-up will begin in early May Resident pair counts will be conducted in late May Stream sampling, capture and radio-tracking of females will be carried out during June, radio-tracking non-breeders will continue until mid-July Molt surveys will be carried out between July 15-August 15 Capture and blood sample of flightless molters will take place July 20-August 10 Brood counts will take place between August 15-September 1 Final Report Preparation will be between September 1, 1994-January 29, 1995

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Project Description The goals of this project are to 1) study Harlequin duck reproductive failure in western PWS 2) determine if there is reproductive failure elsewhere in oiled areas, including the outer Kenai coast and the Alaska Peninsula areas, and 3) conduct Harlequin duck nesting habitat characterization on Afognak Island

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	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Mar-93	Total	**				FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel	\$0 0	\$298 0	\$298 0	\$299 7	\$124 0			
Travel	\$0 0	\$27 0	\$27 0	\$27 0	\$6 O			
Contractual	\$0 0	\$261 8	\$261 8	\$261 8	\$59 8			
Commodities	\$0 0	\$28 0	\$28 0	\$28 0	\$10 0			
Equipment	\$O O	\$40 0	\$40 0	\$25 0	\$25 0			
Capital Outlay	\$0 0	\$0.0	\$0 O	\$0.0	\$O O			
Sub-total	\$0 0	\$654 8	\$654 8	\$641 5	\$224 8	\$0 0	\$0 0	\$0.0
General Administration	\$0.0	\$63 1	\$63 1	\$63 2	\$22 8			
Project Total	\$0.0	\$717 9	\$717 9	\$704 7	\$247 6	\$0 O	\$0 0	\$0.0
Full-time Equivalents (FTE)								
					Amounts	s are shown ir	n thousands	of dollars
Budget Year Proposed Personnel		Months						
Position		Budgeted	Cost					
1 WBIII - PI		70	\$40 4			Comment		
6 FWT III		60 0	\$230 4					
1 A/P IV		13	\$6 7	** If not fun	ded in FY 94,	, \$64 8K will	be needed f	or data
1 A/P II		08	\$3 1	analysıs, lab	work and rep	ort preparatio	n	
1 P/S II		08	\$3 3					I
1 Program Manager		2 0	\$15 0					
* FY 93 is a transition year from	the previously i	used oil fiscal year	to the federal fis	cal year Thi	s new project	t also includes	s proposed fu	unding for
January and February, 1993		_						
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		Project Numbe	r 93-033					FORM 2A
1000		Project Title	Harlequin Ducl	< Restoratio	n			PROJECT
1993 page 1	of 2	Agency ADF	&G					DETAIL

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Travel	Travel and transportation costs are (PWS, Kenai coast, Alaska Peninsul from Juneau to Anchorage 2 X RT	Fravel and transportation costs are important componenets because of remote field locations to be investigated PWS, Kenai coast, Alaska Peninsula and Afognak), also includes Data Base Management travel and per diem from Juneau to Anchorage 2 X RT @ 1 4K						
Contractual	Contractual services include air chai supply, shipment of field gear, gaso	rter for radio-tracking, vessel charters for surveys, camp installation line and mileage for vehicles	, and fuel					
Oregon Dept Fi RSA fro Dr Rob 1 gradu	State University isheries and Wildlife om ADF&G to commence Jan 93 ert Jarvis for Harlequin Expertise ate student (Crowley)	20К						
Univers RSA fro analysis and inte analysis	ity of Alaska, Fairbanks om ADF&G for avian blood chemistry s , including blood sera haptaglobins erleukins (L Duffy) and statistical s (T Boyer)	25К						
Softwa	re Licensing	5K						
Commodities	Includes food for field cam veterinary supplies, softwa	ps, boat gasoline, oil and parts, office & scientific supplies, capture are	equipment,					
Equipment	Two 20' inflatable hard-ch communication radios, rad	ine boats, 115 hp outboard, backup outboard for use in open sea c io telemetry transmitters and receivers, stream flow meters	onditions,					
17 Jul 92	page 2 of 2	Project Number 93-033 Project Title Harlequin Duck Restoration and Monitoring Study Agency ADF&G	FORM 2B PROJECT DETAIL					

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number 93-034	
rroject Source	
Project Title Pigeon Guillemot Colony Survey	
Project Category Habitat Protection and Acquisition	
Project Type Birds	
Lead Agency US Fish and Wildlife Service	
Cooperating Agencies None	
Project Term Start Date 1 January 1993	Finish Date 31 December 1993

INTRODUCTION

<u>Background and Summary of Injury</u> --The pigeon guillemot (*Cepphus columba*), a diving seabird, feeds in nearshore waters and nests in numerous small colonies on rocky shores throughout the eastern North Pacific The U S Fish and Wildlife Service began studies of pigeon guillemots at Naked Island in the center of Prince William Sound (PWS) during the late 1970s when oil tanker traffic began through the sound These studies have provided baseline data for evaluating the effects of the spill on guillemots

A estimated 2,000 to 3,000 guillemots were killed as a direct result of the *Exxon Valdez* oil spill nese birds may have represented as much as 10% of the cataloged pigeon guillemot population in the Gulf of Alaska, and 33% of the 1991 estimated PWS population Pigeon guillemots are one of six seabird species that showed significantly greater declines in the oiled area of PWS. The PWS summer population has declined from over 15,000 in 1972 to 6,585 in 1991. At Naked Island, guillemot numbers declined more in oiled areas, and a complete colony census in 1992 showed continuing decline Adults were contaminated internally, and unhatched eggs showed internal and external contamination in 1989 and 1990. On a daily basis throughout the summer, guillemots perch on intertidal and supratidal rocks at nesting colonies, and researchers have hypothesized that guillemots were, and continue to be, contaminated by shoreline oiling.

Knowledge of the distribution of guillemot colonies and of the number of birds breeding at these colonies is very limited Because guillemots often represent only a small number of the birds nesting at large multispecies colonies, researchers typically only list guillemots as present, and good estimates of their numbers are not often made In addition, guillemots nest at many locations where the other more abundant seabirds do not breed, thus the majority of guillemot colonies are missed completely

Within the spill area, censuses specific for pigeon guillemots have been conducted only in very limited areas around Naked Island and Afognak Island (1992 only) Although Bird Study 2 provided a population estimate for PWS guillemots, these surveys were not designed to identify breeding colonies Information on the location and degree of oiling at guillemot colonies would identify areas where protection management actions might be appropriate or where additional cleanup could benefit guillemots

I ocation -- This project will be conducted in PWS with efforts focused primarily in the western sound

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<u>Goal</u> --The goal of this project is to enhance recovery of pigeon guillemot populations injured by the *Exxon Valdez* oil spill This goal will be accomplished by identifying important breeding areas for possible protection or additional cleanup

Objectives --

1 Identify and map pigeon guillemot colonies within the trajectory of the Exxon Valdez oil spill

WHY

<u>Benefit to Injured Resources/Services</u> --This project will benefit injured pigeon guillemot populations by identifying and censusing guillemot colonies throughout the spill area Important breeding areas must be identified to enable protective measures or land acquisition which will benefit guillemot restoration Guillemots nest in crevices among supratidal talus, on cliffs, or in the cavities formed by the roots of trees at the forest/cliff edge Guillemot nest sites are sensitive to logging operations or other shoreline developments, since they utilize forest edges and beach talus Because guillemots tend to feed near their nest sites, adjacent foraging areas could also be impacted by such activities as logging, tailings from mining operations, intensive commercial fishing, barge or dredging operations, and recreation activities Thus, foraging areas near large guillemot colonies might be included in a marine sanctuary system or be protected by an extended buffer strip

elationship to Restoration Goals --This project meets the Trustee Council goal of restoring the invironment to its pre-spill condition by identifying management actions that will help restore an injured marine bird species

HOW

<u>Methodology</u> --Pigeon guillemot colonies will be located and censused by cruising the shoreline when birds are at their colonies The optimum time for locating colonies is prior to incubation, in May and early June, at 0400-0800 h or at high tide In PWS, three teams of two observers operating from 25foot boats will find colonies by cruising close to shore during the appropriate hours About 60 km of shoreline can be covered per boat per day during appropriate hours, so that much of west side of PWS can be covered in May and early June Colony locations will be marked on topographic maps and lat/long recorded using the Global Positioning System Colonies will also be censused Habitat, nest accessibility and onshore oiling at each colony will be recorded

<u>Coordination with Other Efforts</u> --This project will use existing distribution and abundance data collected by the PWS boat survey project (former Bird Study 2) to determine likely guillemot colony locations This project will also share personnel and equipment with the proposed 1993 boat survey project (Project 93-045), assuming both projects are approved Data on colony locations will be added to the Catalog of Alaskan Seabird Colonies The catalog, including updated information such as will be collected by this proposed project, will be used as a data layer for the oil spill area geographic information system being developed under proposed project 93-060 (Accelerated Data Acquisition for Habitat Protection/Acquisition)

VIRONMENTAL COMPLIANCE

This project relies on non-intrusive methods and appears to qualify for a categorical exemption from the requirements of the National Environmental Policy Act

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Study Design and Logistical Planning Colony Census Data Analysis, Report March-April 1993 May-June 1993 September-December 1993

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Project D	Description Pigeon Guillemo	ot Colony Sur	ey This proje	ect will locate	and map pi	geon guillem	not colonies	in the spill	affected area
The data	will be incorporated into a ca	atalog of Alask	an Seabird Co	lonies and u	sed by the T	rustee Coun	cıl ın restora	ation efforts	6
		· · · · ·	–			I			
		Approved	Proposed*						Sum
Budget C	Category	01-Oct-92	01-Mar-93	lotal				-	FY 98 &
		28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
	Personnel		53 0	53 0	80				
	Travel		10.0	10 0	0 0				
	Contractual		55 0	55 0	0 0				
	Commodities		21 0	21 0	0 0				
	Equipment		15 0	15 0	0 0				
	Capital Outlay		0 0	0 0	0 0				
	Sub-total	00	154 0	154 0	80	0 0	0 0	0	0 00
	General Administration		118	11 8	1 2				
	Project Total	0 0	165 8	165 8	9 2	0 0	0 0	0	0 0 0
	Full-time Equivalents (FTE)		15	15	0.2				
		r.			• -	Amounts ar	e shown in t	housands	of dollars
Budget Y	ear Proposed Personnel	L		1		· · ·			
	•		Months						
	Position		Budgeted	Cost			Comment		
FY 93	Principal Investigator		40	16,000					
	Supervisory Biologist		05	3,000					
	Program Manager		10	5,000					
	Expeditor		10	2,000					
	Biologist (6x2)		120	27,000					
FY 94	Principal Investigator		20	8,000					
	* FY 93 is a transition year fi	rom the previo	ously used oil fi	iscal year to f	the federal fi	scal year T	his new proj	ect also in	cludes
	proposed funding for Janua	ry and Februa	ry, 1993						
17-Jul-9	92								
			Project Numb	er	93–034	_			FORM 2A
1993			Project Title	Pigeon Guill	emot Colony	y Survey			PROJECT
[PAGE 4 OF 5		Agency	US Fish & W	Ildlife Servic	e			DETAIL

Agency US Fish & Wildlife Service

Travel	Includes travel to Prince William Sou	nd by train, boat, and air, and per diem (10K)	
Contractual	Includes GIS support (7K), fuel/camp 30 days vessel contract (30K), and e	o transport (5K), training (5K), vessel repair (5K), quipment warehouse (3K)	
Commodities	s Includes food (6K), fuel (10K), and camp supplies (5K)	
Equipment	Includes GPS (3), binoculars (2), rac	lios, cameras, and field scientific supplies (10K)	
17_111-92			
1993	PAGE 5 OF 5	Project Number93–034Project TitlePigeon Guillemot Colony SurveyAgencyUS Fish & Wildlife Service	FORM 2B PROJECT DETAIL



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EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

iject Number 93-035
Project Source
Project Title Potential Impacts of Oiled Mussel Beds on Higher Organisms Contamination of Black
Oystercatchers Breeding on Persistently Oiled Sites in Prince William Sound
Project Category Restoration Monitoring/Restoration Manipulation
Project Type Birds
Lead Agency U S Fish and Wildlife Service
Cooperating Agencies None
Project Term Start Date 1/1/93 Finish Date 3/15/94

INTRODUCTION

<u>Background</u> --The Shoreline Assessment Program which has monitored the recovery of beaches impacted by oil from the *Exxon Valdez* spill has documented the existence of persistent oil contamination in dense blue mussel (*Mytilus edulis*) beds at more than 100 sites throughout western Prince William Sound (PWS) The oil has been trapped under the mussels in the byssal mats that anchor the mussels to -3ch other and to the substrate in this anaerobic environment, the oil has not degraded Sheening from iese beds has been observed, and aromatic compounds are still present

The black oystercatcher (*Haematopus bachmani*) is a large shorebird that lives on rocky intertidal shores throughout the North Pacific They nest in the open on rocky points and islets and rely on cryptic egg coloration and distractive behaviors to avoid predation of eggs and chicks After hatching, adults feed their chicks until the chicks are capable of feeding themselves, the total length of this rearing period is unknown, but may last two or more months During the early rearing period, the adults and chicks occupy a feeding territory in the vicinity of the nesting site Black oystercatchers feed on a variety of intertidal mollusks, including mussels which form a significant portion of the diet of both adults and chicks In PWS, oystercatchers favor gravel shorelines, and mussel beds embedded in sand/gravel beaches are an important foraging habitat. The mussel beds used by oystercatchers in PWS occur in low energy environments where oil persists Because oystercatcher chicks are fed food items from a restricted area near their natal site, oystercatcher chicks are excellent subjects for monitoring how oil from the *Exxon Valdez* spill is affecting the physiology and reproduction of a higher vertebrate species Because of their complete dependence on rocky intertidal areas and the importance of mussels in their diet, black oystercatchers can serve as an indicator species for assessing the condition of rocky intertidal habitats and the continuing presence of oil in such habitats

<u>Summary of Injury</u> --Oil from the *Exxon Valdez* contaminated rocky shorelines used by black oystercatchers for feeding and nesting Based on initial studies in PWS at Green Island, the oiling affected black oystercatchers by reducing the number of breeding pairs and by reducing egg volume Subsequent studies demonstrated that oystercatcher chicks raised on oiled beaches, despite being delivered a larger biomass of food, grew slower than chicks raised on unoiled beaches Based on studies with captive birds, ingestion of oil can decrease growth because energy that would otherwise be used tor growth is used to fuel the metabolic processes that detoxify oil The reduced growth rates of chicks ed at sites with persistent oil contamination is still occurring, suggesting continuing injury due to the presence of *Exxon Valdez* oil in rocky intertidal habitats

Location -- This study will be conducted in Prince William Sound Study sites will include Montague Island (unoiled), Green Island (oiled) and Knight Island (oiled)

WHAT

<u>Goal</u> --The goal of this study is to determine whether black oystercatchers breeding on shorelines with persistent oil contamination in Prince William Sound are affected by their use of these habitats. This study will determine if there is a link between use of oiled mussel beds by oystercatchers and their reproductive success, as evidenced by chick growth rates and recruitment.

Objectives --

1 To determine if the continued persistence of hydrocarbons in mussel beds is being transferred to chicks via the food chain and is responsible for depressed growth rates

WHY

<u>Benefit to Injured Resources</u> --This study will be beneficial to the restoration of black oystercatchers because the study will determine whether continuing injury or recovery is occurring at oiled sites. If recovery is not occurring, the study is designed to reveal whether a cause of the continuing injury to

stercatchers is use of oiled mussel beds for feeding This study will identify specific mussel beds and ineir characteristics which result in the continuing injury to oystercatchers. These data could be used to identify sites needing additional treatment. Treatment of such sites will eventually benefit oystercatchers by returning their foraging areas to a normal condition.

<u>Relationship to Restoration Goals</u> --This study meets two Trustee Council restoration goals restoration monitoring and restoration manipulation. This study will determine whether black oystercatchers are continuing to be adversely affected by persistent oil contamination. This information is necessary to plan meaningful restoration actions. This study will also identify areas with persistent contamination and document the effects of that contamination on an higher trophic level organism. These data could be used by the Trustee Council to identify specific areas needing additional treatment so that the contamination can be eliminated

HOW

<u>Methodology</u> --Study methodology will follow previous study plans From June to late August, study personnel will operate from a field camps at Herring Bay, Knight Island, Montague Island, and Green Island Chicks raised on Montague Island will serve as unoiled controls

Chicks will be banded with individually-recognizable color bands when \geq 7 days old and will be reweighed twice before fledging At \geq 25 days, blood samples will be collected from chicks Fecal samples from chicks will be collected and analyzed to determine the presence of hydrocarbons (n=50)

lecruitment of young into the breeding population and overwinter survivorship will be determined by elocation of color-banded birds marked in previous years by this study (n = 140 +)

nples of mussels from mussel beds used by black oystercatchers for feeding will be collected for hydrocarbon analysis by the NOAA oiled mussel bed project

<u>Coordination with Other Efforts</u> --This study continues damage assessment and restoration projects on black oystercatchers in 1989, 1991 and 1992 As in 1992, the study will coordinate with the proposed NOAA oiled mussel bed study to ensure that oiled mussel beds used by oystercatchers are included in the NOAA sampling program. This study will also coordinate with the proposed harlequin duck study

ENVIRONMENTAL COMPLIANCE

This study is a non-intrusive study primarily involving observations and infrequent handling of live birds No birds will be collected Samples of oystercatcher fecal material and food items will be collected for analysis of hydrocarbon content This study appears to qualify for a categorical exemption from the requirements of the National Environmental Policy Act

WHEN

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Hire Project Leader	March 1993
Logistical Planning	March to May 1993
Commence Field Work	June 1, 1993
Complete Field Work	August 31, 1993
Data Analysis	September - December 1993
Draft Report	January 1994
nal Report	March 1994

Project D	Description Potential impact	ts of oiled mus	ssel beds on hig	gher organis	ims feeding	g ecology an	d reporoduc	tive succes	s of black
Note Th	his project extends from Janua	arv 1. 1993 to	March 31, 1994	The total	cost of this 1	5-month p	eriod is \$125	5.200	
	<u> </u>	Approved	Proposed*						Sum
Budget (Category	01-Oct-92	01-Mar-93	Total				ľ	FY 98 &
		28-Feb-93	30-Sep-93	FY 93	FY 94**	FY 95	FY 96	FY 97	Beyond
	Personnel	0.0	38.0	38.0	15.0				
	Travel	0.0	4 0	4 0					
	Contractual	00	45 0	45 0	00				
	Commodities	00	70	70	00				
	Faupment	00	50	50	0 0				
	Capital Outlay	00	00	0.0	0 0				
	Sub-total	00	99 0	99 0	15 0	0 0	00	0 0	0
	General Administration	00	89	89	23				
	Project Total	00	107 9	107 9	17 3	0 0	0 0	00	0
	Full-time Equivalents (FTE)	00	11	1 1	0 33				
					0.00	Amounts ar	e shown in t	f dollars	
Budaet)	Year Proposed Personnel			· _ · ·					
			Months						
	Position		Budgeted	Cost			Comment		
	Principal Investigator		70	23,000					
	Supervisory Biologist		05	3,000					
	Program Manager		10	6,000					
	Biologist		4 0	4,000					
	Expeditor		10	2,000					
FY 94									
	Principal Investigator		30	9,000					
	Supervisory Biologist		05	3,000					
	Program Manager		05	3,000					
	*FY 93 is a transition year fr proposed funding for Janua **The total shown in FY 94 f	om the previo ry and Februa to closeout wo	usly used oil fis ary, 1993 ork started in FY	cal year to t (93 is \$17 3	he federal fis	scal year Tl	nis new proje	ect also inclu	ıdes
17-Jul-	92								
1993			Project Numbe Project Title	er 93−035 Black Ovster	catchers/Oil	ed Mussel F	leds		FORM 2
	PAGE 4 OF 5		Agency	US Fish & W	/ildlife Servic	e			DETAIL
EXXON VALDEZ TRUSTEE COUN ^

Travel	Includes travel to/from Princ	e William Sound via train, plane, and boat (4K)	
Contractual	Includes accommodations at Herrin and warehouse storage	g Bay (20K), and vessel maintenance (5K), hydrocarbon analysis of fecal samples (20K),
Commodities	Includes food, fuel (5K), and	d miscellaneous expendibles (2K)	
Equipment	Includes vessel equipment, inflatible	es, and chemicals (5K)	
17–Jul–92 1993	PAGE 5 OF 5	Project Number93-035FORM 28Project TitleBlack Oystercatchers/Oiled Mussel BedsPROJECAgencyUS Fish & Wildlife ServiceDETAIL	-

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EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

n-oject Number: 93036

Project Source:

Project Title: Recovery Monitoring and Restoration of Intertidal Oiled Mussel Beds in Prince William Sound and the Gulf of Alaska Impacted by the *Exxon Valdez* Oil Spill

Project Category: Restoration monitoring and restoration manipulation

Project Type: Coastal habitat

Lead Agency: National Oceanic and Atmospheric Agency

Cooperating Agencies: National Park Service, U S Fish & Wildlife Service, Alaska Department of Fish and Game, and Alaska Department of Environmental Conservation

Project Term: Start Date: 1 Jan 1993 Finish Date. 31 Dec 1997

This is a multi-year program

NTRODUCTION:

A. Background on the Resource/Service--The persistence of *Exxon Valdez* crude oil underlying some densely packed mussel (*Mytilus trossulus*) beds in Prince William Sound, Alaska, began to cause concern, 1991, among scientists from state and federal agencies With the encouragement of the Restoration Team and the Trustee Council, staff from several agencies conducted a field survey and sampled mussels and underlying sediments from several sites in June of 1991 Subsequent sampling trips were conducted by NOAA in August and September of that year and several times to date in 1992

Preliminary analytical data indicate total aromatic hydrocarbons concentrations as high as 470 ppm dry weight in sediments and 55 ppm dry weight in mussels Natural recovery of oiled mussel beds appears to be minimal

B. Summary of Injury--High concentrations of oil in mussels from oiled mussel beds may provide a source of continued exposure to petroleum hydrocarbons through ingestion by higher consumers There may be possible linkage to 2 species of birds - harlequin ducks and black oystercatchers, and possibly river and sea otters The presence of these contaminated beds is also of concern for human subsistence

C. Location--Identified and verified oiled, densely packed mussel beds are located throughout the western and southwestern part of Prince William Sound The National Park Service has also surveyed and sampled mussels and sediments from oiled sites along the Kenai Peninsula and proposes to continue the monitoring in 1993 NPS expects to extend the geographic area of site survey to the Kodiak area

XXTHAT.

A. Goal--The overall purpose of this project is to document continued bioavailability of petroleum hydrocarbons to consumers of contaminated mussels, and determine the rate of recovery of oiled mussel beds with and without manipulation

B. Objectives

1 To measure natural recovery in levels of petroleum hydrocarbons in mussels and underlying sediments and oiled mussel beds identified and sampled in 1991 and 1992 and to sample mussel beds in areas newly identified by other agency field investigators [NOAA, NPS]

2 a To measure recovery of petroleum hydrocarbon concentrations to background levels in mussel bed sites manipulated in 1992 This involves three sites treated by NOAA and two sites manipulated by ADEC in 1992, and additional sites if cleaning mussel beds is initiated by ADEC in 1993 under Project 93038 [NOAA]

b To test the feasibility of new, minimally intrusive manipulative techniques at 3 oiled mussel bed sites within Prince William Sound, and to conduct restorative manipulations at selected site in the Gulf of Alaska [NOAA,NPS]

3 To measure the physiological and reproductive injury of mussels, with and without treatment [NOAA]

WHY:

A. Benefit to Injured Resources/Services--This project will provide data on the efficacy of natural recovery processes and the efficacy of on-site cleaning or manipulation to hasten return to background levels

Documentation of the level of hydrocarbons in oiled mussel beds or recovery of oiled mussel beds is necessary to evaluate continued linkage to injury seen in consuming species - harlequin ducks, black oystercatchers, river and sea otters, and, will provide necessary information for human subsistence purposes

B. Relationship to Restoration Goals--If petroleum hydrocarbon concentrations remain high in these beds in 1993, further action may be necessary to minimize or eliminate these mussels as a pathway of oil being incorporated into the food chain of consuming mammals and birds Recovery monitoring is necessary to insure that petroleum hydrocarbon levels in sediments and mussels have returned to background levels and are no longer a source of contaminated prey

HOW

A. Methodology--Sampling of mussels and sediments for petroleum hydrocarbons will follow protocol established by NOAA and the NRDA process NOAA's Auke Bay Lab has successfully established a fast screening method (UV Fluorescence) for sediment hydrocarbons Using this technique, we have documented that hydrocarbon distribution within an heavily oiled mussel bed appears to be patchy and probably related to grain size of the sediment Rapid turn around of hydrocarbon data allows targeting manipulative areas in a timely manner Most sediment samples will be analyzed using this method and only selected sediment samples (mostly for method verification) and mussel samples (based on UV levels found at particular sites) will be analyzed by gas chromatography/mass spectroscopy

Samples for histopathological analyses have been collected several times at manipulated and control sites in 1992 and we propose to process them and have them examined for anomalies, particularly precancerous conditions associated with long-term exposure to petroleum hydrocarbons Data for condition and reproductive indices for mussels from selected sites will be calculated using accepted standard methods

Byssal thread extrusion rates were measured in May 1992 and again in June 1992 in mussels from selected sites and data from these trials are currently being analyzed Depending on results, we may again repeat this test in May 1993 Thread extrusion rates can be a sensitive indication of overall physiological health These tests incorporate hydrocarbon depuration while mussels are exposed to clean seawater

Maps will be produced showing within site variation of petroleum hydrocarbon concentrations at nanipulated sites These will show a time series to illustrate changes in concentrations at 30 days, 90 days ind 1 year Standard statistical analytical methods will be used on data and will be tested at the P = 05 level Guidance here will come from that given by the NRDA peer reviewers

B. Coordination with Other Efforts--Close coordination with principal investigators of species affected by ingestion of oiled mussels will be maintained to identify new areas of continued contamination

ENVIRONMENTAL COMPLIANCE: This is a field research project in which routine data collection will take place which is limited in context and intensity Consequently, this project is categorically excluded from being required to provide an Environmental Impact Statement or Environmental Assessment

WHEN: Analytical Analyses GC/MS analyses will be conducted at the completion of all NRDA samples still in the analytical queue Selected mussel and sediment analysis are scheduled to begin in December 1992 and expected to continue on an as needed basis through 1993 UV fluorescence screening will be done on an as needed basis. This technique produces data within 10 days. We estimate processing around 500 samples by this method in 1993

Biological and physiological measurements and data from 1992 will be analyzed during Jan-Mar 1993

Field work on manipulated sites is scheduled to occur during May with follow up evaluation at 30 days and at the end of the field season Resampling of oiled mussel sites already identified and any new sites proposed by other agency field personnel will be sampled at a suitable low tide series - probably in late June Some of this site sampling may be coordinated with the other trips Project Description Recovery monitoring and restoration of intertidal oiled mussel beds impacted by the EXXON VALDEZ oil spill in Prince William Sound and along the coastline, northwestern Gulf of Alaska

		Approved	Proposed*		**				Sum
Budget Category		1-Oct-92	1-Mar-93	Total					FY 98 &
		28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel		\$141 2	\$157 5	\$298 7	\$127 0	\$135 0			
Travel		\$14 0	\$29 0	\$43 0	\$17 0	\$17 0	1		
Contractual	ĺ	\$12 5	\$115 0	\$127 5	\$75 0	\$40 0	1		1
Commodities		\$45 8	\$33 6	\$79 4	\$20 0	\$15 0			
Equipment		\$28 0	\$38 0	\$66 0	\$4 0	\$10 0			
Capital Outlay							ļ		
	Sub-total	\$241 5	\$373 1	\$614 6	\$243 0	\$217 0	\$0 0	\$0 0	\$0 0
General Admi	nistration	\$22 1	\$31 7	\$53 7	\$24 3	\$23 1			
	Project Total	\$263 6	\$404 8	\$668 3	\$267 3	\$240 1	\$0 0	\$0 0	\$0 0
							ļ		
Full-time Equi	valents (FTE)		27					<u> </u>]
						Amount	ts are shown	i in thousand	s of dollars
Budget Year Prop	osed Personne	el							
			Months						
Position			Budgeted	Cost			Comment		
SEE DETAIL	SUPPLIED BY	' INDIVIDUAL							
FORMS 3A									
* FY 93 is a tra	ansition year fro	m the previous	ly used oil fiscal	I year to the fede	eral fiscal yea	r This * co	lumn include	es funding O	NLY
for 1 March - 3	0 September 1	993 ** include	s closeout fund	ing = \$117K					
20 Aug 92								г-	
			Project N	umber: 9	3036				FORM 2A
			Project T	utle: 0	iled Mus	sel Beds	5		PROJECT
1993	0000	of	Agency:	N	OAA\NPS				DETATI.
	page	UI			,				

EXXON VALDEZ TI FEE COUNCIL

Travel	Staff travel to the field - Gul	f of Alaska and Prince William So	und	
Contractual	Vessel and aircraft charters,	data entry, histopathology		
Commodifies	Field gear and sampling sup computer software upgrades	oplies, office supplies, chemicals a s (i e , EXCEL), mapping supplies	and chemistry lab supplies,	
Equipment	Radios, computer, compute	r hardware upgrades, GPS units, t	fluorescence detector	
20 Aug 92		·····	······	
1993		Project Number· Project Title:	93036 Oiled Mussel Beds	FORM 2B PROJECT
1993	page of	Agency:	NOAA\NPS	DETAIL

Project Description Recovery monitoring and restoration of intertidal oiled mussel beds impacted by the EXXON VALDEZ oil spill in Prince William Sound, Alaska

	Approved	Proposed*		**				Sum
Budget Category	1-Oct-92	1-Mar-93	Total					FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel	\$138 7	\$126 0	\$264 7	\$92 0	\$135 0			
Travel	\$13 5	\$23 0	\$36 5	\$11 0	\$17 0			
Contractual	\$12 5	\$70 0	\$82 5	\$30 0	\$40 0			
Commodities	\$44 8	\$26 0	\$70 8	\$13 0	\$15 0			1
Equipment	\$28 0	\$34 0	\$62 0	\$2 0	\$10 0			
Capital Outlay			\$0 0					1
Sub-total	\$237 5	\$279 0	\$516 5	\$148 0	\$217 0	\$0 0	\$0 0	\$0 0
General Administration	\$21 7	\$23 8	\$45 5	\$15 9	\$23 1	\$0 0	\$0 0	\$0 0
Project Total	\$259 2	\$302 8	\$562 0	\$163 9	\$240 1	\$0 0	\$0 0	\$0 0
Full-time Equivalents (FTE)	2 8	22		14	22			1
					Amount	s are shown	in thousand	s of dollars
Budget Year Proposed Personne	el							
		Months						
Position		Budgeted	Cost			Comment		
Zoologist GS11		7	\$35 6					
Chemist GS11		6	\$30 5	P I Co-P	L. & Fisher	Biol = no c	ost	
Chemist GS11		5	\$25 4	ABL contrib	pution = appl	oximately \$2	28 5K	
Chemist GS09		7	\$28 6					
Program Manager GS12		12	\$5 9					
* FY 93 is a transition year ar	nd costs in * col	iumn are ONLY I	Mar 1 - Sept 30 1	1993				
**FY94 includes closeout cost	s of \$80 0K		-					
20-Aug 92	·							
-		Project Number	r 93036					FORM 3A
		Project Title	Oiled musse	el beds		1		SUB-
		Sub-Project	Prince Willi	am Sound		1		PROJECT
1993 _{nam}	of	Agency	NOAA			1		DETAIL
page	01						L	

Travel	12 staff RT Juneau to Prince V 6 Staff to inter and intra agency	Villiam Sound y meetings and symp	osia	
Contractual	Vessel and aırcraft charter, dat Hıstopathology contract	ta entry		
Commodities	Chemicals, cemistry lab suppli Office supplies, mapping suppli Computer software (i e , Excel)	es, field gear, sampli lies, publication costs) and upgrades	ng tools and supplies, , film,	
Equipment	Radios, computer, computer ha	ardware upgrades, Gl	PS unit, fluorescence detector	
20 Aug 92				
		Project Number Project Title	93036 Oiled Mussel Beds	FORM 3B SUB-
1993	page of	Sub-Project Agency	Prince William Sound NOAA/NMFS/ABL	PROJECT DETAIL
			· · · · · · · · · · · · · · · · · · ·	

Project Description Recovery m coastline on northwestern Gulf of	onitoring and re Alaska	estoration of intert	idal oiled musse	el beds impac	cted by the E	EXXON VALI	DEZ oll spill	along the
	Approved	Proposed*		**				Sum
Budget Category	1-Oct-92	1-Mar-93	Total					FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel	\$2.5	\$31.5	\$34.0	\$35.0				
Travel	\$0.5	\$6 0	\$6 5	\$6 0]
Contractual	\$0.0	\$45 0	\$45 0	\$45 0				
Commodities	\$1 0	\$7 6	\$8 6	\$7 0				
Equipment	\$0 0	\$4 0	\$4 0	\$2 0				
Capital Outlay			\$0 0			1	•	
Sub-total	\$4 0	\$94 1	\$98 1	\$95 0	\$0 0	\$0 0	\$0 O	\$00
General Administration	\$0 4	\$7 9	\$8 3	\$8 4	\$0 0	\$0 0	\$0 0	\$0 0
Project Total	\$4 4	\$102 0	\$106 4	\$103 4	\$0 0	\$0 0	\$0 D	\$0 0
Full-time Equivalents (FTE)	0 1	0 5		05			<u>-</u>	
					Arnounts	s are shown i	n thousands	s of dollars
Budget Year Proposed Personne		••						
Destar		Months	0			0		
Position		Budgeted	COSt			Comment		
Manne Ecologist GS12		2	\$13 U \$13 G					
NDS Drog Managar		4	φι∠ 0 ¢5 0					
NPS Plog Manager		12	4 0 9					
* FY 93 is a transition year ai **FY94 includes closeout cost	nd costs in * col s of \$37 0K	lumn are ONLY M	lar 1 - Sept 30 1	993				
20-Aug 92		Drove et Number	02026				Г	
		Project Number	Source Source	al hode				FORM 3A
······								SUB-
1993		Agency	NPS	na				PROJECT
page	ot						L	DETAIL

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Travel	4 staff RT Juneau to Gulf of Ala 1 Staff to inter and intra agency	ska meetings and sympo	osia	
Contractual	Vessel and aircraft charter			
Commodities	Field gear, sampling tools and s Office supplies, mapping supplie Computer software (i e , Excel)	upplies, es, publication costs, and upgrades	, film,	
Equipment	Radios, computer hardware upg	rades, GPS unit		
20-Aug 92		Project Number	93036	 FORM 3B
1993	page of	Project Title Sub-Project Agency	Oiled Mussel Beds Gulf of Alaska NPS	SUB- PROJECT DETAIL

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EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

ⁿ-oject Number: 93037 & 93055

Project Source:

Project Title: Experimental Evaluation of the Oiled/Control Paired Design Used in Assessing Damages and Recovery of Intertidal and Subtidal Communities

Project Category: Restoration Monitoring

Project Type:

Lead Agency: NOAA

Cooperating Agencies: USFS, UAF

Project Term: Start Date: (1 Jan 1993) Finish Date: (28 Feb 1994)

INTRODUCTION:

L Background: Damage to a variety of plants and animals in the intertidal and subtidal communities of Prince William Sound have been observed as a result of the Exxon Valdez oil spill Some of the damaged populations are apparently recovering, while others are not

B. Summary of Injury: The intertidal and shallow subtidal zones was the most severely contaminated habitat These coastal tidal zones are highly productive and biologically rich They are also particularly vulnerable to the grounding of oil, its persistence and effects of associated clean-up activities

C. Location: The sites to be used for this study are within Prince William Sound All sites will be selected from areas that were not oiled during the Exxon Valdez oil spill Actual sites are to be selected during the first phase of the study "Oiled" sites will be selected at random from within an area affected by a computer simulated spill "Control" sites will be selected which match these "oiled" sites with respect to several physiographic features

WHAT:

A Goal. This study will determine if natural variability among similar control sites is statistically the same the variability between control and oiled sites The results of this study could effect the validity of using the control sites selected for the NRDA studies The results from this study may verify the sites selected for restoration monitoring studies and restoration manipulation, and enhancement actions in the intertidal and shallow subtidal areas

B. Objectives: Test the assumption that oiled and control sites selected for study in coastal habitat damage assessment and resource recovery studies were similar except with respect to oiling Define criteria that may lead to selection of oiled and control sites in future restoration monitoring activities

WHY:

The quantitative assessment of impacts of damages to biological resources in coastal habitats, as well as recovery from these damages, relies on comparisons between selected oiled and control sites which were sampled after the Exxon Valdez oil spill The assessment of impacts based on this design rests on the assumption that pairs of oiled and control sites were similar except for the presence of oil Without independent evidence in support of this assumption, there will always be the suspicion that differences among oiled and control sites may have resulted from some inherent differences among sites rather than from oiling A "slow recovery" could also be interpreted as a result of inherent differences unrelated to oiling

IOW:

A. Methodology: An oil spill simulation model will be used to identify set of hypothetically "oiled" sites within Prince William Sound A subset of the "oiled" sites will be selected at random, and these sites will be visited Paired "control" sites will be selected that match the "oiled" sites as closely as possible. The selection of the "control" sites will be based on criteria similar to those used in selection of control sites in the Coastal Habitat damage assessment studies. The researchers will then sample and determine the population density of a variety of key indicator species at both "oiled" and "control" sites. These will include both intertidal and subtidal species that were assessed as being severely injured by the Exxon Valdez oil spill. In addition, a number of other selected physical variables (temperature, salinity, depth, slope, aspect, soil grain size, etc.) will be measured at each site. Possible differences between "oiled" and "control" sites will be determined using statistical methods comparable to those used by the Coastal Habitat damage assessment studies. The researchers will attempt to explain possible differences among sites based on physical differences among sites.

B. Coordination With Other Efforts: This project will coordinate closely with Coastal Habitat and Subtidal studies The results from this study may impact the interpretation of the results from these studies and other restoration and monitoring studies

ENVIRONMENTAL COMPLIANCE:

us is a field research project in which routine data collection will take place which is limited in context and intensity Consequently, this project is categorically excluded from being required to provide an Environmental Impact Statement or Environmental Assessment

WHEN:

<u>Schedule</u>	<u>Events</u>
1 Jan 1993 to 31 Mar 1993	Contract negotation
1 Apr 1993 to 15 Apr 1993	Select contractor
16 Apr 1993 to 30 May 1993	Prepare for field
1 Jun 1993 to 15 Jul 1993	Conduct field studies
16 Jul 1993 to 30 Sep 1993	Data entry/sorting
1 Oct 1993 to Feb 28 1994	Data analysis and final report

Project Descriptio	n Paired Desigi	n Intertidal	44.8.00 mm		TJ R				
		Approved	Proposed*						Sum
Budget Category		1-Oct-92	1-Mar-93	Total					FY 98 &
		28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel		\$0.0	¢6.6	8 A2	\$6 6				
Travel		\$0 0 \$0 0	\$00 ¢15	\$00 \$15	\$00 \$10				
Contractual		\$0 0 \$0 0	\$130 \$180.0	\$180.0	\$20.0				
Commodities		0 0¢ \$0 0	0 0010	0.001	\$0 0				
Equipment		\$0 0 \$0 0	\$0 0 \$0 0	0 0¢ 0 0\$	\$00 \$00				
Capital Outlay		\$0 0 \$0 0	\$0 0 \$0 0	0 0¢ © 02	\$0 0 \$0 0				
Capital Outlay	Sub-total	\$0.0	\$188.1	\$188.1	\$27.6	\$0.0	\$0.0	\$0.0	0.02
General Admu	nistration	\$0 0 \$0 0	\$13.6	\$13.6	\$2.4	φυυ	φυυ	40 0	φ0 0
General Autim	Project Total	\$0 0 \$0 0	\$201.7	\$201.7	\$30 0	\$0.0	¢0.0	\$0.0	\$0.0
	i Toject i otar	ψυυ	Ψ2.01 /	Ψ2.017	400 0	\$ 00	φυυ	φ0 0	\$00
Eull-time Equi	valents (ETE)	0.0	01	0.1	01				
i un unio Equi		00	0,	01	Ο,	Amount	s are shown	in thousands	s of dollars
Budget Year Prop	osed Personne								
			Months						
Position			Budgeted	Cost			Comment		
			-						
Program Mana	ager GS-12		08	\$6 6					
					Reflects co	st and time a	associated w	th managing	progress
					of contracto	or's work			
* FY 93 is a tra	ansition year fro	m the previous	ly used oil fiscal	l year to the feder	ral fiscal yea	r This new	project also	includes	
proposed fur	nding for Januar	y and February	y, 1993			··			
17 Jul 92			Protect M	umbor: 0205	5	, <u>, , , , , , , , , , , , , , , , , , </u>			
			Project N	umber: 9305			- 3-7	FOR	M 2A
1002			Project T	LLTE: PAILE	a Design	i intert	Idal	PRO	JECT
1333	page 1 o	f 2	Agency: N	UAA				DE	FAIL
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Travel	2 round trips to contractor, 1	trip to Prince William Sound	
Contractual	Cost of project contract		
Commodities			
Equipment			
17 Jul 92			
1993	page 2 of 2	Project Number: 93055 Project Title: Paired Design Intertidal	FORM 2B PROJECT DETAIL

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

roject Number. <u>93038</u>, 93023 & 93027

Project Source

Project Title. Shoreline Assessment

Project Category. Restoration Monitoring

Project Type Coastal Habitat

Lead Agency Alaska Department of Environmental Conservation

Cooperating Agencies. Alaska Department of Natural Resources, Alaska Department of Fish and Game, private and federal upland landowners

Project Term Start Date 01-Jan-93

Finish Date 30-Sept-93

INTRODUCTION Now that cleanup is over, shorelines treated during spill response activities need to be monitored to ensure recovery is proceeding at an acceptable rate and that winter storms have not brought ubsurface oil to the surface Shorelines treated in 1992 and other oiled sites need to be evaluated to letermine if the shorelines responded to treatment, or if additional treatment is required to restore resource and land uses Technical experts with Exxon Valdez spill experience from the state along with federal agencies and the local communities will evaluate impacted shorelines for the presence of Exxon Valdez hydrocarbons The evaluation will document the amount of remaining hydrocarbons and determine if the remaining oil impacts shoreline activities

This project is divided into two phases Phase 1 is the physical survey of selected shorelines. This project will use the assessment procedures developed and refined during the Exxon Valdez spill. Surveyors and upland landowners will evaluate shorelines and determine if additional activities are required to restore resources and services. Phase 2 is the restoration of land and resource uses, if necessary. Light duty restoration activities would be performed during the survey by the surveyors where feasible. Larger treatment work would be identified on a work order and restoration crews from Chenega, Port Graham or other areas would be hired to perform the identified work.

This project will assess Exxon Valdez impacted shorelines in Prince William Sound and the Gulf of Alaska The principal areas are Knight, Latouche, Evans, Elrington, Green, and Disk Islands in Prince William Sound and Tonsina Bay, Windy Bay, and Chugach Bay in the Gulf of Alaska. These areas are in proximity to Chenega Village, Whittier, Port Graham, Seward and Homer

WHAT Recreation and subsistence uses, and anadromous fish streams and wildlife habitats have been impacted by the Exxon Valdez spill. The overall purpose of the project is to ensure that shorelines are restored to facilitate normal shoreline activities.

he project objectives are to assess the shoreline hydrocarbon concentrations and to complete the treatment necessary either during the survey or following the survey using local work crews to perform the identified work

15:37

Project Number: 93038 - Lead 93023 93027

'he objectives will be to: survey shorelines for the presence of Exxon Valdez hydrocarbons. -determine if resource uses are affected by hydrocarbons. -perform light duty manual treatment to restore resource use if necessary and feasible. -write work orders for local crews to treat the shoreline if necessary. -document field activities.

This project is expected to last about 4 years, but would be recommended for termination sooner if conditions warrant.

WHY: This project will assess shorelines and determine if resources are still impacted and need to be restored. The public, land owners, and resource managers need to have current and accurate field information for operation and management. If resources are impacted and need to be restored, technical experts need to survey the sites and determine the best course of action to correct the problem and not cause further damage. Impacts on resources will be corrected and resource use will be restored. Public complaints about resource damage can be assessed and addressed through the framework of this project.

Information collected by this project will assist Trustee Council review of other projects submitted for funding. This project will provide current, accurate information about shoreline conditions that will help with funding decisions. Accurate field information will be used by Restoration Team members to identify areas with persistent hydrocarbon concentrations.

OW: AEC, in conjunction with ADNR and ADF&G, will review the 1992 shoreline survey information and produce a list of subdivisions to be surveyed in 1993. This list will then be circulated to land owners and resource managers to identify additional sites to be included on the 1993 survey. The project expects that < 80 sites will be recommended for survey. After a final list is developed, the survey list will be sent to land and resource agencies for their approval and clearance to assess the sites.

Phase 1 is the physical survey of the shorelines. Technical experts and land owners will assess the shoreline segments and document oiling conditions. The survey team will be berthed on a vessel and use skiffs to access the shoreline. Float planes will provide support logistics. Previous Exxon Valdez surveys have used these logistics as the most cost effective and time efficient support structure. Agency representatives will be chosen for their environmental and habitat experience. Each person will have extensive Exxon Valdez spill experience. Surveys will be conducted daily during both low tide windows. Field information will be recorded on forms previously generated during Exxon Valdez surveys to facilitate comparison and familiarity of the existing databases.

Phase 2 is the restoration of resource habitats and uses, if necessary. Light duty restoration work will be completed during the survey as the most cost effective method. Additional restoration treatment will be identified with work orders and the treatment will be performed using local work crews. Necessary treatment would usually consist of hand labor using shovels, rakes, and bags. Surveyors and work crews will be required to attend Hazwoper training.

Wastes generated during restoration activities will require treatment at approved facilities.

NVIRONMENTAL COMPLIANCE: This project should be a categorical exclusion.

WHEN

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Project Number 93038-Lead 93023 93027

Is anticipated that this will be a four year project with yearly surveys of contaminated sites If field conditions warrant, we would recommend project termination sooner. The milestones will be similar for each year. Costs will vary due to the size of the survey and type of restoration activities.

January 15-February 15, 1993 Solicit input from landowners and resource agencies on sites to be surveyed

March 1 Produce final list of survey sites for Trustees

March 7 Submit request for bids for vessel and float plane

March 30 Receive approvals from land and resource agencies to access shoreline for survey and restoration

April 15 Secure contracts for vessel and float plane

May 15 Surveyors, landowner representatives, and work crews receive Hazwoper training

June 1-July 15 Perform survey

- August 15 Complete restoration activities
- September 15 Complete report and documentation

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17-Jul-92		Project Numb Project Title:	er: 93038-L Shoreline As	ead 93023 ssessment	, 93027		[]	FORM 2A
Field Monnitor Safety Officer	65	3	\$13.5 \$4.5					
Forest Service/Landowner	TT T	2	\$10.4					
ADF&G Representative	- Th	2	\$10.4	as appropriate	e.			
ADNR Representative	5	2	\$10.4	Personnel cos	sts will be trai	nsferred to st	ate and Fede	ral agencies
ADEC Project Manager 🛛 🚑	R	4	\$23.4					
Position		Months Budgeted	Cost			Comment		
udget Year Proposed Personnel:								······································
Full-time Equivalents (FTE)	1.2							
Project Total	\$332.0			\$278.3	\$278.3	\$278.3	\$0.0	\$0.
General Administration	\$10.9			\$9.8	\$9.8	\$9.8		
Sub-total	\$321.1			\$268.5	\$268.5	\$268.5	\$0.0	\$0.
Capital Outlay	\$1.5			\$1.5	\$1.5	\$1.5		
Commodities	\$1.0			\$1.0	\$1.0	\$1.0		
Contractual	\$245.0			\$200.0	\$200.0	\$200.0		
Travel	\$1.0			\$1.0	\$1.0	\$1.0		
Personnel	\$72.6			\$65.0	\$65.0	\$65.0		
udget Category	1-Jan-93 30-Sep-93			FY 94	FY 95	FY 96	FY 97	FY 98 & Beyond

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Travel Cost	and per diem to fly safety officer to	villages for Hazwopper training	
Contractual	Vessel and float plane \$45 0 Contract for local workcrews to p Waste disposal \$50 0	perform restoration \$150 0	
Commodities	Field forms, duplication, survey m	nanuals	
Equipment	Cleanup and safety equipment		
17 Jul-92			
1993	page 2 of 2	Project Number 93038-Lead 93023, 93027 Project Title Shoreline Assessment Agency: AK Dept, of Environmental Conservation	FORM 28 PROJECT DETAIL

TXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number	93-039						
Project Source							
Project Title HERRING BAY EXPERIMENTAL AND MONITORING STUDIES							
Project Category	Restoration Manipulation and Enhancement, and Restoration Monitoring						
Project Type	Fish						
Lead Agency	Alaska Department of Fish and Game						
Cooperating Agencies							
Project Term 4 yrs	Start Date 1/1/93 Finish Date 9/30/96						

INTRODUCTION

Marine intertidal communities were the largest single category of habitat affected by the *Exxon Valdez* oil spill. Experiments conducted at Herring ay, Knight Island, and throughout the EVOS impact area since 1990 clearly indicate that one of the consequences of the oil spill and resultant clean-up activities was serious damage to intertidal algal and invertebrate populations, especially in the mid- to upper-intertidal zones. The dominant organism in this community is the seaweed *Fucus gardneri* which provides habitat and food for a variety of invertebrates. These invertebrates in turn serve as an important food source for marine mammals, birds, and fishes. This project is designed to examine the impact of oil on relationships between and among intertidal invertebrates and plants, to investigate means of restoring <u>Fucus</u> populations and to provide detailed monitoring of the recovery of intertidal communities over the long term.

<u>Injury</u>. Studies to date indicate that plants and animals living in the upper portion of the intertidal zone suffered the most extensive damage and have shown the least recovery. In fact, data from 1991 show that some species were still declining in abundance. The upper intertidal is where oil was deposited on rocks and sediments during ebbing tides and where clean-up activities were focused. The dominant alga, *Fucus gardneri*, was virtually eliminated in these areas, and experiments indicate that several years will be required for its recovery in the lower- and mid-intertidal zones. Recovery of this species in the upper intertidal will require an even longer period. Oil inhibits recruitment of *Fucus* and other algae, and *Fucus* does not recruit successfully onto the cleaned, bare rock surfaces. Grazers such as limpets were also reduced by the spill/clean-up and have been unable to recover, due to lack of food and shelter normally provided by the algae. Barnacles have recruited on oiled surfaces, even tar, but our studies show poor subsequent survival. Our data show some recovery in the mid- to lowerintertidal zone, but recruitment is not consistent between locations and "ars. Recruitment variability appears to have a greater impact on tertidal community structure in Alaska than at lower latitudes.

<u>Location</u>. The proposed restoration, monitoring, and experimental studies will be conducted in Herring Bay, Knight Island. Intertidal studies were initiated in Herring Bay in May 1990 and have continued through the 1992 season. Herring Bay was heavily oiled in 1989, and was a central area for clean-up efforts. The Bay was chosen for experimental studies because of its oiling history and proximity to non-oiled sites used as controls.

WHAT

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<u>Goals</u>. 1) To understand what factors limit and/or facilitate recolonization of the intertidal by algae, especially *Fucus*, and invertebrates such as barnacles, mussels, and limpets. 2) To provide controlled, long-term natural recovery monitoring of inter-tidal communities such that natural variability can be differentiated from oil/clean-up effects.

Objectives.

- 1. Quantify recruitment rates, survivorship, and population dynamics of barnacles and other sessile invertebrate species on oiled, oiled and cleaned, and non-oiled substrates and at matched oiled and non-oiled sites.
- 2. Determine the recovery rate of important community members dependent upon other species reduced or eliminated by the spill, i.e., secondorder impacts. And determine the recovery rates of species with poor dispersal capabilities, e.g., the predators *Nucella* and *Leptasterias*.
- 3. Quantify the population structure and population dynamics of *Fucus* in oiled, oiled-cleaned, and control sites to monitor and to project recovery rates, especially in the upper intertidal zone areas denuded by the oil spill/clean-up activities.
- 4. Develop techniques for restoring *Fucus* by reducing heat and desiccation stress with a biodegradable substratum.

WHY: A major goal of restoration is to ensure that "injured resources have been restored to their pre-spill baseline conditions". Many plant and animal species were damaged directly by the fresh crude oil of the EVOS and/or the subsequent clean-up activities. Previous work in Herring Bay has shown that some populations continued to decrease in 1991 (1992 data not in yet), suggesting continuing expression of the original impact or additional damage due to residual oil. Experimental studies on the impact of the oil spill on intertidal community structure and recovery dynamics have been conducted in Herring Bay since 1990 and should be continued. A long-term monitoring commitment within Prince William Sound will provide several benefits, including A) an understanding of the

year-to-year variables that affect intertidal community structure, B) an understanding of long-term consequences of an oil spill, and C) establishing baseline data and an understanding of complex community structuring mechanisms at monitoring locations strategically located within Prince "Iliam Sound, should there be a future perturbation.

noW: Population dynamics of *Fucus*, sessile invertebrates, and grazers (limpets) will continue to be quantified in established quadrats at oiled and unoiled sites. Recruitment of algae and invertebrates on tarred, cleaned, and control substrata will be determined, with and without grazing. The impact of grazing on algal recruitment and the role of algae in providing food or shelter on survival or recruitment of other species will be examined in enclosures and exclosures.

Growth rates of tagged *Fucus* plants will be determined. Studies will be continued on *Fucus* egg dispersal, survival, and recruitment at oiled and unoiled sites. Experiments will be conducted on the effects of substrata heterogeneity, herbivory, shading by *Fucus* canopy, and tide level on settlement and recruitment of *Fucus* embryos.

Data from the Damage Assessment studies in Herring Bay have shown that the recovery of damaged *Fucus* populations in rocky habitats on steep south-facing beaches has been very slow. The extent of this type of damage throughout PWS will be estimated using data contained in the Department of Natural Resources Oil Spill GIS database. New data on beach aspect and beach slope in PWS will be generated under a technical services contract to DNR. The GIS model to estimate the areal extent of damage will be developed by Coastal Resources Associates. Field verification of the model and data quality assurance will be conducted in Herring Bay and in nearby sheltered rocky intertidal habitats.

or the *Fucus* restoration study, we will use biodegradable erosion-control fabric that has been seeded with *Fucus* embryos. A series of tests will be conducted to determine the optimum fabric type, of the several varieties available, to maintain sufficient moisture for embryo survival, yet provide enough open space for light for the growth of juvenile plants. We will eliminate the potential problem of lack of natural settlement by seeding the fabric with *Fucus* embryos for adding fertile adult plants. Unseeded strips will be used to test whether embryo seeding is necessary. The cost effectiveness of this procedure for large-scale restoration will be assessed.

ENVIRONMENTAL COMPLIANCE: We anticipate that this project will be categorically excluded.

WHEN: Each year of the study, the field season will commence on a low-tide series in late April. Approximately two weeks will be required to record winter results and initialize experiments for the season. Three subsequent 10 day visits will be made to Herring Bay during the summer low tides. Our objectives will be to collect quantitative data from the experiments and to monitor our restoration efforts. Reports will be prepared by March 1 of each year.

Project Description Restoration, monitoring and experimental studies will be conducted to quantify recruitment rates, survivorship and population dynamics of intertidal plants and associated invertebrate animals Recovery rates of important species will be determined for species reduced or eliminated from oiled and cleaned beaches Techniques for restoring Fucus, the principal intertidal alga impacted by the spill and clean-up, will be developed

	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Mar-93	Total	**				FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
		1150	100.0					
	\$5.0	\$15.0	\$20.0					
Iravel	\$0.0	\$0.0	\$0.0					
Contractual	\$102.1	\$4/8/	\$580.8					
Commodities	\$0.0	\$0.0	\$0.0					
Equipment	\$0 0	\$0.0	\$0 0					
Capital Outlay	\$0 0	\$0 0	\$0 0					
Sub-total	\$107 1	\$493 7	\$600 8	\$0.0	\$00	\$00	\$0 0	\$0.0
General Administration	\$2 8	\$22.4	\$25 2					
Project Total	\$109 9	\$516 1	\$626 0	\$0 0	\$0.0	\$0.0	\$0 0	\$0.0
Full-time Equivalents (FTE)	0 1							
Budget Year Proposed Personnel		I Months			l	L		
Position		Budgeted	Cost			Comment		
		-			* FY 93 is a	transition year	from the pre-	viously
Program Manager		2	\$15 0	0 used oil fiscal year to the federal fiscal year				
					This new proj	ect also includ	es proposed f	unding
					for January ar	nd February, 1	993	-
					** If not fun	dad in EV 93	\$180 OK 16 D	beded
					for analyses o	of data and rep	ort preparatio	n
						· · · · · · · · · · · · · · · · · · ·	p	
	······································				. <u></u>			
17 Jul 92	F	roject Numb	oer 93-039				Fo	rm 2A
[]	F	Project Title	Herring Bay Ex	kperimental	and Monitor	ing		
1993 Page 1 of	4 S	tudies		-				roject
	T T						1 1	

Detail

Agency ADF&G

	Pro	ject Number 93-039		
17 Jul 92				
Equipment	Data Logger and Sensors Field Computer			
Commodities	Field Supplies Lab Supplies Data Analysis Supplies Office Supplies	Field Sampling Supplies Data Analysis Supplies Office Supplies		
Contractual	Charter Vessel Aır Taxı Support Freight/Shipping Sub Contract with CRA	Warehouse Phone, Fax, Xerox Data Management Equipment Maintenance	Building rent Phone Copying Freight/shipping	
Travel	14-RT's Fairbanks to Seward 10-RT's Juneau to Seward 2-RT's Juneau to Anchorage/Fairban 4-RT's Fairbanks to Anchorage/June 1-RT Washington D C to Fairbanks	1-RT Juneau to CRA Scientific Meetings ks 4-RT's Washington D C to An au 4-RT's San Diego to Anchorag Rental cars and per diem	chorage ge	

1993

page 2 of 4

Project Number 93-039 Project Title Herring Bay Experimental and Monitoring Studies Agency ADF&G

FORM 2B PROJECT DETAIL

Project Description Restoration, monitoring and experimental studies will be conducted to quantify recruitment rates, survivorship and population dynamics of intertidal plants and associated invertebrate animals Recovery rates of important species will be determined for species reduced or eliminated from oiled and cleaned beaches Techniques for restoring *Fucus*, the principal intertidal alga impacted by the spill and clean-up, will be developed

	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Jan-93	Total	* *				FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY <u>94</u>	FY 95	FY 96	FY 97	Beyond
Personnel	\$0.0	\$15.0	\$15.0	\$269 4	\$272 7	\$222 4		
Travel	\$0.0	\$0.0	\$0.0	\$21 5	\$21 5	\$12.0		
Contractual	\$0.0	\$0.0	\$0.0	\$194 8	\$194 8	\$97 8		
Commodities	\$0.0	\$00	\$0.0	\$12.0	\$7 0	\$3.0		
Equipment	\$0 0	\$00	\$0 0	\$6 5	\$0.0			1
Capital Outlay	\$0 0	\$0.0	\$0 0	\$0.0	\$0.0	\$0.0		
Sub-total	\$0 0	\$15.0	\$15 0	\$504 2	\$496 0	\$335 2	\$0 0	\$0.0
General Administration	\$0 0	\$23	\$2 3	\$36 5	\$36 0	\$17 7		
Project Total	\$0 0	\$17 3	\$17 3	\$540 7	\$532 0	\$352 9	\$0 0	\$0 0
Full-time Equivalents (FTE)	4 9							
Budget Year Proposed Personnel		i Months		l				l
Position		Budgeted	Cost			Comment		
Program Manager		2	\$15 0	0 * FY 93 is a transition year from the previously				
					used oil fiscal	year to the fee	leral fiscal ye	ar
					This new proje	ect also include	es proposed	
					funding for Ja	nuary and Feb	ruary, 1993	
					** If not fund	ded in FY 94, \$	\$180 0K will	be needed
					for data analy	ses and report	preparation	
17 Jul 92		Project Num	ber 93-039				Fo	rm 3A
		Project Title	Herring Bav E	Experimental	l and Monito	rina	Sub	Project
1002		Studies	3 7 -					
IJJJJ Page 1 of	4						Ľ	Jetan
		Agency AL	TAG			•		

Project Description Restoration, monitoring and experimental studies will be conducted to quantify recruitment rates, survivorship and population dynamics of intertidal plants and associated invertebrate animals Recovery rates of important species will be determined for species reduced or eliminated from oiled and cleaned beaches Techniques for restoring *Fucus*, the principal intertidal alga impacted by the spill and clean-up, will be developed

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	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Jan-93	Total	**				FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel	\$5 0	\$203 1	\$208 1	\$269 4	\$272.7	\$222.4		
Travel	\$0.0	\$197	\$197	\$21 5	\$21 5	\$12.0		
Contractual	\$102 1	\$203 8	\$305 9	\$194 8	\$194 8	\$97 8		
Commodities	\$0 0	\$15.0	\$15 0	\$12 0	\$70	\$3 0		
Equipment	\$0 0	\$12 5	\$12 5	\$6 5	\$0 0			
Capital Outlay	\$0 0	\$0.0	\$0 0	\$0 0	\$0.0	\$0 0		
Sub-total	\$107 1	\$454 1	\$561 2	\$504 2	\$496 0	\$335 2	\$0 0	\$0.0
General Administration	\$2 8	\$24 6	\$27 4	\$36 5	\$36 0	\$17 7		
Project Total	\$109 9	\$478 7	\$588 6	\$540 7	\$532 0	\$352 9	\$0 0	\$0.0
Full-time Equivalents (FTE)	4 9							
Budget Year Proposed Personnel		L. Months			<u> </u>			I
Position		Budgeted	Cost			Comment		
PI-Highsmith		2	\$15 6		* FY 93 is a tr	ansition year f	from the prev	iously
PI-Stekoll		2	\$15 6		used oil fiscal	year to the fec	deral fiscal ye	ar
Research Assoc		9	\$32 6		This new proje	ect also include	es proposed	
Project Mgr		6	\$23 7		funding for Ja	nuary and Feb	ruary, 1993	
Tech I/Suprv		6	\$20 6					
Tech II		18	\$57 8		** If not fund	led in FY 94, \$	\$180 0K will	be needed
Tech I 4			\$10 3	for data analyses and report preparation				
Lab Asst II		12	\$26 9					
17 Jul 92		Project Num	ber 93-039					
		Project Title	Herring Bav E	xperimental	and Monito	ring		rm 3A
		Studies	0 - 7 -	• • • • • • • • • •		5	Sub	-Project
1993 Page 1 of	4	Sub-Project					C	Detail

Agency ADF&G

				3 4
Travel	14-RT's Fairbanks to Seward 10-RT's Juneau to Seward 2-RT's Juneau to Anchorage/Fairb 4-RT's Fairbanks to Anchorage/Ju	1-RT Juneau to CRA Scientific Meetings anks 4-RT's Washington D C to An neau 4-RT's San Diego to Anchorag	nchorage ge	
	1-RT Washington D C to Fairbar	nks Rental cars and per diem		
Contractual	Charter Vessel	Marshouse		
Contractual	Air Taxi Support	Phone Fax Xerox	Phone	
	Freight/Shipping	Data Management	Copying	
	Sub Contract with CRA	Equipment Maintenance	Freight/shipping	
Commodities	Field Supplies	Field Sampling Supplies		
	Lab Supplies	Data Analysis Supplies		
	Data Analysis Supplies Office Supplies	Office Supplies		
Equipment	Data Logger and Sensors Field Computer			
17 Jul 92	P	roject Number 93-039		
	P	roject Title Herring Bay Experiment	tal and Monitoring Studies	EODM 2D
4000	S	ubproject UAF		
1993	A A A	gency ADF&G		PROJECT
				DETAIL

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EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

P-oject Number: 93040 & 93054

Project Source:

Project Title: Longterm Ecological Recovery Monitoring Program

Project Category: Restoration monitoring/Technical Support

Project Type: Shoreline plant and animal communities damaged by oil and treatment

Lead Agency: National Oceanic and Atmospheric Administration

Cooperating Agencies:

Project Term: Start Date: May, 1990 Finish Date: September, 2001

INTRODUCTION: Funding is sought to continue a ten-year program to monitor recovery of treated and untreated shoreline ecosystems in Prince William Sound Background on the Resource. Well over 200 species of conspicuous marine plants and animals live on and within the intertidal shorelines of Prince William Sound They form easily identified assemblages such as seaweed and kelp canopies, clam beds, mussel beds, and eelgrass beds These associations are home to many species, provide refuge and food for young fish and shellfish, trap and recycle nutrients and carbon, serve as sources of food to birds, nammals, fish and shellfish, stabilize shoreline geology, provide harvest for subsistence fisheries and offer he most visible and permanent indications of a functional and productive Sound However, they also take years to decades to re-develop following destruction or major disturbance

Summary of Injury Hundreds of kilometers of shoreline occupied by intertidal communities were oiled following the spill While many plants and animals were killed or debilitated, many survived the initial oiling but suffered additional, and in some cases nearly complete, destruction by shoreline treatments that included high pressure hot water washing In addition to destroying shoreline marine life, these high energy treatments also washed stranded oil and sediment from the upper intertidal zone to lower intertidal zone and offshore. This treatment clearly cleaned most of the surface oil so that today, the shoreline looks clean to the casual observer. However, regardless of the extent of treatment or intervention, regardless of notable reductions in concentrations, oil remains buried at all sites surveyed in July, 1992. Yet, the shoreline ecosystems are experiencing recovery, not only from the direct effects of oiling but also from the redistribution of oil and sediments and from impacts of the high energy treatment techniques used during the summer of 1989. Based on information from previous spills and manipulation experiences, recovery of the marine life may take a decade or more. The question is, will the past treatment, or additional intervention, make any difference in the recovery rates. To find out, we must continue tracking trends in contamination and trends in ecological recovery.

Based on data from 1990 and 1991, NOAA's Hazardous Materials Response and Assessment Division (HMRAD) scientists predict that recovery of various populations of shoreline organisms in Prince William Sound may take from three to 15 years. Some populations show no signs of recovery and other pulations are continuing to decline

Location Work will be continued at approximately 35-40 sites within western Prince William Sound (one unoiled control site, at Sheep Bay, is located in eastern Prince William Sound)

WHAT: Goal. Complete a 10-year (1990-2000) shoreline ecosystem, chemical and geomorphology monitoring program in Prince William Sound in order to (1) determine the extent to which past treatment has enhanced or delayed recovery of abundance, biodiversity and population structure of inter-tidal communities and sub-tidal eelgrass beds at representative oiled and treated sites and (2) help the Trustees determine the need for specific additional restoration actions to enhance recovery of these ecosystems and reduce contamination of shellfish and other living resources Develop a data base that contributes to the overall understanding of ecological processes that can contribute to rational restoration and treatment decision-making in the future Provide a scientific basis for oil spill treatment and restoration intervention that enhances recovery of natural shoreline ecosystems, forecast if and when shoreline ecosystems will return to natural or pre-spill conditions **Objectives** (1) Longterm Conduct major surveys in 1994, 1997 and 2000 (NOAA HMRAD Years 5, 8, and 10) Conduct scaled-down surveys and complete data analysis and reporting in 1993, 95, 96, 98, and 99 (2) Nearterm. Complete analyses of samples collected in 1991, 92 and 93 Conduct a 1993 field survey Complete a 1993 integrative report Provide a preliminary forecast of recovery and interim recommendations for (a) shoreline treatment, (b) Shoreline treatment assessment strategies and techniques, (c) Restoration alternatives, and (d) detailed 1994 full-scale survey

From a scientific point of view, the primary objective is to test reasonable hypotheses about

- 1) the rates and directions of recovery of biological communities and selected populations in those communities and,
- 2) the long-term impacts and benefits of high-pressure hot-water washing to oil reduction and marine community health at different types of shorelines

WHY: Benefit to Injured resources. This project will provide a major part of the information needed to determine what, if any, actions are needed This information will include (1) rates of recovery of shoreline communities, (2) rates of decrease of hydrocarbon contamination in selected resources (mussels, clams and sediments) and (3) forecasts of expected changes **Relationship to Restoration Goals** Restoration includes several general options for action (1) do nothing (nature is handling the problem), (2) take action to enhance biological recovery, and (3) take action to increase reduction of toxic oil components. In all cases, monitoring is required before, during and following the actions to document their efficacy or failure. The "Do nothing" alternative is a wise choice if the rates of return to natural or reference conditions are acceptable. However, it is possible that at some sites and conditions, ecosystems and oiling conditions are not recovering or doing so too slowly. Biological recovery might then be enhanced by manipulation of shoreline exposure or substrate and/or by planting certain predators or grazers. To correct unacceptable chemical contamination, additional levels of manual or biological treatment may be appropriate. Any action, and its possible consequences, can be discussed and debated once there is a data base (showing rates) for making such judgements.

HOW: Survey design. The surveys, which began in 1990, will continue to be conducted at approximately 35-40 sites distributed according to two major categories of variables three shoreline types (mixed-soft, boulder-cobble, and rocky) and three treatment categories (unoiled, oiled, untreated with high-pressure

t-water washing) There is a minimum of three sites per each combination of treatment and shoreline type Each site generally includes biological and chemical surveys at three elevations (upper, mid- and low intertidal) At each elevation, the abundance and cover of plants and animals are measured in 5 (upper) or 10 (mid, low) permanent random 0.25 sq m quads Infauna are sampled from five random 15 cm cores along each mid and low transect Composites of surface sediment are collected at each elevation, and of mussels and clams from each site as appropriate or available These sites are surveyed through time Sampling has been at least annual, 1990-1992, but the frequency of sampling the full survey grid will decrease with major surveys to be conducted in 1994, 1997 and 2000 Scaled-down, focused surveys will be conducted in the intervening years

There are several basic deviations and qualifications in this sampling plan Fourteen subtidal eelgrass bed sites have been selected and distributed among the treatment categories Not all sites have adequate or comparable treatment or shoreline conditions at each elevation, and these are represented by limited sampling at additional sites As more information becomes available on initial oiling and treatment, additional sites or transects have been added In addition, the program also tracks longterm trends (since 1989) in shoreline structure and oiling at several NOAA study sites not otherwise represented by biological surveys The survey makes use of several NOAA "Set Aside" sites, which were identified during the 1989 response Finally, during the past year, it was decided to reduce effort on boulder-cobble shorelines and increase effort on the more protected rocky and mixed-soft shorelines

Coordination with Other Efforts. This effort has not previously been part of the NRDA/Restoration ffort (funding 1990-92 has come from other sources) However, we have begun coordination with NMFS esearchers conducting monitoring and surveillance of contaminated mussel beds. We are also aware or a considerable amount of Coastal Habitat shoreline data and research that could help interpret our observations and we intend to evaluate that information as available. A key element to coordination is comparable quality assurance/quality control. This effort has already conducted a comparison of standard reference material with one participating NOAA laboratory and will expect to increase the intercalibration involvement with other Restoration laboratories (which should include both chemistry, and systematics)

Agencies that have previously sponsored this program have either ceased sponsorship (USCG and NOAA base) or will do so in 1992 (USEPA, API, and MMS) To continue this program in 1993 and beyond, a new funding source is needed In view of the similarities between this program and Trustee Council's restoration monitoring efforts, this project would coincide with the goals of the restoration activities in Prince William Sound

What makes this project special?: Unique aspects of this project include

- 1) explicit accommodation of shoreline treatment as a variable,
- 2) integrated biology, bioaccumulation, chemical fate, geomorphology and water quality programs,
- 3) assessment of trends in intertidal fauna communities, including clam beds and,
- 4) existence of pre-treatment data

ENVIRONMENTAL COMPLIANCE: This work does not require significant alterations to shoreline habitats or resources. However, resource and regulatory agencies, and land owners, have special needs, requirements and restrictions which has been taken into account during the 1990-92 work. Prior to each eld survey all necessary permits will be obtained

This is a field research project in which routine data collection will take place which is limited in context and intensity Consequently, this project is categorically excluded from being required to provide an Environmental Impact Statement or Environmental Assessment

WHEN: Near-term (FY93-94).

Nov 1992	1992 survey Report
June 1993	Completion of 1990-91 sample analysis
July 1993	Field survey
Sept 1993	Complete analysis of 1993 samples
Dec 1993	Four-year report draft to peer review panel
Feb 1994	Revised synthesis report to printer
Mar 1994	Complete 1994 major survey planning
Jul 1994	Field survey
Dec 1994	Draft 1994 report

Longterm (FY 95-2001): 1995-1996, Limited annual surveys and annual reports, 1997, Full scale survey and annual report, 1998-1999, Limited annual surveys and annual reports, 2000, Full scale survey and annual report, 2001, Complete synthesis report

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Project Description	ו Long Term E	cological Reco	very Monitoring						
Budget Category		Approved 1-Oct-92 28-Feb-93	Proposed* 1-Mar-93 30-Sep-93	Total FY 93	FY 94	FY 95	FY 96	FY 97	Sum FY 98 & Bevond
Personnel Travel Contractual Commodities Equipment		\$0 0 \$0 0 \$0 0 \$0 0 \$0 0 \$0 0	\$164 5 \$2 0 \$40 0 \$0 0 \$0 0	\$164 5 \$2 0 \$40 0 \$0 0 \$0 0	\$164 5 \$2 0 \$40 0 \$0 0 \$0 0	\$82 3 \$2 0 \$180 0 \$0 0 \$0 0	\$82 3 \$2 0 \$180 0 \$0 0 \$0 0	\$164 5 \$2 0 \$630 0 \$0 0 \$0 0	
Capital Outlay General Admir	Sub-total IIstration Project Total	\$0 0 \$0 0 \$0 0 \$0 0	\$0 0 \$206 5 \$27 5 \$234 0	\$0 0 \$206 5 \$27 5 \$234 0	\$0 0 \$206 5 \$27 5 \$234 0	\$0 0 \$264 3 \$24 9 \$289 2	\$0 0 \$264 3 \$24 9 \$289 2	\$0 0 \$796 5 \$53 6 \$850 1	\$0 0 \$0 0
Full-time Equiv	valents (FTE)	0 0	2 0	2	2 0	1 0 Amount	1 0 s are shown	2 0 In thousands	s of dollars
Position	osed Personne		Months Budgeted	Cost			Comment		
Project Manag Marine Biologis Marine Biologis	er GS-14 st GS-12 st GS-11		6 12 6	\$55 0 \$79 0 \$30 5					
* FY 93 is a tra proposed fun	nsition year fro iding for Januar	m the previous y and February	ily used oil fiscal y y, 1993	year to the feder	al fiscal year	This new	project also	includes	
Interview of the collection of the co				.ogıcal		FOR PRO DE	M 2A JECT FAIL		

Travel	4 round trips Seattle to Anchora	age	
Contractual	Field surveys, biological collec geomorphology surveys, chem and reporting to be conducted	ctions, analysis of biological samples, nical analyses and assessments, by contractors	
Commodities			
Equipment			
17 Jul 92			<u> </u>
1993	page 2 of 2	Project Number: 93040 Project Title: Long Term Ecological Recovery	FORM 2B PROJECT DETAIL

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EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-041

Project Source:

Project Title: Comprehensive Restoration Monitoring Program Phase 2 Monitoring Plan Development

Project Category: Restoration Monitoring

Project Type: Monitoring

Lead Agency: NOAA/NMFS

Cooperating Agencies: ADF&G, ADEC, ADNR, USFS, USF&WS, NPS

Project Term: 1 yearStart Date 1 January 1993Finish Date: 30 Sept 1993
(day/month/year)(day/month/year)(day/month/year)

INTRODUCTION:

A Background on the Resource

Resources to be monitored will include affected floral and faunal assemblages as well as impacted substrates upon which they depend Services arising from injured natural resources of the region will also be monitored inclusive of, but not limited to, recreation, subsistence, and wilderness and intrinsic values Finally, injured archaeological resources will be monitored

B Summary of Injury

The *Exxon Valdez* oil spill occurred just prior to the most biologically active season of the year During the four-month period following the spill, critical life stages of algae, invertebrates, fish, birds, and mammals encountered the most concentrated, volatile, and potentially toxic forms of the spilled oil While different species demonstrated varying thresholds for injury, sea otters and marine birds (common and thick-billed murres, sea ducks) were particularly hard-hit Portions of 1200 miles of coastline were oiled with oftentimes devastating impacts to intertidal and shallow subtidal resources Oil reached shorelines nearly 800 miles from Bligh Reef, the site of the spill Of continuing concern, resources are exposed to oil remaining in the intertidal zone or transported to the subtidal zone Following the spill, recreational use of public lands and waters declined and archaeological resources along the shoreline also were injured For a more detailed account of injuries to individual species, habitats and services, the reader is invited to review Chapter IV of the Exxon Valdez Oil Spill Restoration Volume 1 Restoration Framework (Exxon Valdez Oil Spill Trustees 1992)

C Location

Monitoring will be conducted on and in surface waters, on tidelands, and on adjacent uplands including their watersheds in Prince William Sound and the Gulf of Alaska

WHAT:

^ Goal

It is the goal of this proposed project to design a comprehensive and integrated restoration monitoring program that will follow the progress of natural recovery, evaluate the effectiveness of restoration activities, and to establish an ecological baseline from which future disturbances can be evaluated

Implementation of this multifaceted program requires central coordination and management In order to successfully implement an ambitious and wide-ranging program as contemplated, a high degree of organization is needed to create the design, to analyze, interpret and disseminate the data generated, and to assure that all aspects of the program are carried out as designed

B Objectives

It is the objective of this proposed program to assist the Trustees in various organizational and coordination activities in support of developing a comprehensive, interdisciplinary and integrated program of restoration monitoring aimed at

1) assessing the rate of natural (unassisted) recovery of injured resources and services,

2) evaluating the effectiveness of restoration activities, identifying where additional restoration activities may be appropriate, and determining when injury is delayed, and,

i) following the dynamics of other ecological components (those important in the food webs of injured _pecies) to document long-term trends in the environmental health of the affected ecosystem

To fulfill these objectives, a three phase program is envisioned <u>Phase 1</u> is being conducted in early FY-93 and focuses on the development of a "conceptual" plan for monitoring <u>Phase 2</u>, which is the focus of this proposal, will be conducted over essentially the second-half of FY-93 and deals with developing the technical plans for monitoring <u>Phase 3</u> provides for management of the monitoring program following full implementation (FY-94 thru FY-2203)

WHY

Monitoring is necessary to assess the adequacy of natural recovery Resources and associated services that are found to be recovering at an unacceptable rate may have to be reconsidered as candidates for restoration action Likewise, resources and services that are found to be recovering faster than anticipated may allow for an earlier completion of a restoration action Monitoring of important physical, chemical and biological properties will establish an environmental baseline for the affected ecosystem This baseline then can be used to assess the anticipated effects of human development and to improve our ability to manage affected resources and services over the long-term
HOW:

Dhase 1

In <u>Phase 1</u>, which is being conducted this year (1 September 1992 thru 31 January 1993), a consultant will be asked to assist the Trustees in developing a "conceptual" design for the required monitoring plan This will serve more technical planning in <u>Phase 2</u>, which is the focus of this proposal The conceptual planning in <u>Phase 1</u> will address but will not be limited to such issues as goals and objectives, what resources and services to monitor, what process is required for management, what relationships need be established with other monitoring programs in the spill zone, and how can monitoring be funded over the long-term. The <u>Phase 1</u> planning also addresses the need to identify which current clean-up, damage assessment and restoration science studies would best serve the purpose of the intended restoration monitoring program

Phase 2

In <u>Phase 2</u> (1 January 93 thru 30 September 93), a consultant will again be asked to assist the Trustees With an approved "conceptual" plan, the consultant will develop a "detailed" monitoring plan that will be presented as a strawman plan for review by technical experts at a workshop This phase focuses on the technical requirements of an integrated monitoring plan and assumes a close working relationship with the Trustee agencies and contracted peer reviewers It is further assumed that the Trustee agencies will implement monitoring once this phase of planning is completed and a Final Restoration Monitoring Plan is approved This final phase of planning will establish

) what the bounds (magnitude) of the monitoring effort will be,

2) the locations (fixed and rotating) where monitoring should be conducted,

3) a technical design for each monitoring component (e g, sediments, invertebrates, fish, birds, mammals, and services [recreation, subsistence, aesthetics, etc]) that specifies how and when data will be collected, analyzed, interpreted, and reported,

4) a data management system to support the needs of the Trustees and other decision makers, planners, researchers and the general public This assumes a system that facilitates a variety of retrieval and analysis functions and is flexible and expandable to meet new and changing needs,

5) a rigorous quality assurance program to ensure that monitoring data produces defensible answers to management questions and will be accepted by scientific researchers and the public,

6) cost estimates for each monitoring component,

7) coordination of this monitoring plan with other monitoring programs that may exist or be proposed, and

8) a strategy for review and update to ensure that the most appropriate and cost-effective monitoring methods are applied

A workshop approach will be used to establish a model for specific technical requirements The consultant will then work directly with representatives of the Trustee agencies and peer revieweres to

August 14, 1992

produce definitive monitoring protocols After completion of a Draft Restoration Monitoring Plan, a program of peer review will be organized and implemented Subsequently, the draft plan will be issued for public review and comment

It is proposed in <u>Phase 2</u>, that NOAA/NMFS will again assist the Trustees in various organizational and coordination activities pursuant to developing the Draft Final Restoration Monitoring Plan NOAA/NMFS will design and prepare the RFP to solicit services of a consultant to provide technical expertise NOAA/NMFS also will design procedures for evaluating the resulting technical proposals and chair a proposal review committee to select a consultant NOAA/NMFS with the assistance of the consultant also will design and implement a workshop to develop a framework for detailed monitoring protocols, a data management system, a QA/QC program, costs, and a review strategy, etc

The Trustee agencies will be expected to attend the workshop and to work with NOAA/NMFS and the consultant to provide detailed input to the comprehensive monitoring plan

Phase 3

Following development of the Restoration Monitoring Plan, 1994 and beyond will be devoted to <u>Phase</u> $\underline{3}$ - monitoring and management, including audits, annual reviews, data management, and reports

ENVIRONMENTAL COMPLIANCE:

This activity should fall under a categorical exclusion within NEPA Because this proposed project is essentially a planning exercise, there is at this time no requirement to undertake an additional National Environmental Policy Act (NEPA) review This does not, however, obviate the responsibility for each frustee agency to conduct additional NEPA reviews as various components of the comprehensive and integrated monitoring plan are implemented

WHEN:

While some monitoring was conducted in 1990 and 1991, and additional monitoring will be conducted in 1992, a fully expanded and integrated monitoring program will not be implemented until the 1994 field season <u>Phase 1</u> planning begins 1 September 1992 and will essentially be complete 1 February 1993 <u>Phase 2</u> planning which is the focus of this proposal will begin 1 February 1993 and essentially be complete 30 September 1993 <u>Phase 3</u> will continue for the life of the Restoration Monitoring Program (FY-95 thru Fy-2004)

Project Description	Comprehensi	ve Long-term N	Ionitoring Plan	Phase 2 - detaile	d plan devel	lopment *			
*Phase 3 - Impleme	entation in 199	4 and beyond.	Costs depender	nt upon outcome f	of plan devel	opment.			Cum
Budget Category		1-Oct-92 28-Feb-93	1-Mar-93 30-Sep-93	Total FY 93	FY 94	FY 95	FY 96	FY 97	FY 98 & Beyond
Personnel Travel Contractual		\$0 0 \$0 0 \$0 0	\$79 0 \$15 0 \$100 0	\$79 0 \$15 0 \$100 0					
Commodities Equipment Capital Outlay	Sub-total	\$0 0 \$0 0 \$0 0 \$0 0	\$15 0 \$10 0 \$0 0 \$219 0	\$15 0 \$10 0 \$0 0 \$219 0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
General Admini	stration Project Total	\$0 0	\$18 9 \$237 9	\$18 9 \$237 9	\$0 0	\$0 0	\$0 0	\$0 O	\$0 O
Full-time Equivalents (FTE) 0			1	1		Amounts are	e shown in t	housands of	dollars
Budget Year Propo	sed Personne	•	Months						
Position			Budgeted	Cost			Comment		
Project Leader Agency Scientis	it		9 3	\$56 0 \$23 0					
* FY 93 is a transition year from the previously used oil fiscal year to the federal fiscal year This new project also includes proposed funding for January and February, 1993 ** FY94 Closeout costs \$0 0									
17 Jul 92			Project N	umber: 93-0	41			T	DRM 2A
1993 page 3 of 4			Project Number: 93-041FORM 2AProject Title: ComprehensivePROJECTMonitioring, Phase 2DETAILAgency: NOAA						ROJECT ETAIL

Travel	Includes travel for so contract review and	cientists invited to attend workshops and for award meetings	
Contractual	A consultant will be	contracted to develop a draft monitoring plan and conduct the works	shop
Commodities	There will be consident miscellaneous supplement	erable publication costs of the draft monitoring plan, as well as the i les and postage	need to purchase
Equipment	Computer to mainta	n and manage database (\$10K)	
17 Jul 92			
		Project Number: 93-041	FORM 2B
1993	page 3 of 4	Project Title: Comprehensive Monitoring Agency: NOAA	PROJECT DETAIL

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EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

"-oject Number: 93042

Project Source:

Project Title: Recovery Monitoring of Prince William Sound Killer Whales Injured by the Exxon Valdez Oil Spill Using Photo Identification Techniques

Project Category: Restoration Monitoring

Project Type: Marine Mammals

Lead Agency: NOAA

Cooperating Agencies:

Project Term: Start Date: 1 July 1993 Finish Date: 30 Sept 2002

INTRODUCTION: A. Background: The killer whale, <u>Orcinus orca</u>, occurs in all oceans of the world Population estimates, based on photo-identification studies, are available for 4 North Pacific regions (inland waterways of Washington, British Columbia, southeast Alaska, and Prince William Sound) Current killer whale population estimates for Prince William Sound are 11 resident pods (representing 245 whales) and eight transient pods (representing 52 whales) Of these killer whale pods, AB pod is he most often encountered pod in Prince William Sound The resident killer whale pods of Prince Villiam Sound are a valued wildlife resource contributing substantially to the wilderness, aesthetic, tourism, and recreational walues of the region

B. Summary of Injury: The whales of Prince William Sound were studied intensively before the spill, and their social structure and population dynamics are well known Damage assessment studies of killer whales involved boat-based photo-identification surveys in Prince William Sound Photographs of killer whales were compared to the Alaska killer whale photographic database for the years 1977 to 1989 to determine the changes in whale abundance, seasonal distribution, pod integrity, mortality and natality rates

One of the Prince William Sound pods, AB pod, had 36 whales when last sighted before the spill in September 1988 When sighted on March 31, 1989, seven days after the spill, seven individuals were missing Six additional whales were missing from AB pod in 1990 Assuming that whales missing for two consecutive years are dead, the mortality rates for the AB pod were 194 percent in 1988-1989 and 207 percent in 1990-1991 The average annual mortality in AB pod in 1984 to 1988 was 61 percent An additional whale was missing in 1991, but a calf was also born into the pod The approximate calving interval of killer whales is four years, so some long-term effects may not be obvious for many years

Several of the missing whales from AB pod were females which left behind juveniles, such abandonment of juveniles is unprecedented in killer whales As a consequence, the social structure of AB pod has changed and significant mixing of maternal sub-groups has been documented

Killer whales, which may have died as a result of the oil spill, probably would have sunk and not been

August 21, 1992

found by researchers So, it has not been possible to directly link the missing whales of AB pod with the Exxon Valdez oil spill

HAT:

The purpose of this study is to obtain photographs of individual killer whales occurring in AB pod and to document natural recovery Photographs collected will be compared to the National Marine Mammal Laboratory's photographic database for the years 1989 to 1991 to determine if changes continue to occur in whale abundance, pod integrity, mortality and natality rates

Objectives: 1 Count the number and individually identify killer whales within AB pod

- 2 Test the hypothesis that pre- and post-spill killer whale pod structure and integrity within AB pod have remained constant
- 3 Determine killer whale reproductive rates and trends in abundance for AB pod within Prince William Sound

WHY: Researchers have documented a decline in Prince William Sound's AB pod in 1989 and again in 1990 The AB pod has been the predominant resident pod of killer whales in Prince William Sound It is important to pursue studying AB pod despite the difficulty of proving the link of injury to the Exxon Valdez oil spill because of its high intrinsic value as a wildlife resource of the Sound Continued monitoring of the status of AB pod in Prince William Sound through photo-identification itudies is required to document natural recovery of the injured population. The information gained from this work may lead to initiating additional actions to protect killer whales by protecting sensitive habitats, minimizing fishery interactions, reducing or redirecting other human-use impacts, and promoting public education

Because killer whale recovery rates are essentially unknown (it may take 25-30 years or more), there is a clear need to continue monitoring population trends for killer whales in the spill area Since the historical database was found inadequate to reliably predict killer whale movements or habitat requirements to support decisions to implement restoration options (habitat protection), additional habitat-use investigations (beyond satellite tagging) may be necessary in the future

HOW: 1 Personnel from the National Marine Mammal Laboratory (NMML) will develop and coordinate all killer whale research activities with this monitoring study NMML has had extensive involvement in all phases of this research since 1989 and will provide the needed scientific continuity required for this research Field studies will be conducted by NOAA and contract personnel who have recognized expertise in the study areas of concern A shore-based camp (equipped with a suitable small boat for whale identification work) will be used in Prince William Sound to conduct photo-identification studies on killer whales from July to September 1993 Study areas will be similar to those worked when assessing injury to killer whales from 1989 through 1991 The camp would be fully self-contained with necessary items for safety and staffed by at least two biologists For consistency in data collection, key personnel remain in the field throughout the study period

Weather permitting, field personnel will spend an average of 8 to 10 hours per day conducting boat

surveys searching for AB pod When encountered, other pods of killer whales should be photographed as well Specific areas, known for whale concentrations, are investigated first However, if reports of whales are received from other sources, those areas are examined If AB pod is not located in

nown" areas and opportunistic sighting reports are not available, a general search pattern is developed and implemented Travel routes typically taken by AB pod will be surveyed When whales are sighted, researchers stop further search efforts and approach the whales to collect photoidentification information When whales are encountered, researchers select a vessel course and speed to approximate the animals' course and speed to facilitate optimal photographic positioning

2 Association patterns of individual whales/maternal subgroups will be examined to evaluate the current social structure of AB pod Whale association patterns will be compared to the three-year database available at NMML (1989-1991) to determine if changes have occurred in AB pod structure and integrity

3 Mortality (number of missing whales) and natality (number of births) will be calculated from the 1993 season through photo-identification studies The 1993 vital rates will be compared to NOAA's historical database on Prince William Sound killer whales to determine trends in abundance

ENVIRONMENTAL COMPLIANCE:

This is a field research project in which routine data collection will take place which is limited in context and intensity Consequently, this project is categorically excluded from being required to provide an Environmental Impact Statement or Environmental Assessment

Permits required by the Marine Mammal Protection Act will be obtained prior to the field season

WHEN:

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1 Apr 1993	Contract negotiation
1 Jun 1993	Select contractor
15 Jul 1993 to 15 Sep 1993	Field research
30 Dec 1993	Draft report
15 Feb 1994	Final report

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Project Description Recovery Mo	nitoring of Kille	er Whales	·			·····		
	Approved	Proposed*		·				Sum
Budget Category	1-Oct-92	1-Mar-93	Total					FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY <u>95</u>	FY 96	FY 97	Beyond
D	AA A	6 40.0		6 00 0	* *** *	* 00 0	* 00 0	
Personnel	\$0.0	\$18.8	\$18.8	\$22.8	\$22.8	\$22.8	\$22.8	
Iravel	\$0.0	\$4.2	\$4.2	\$5.0	\$5 0	\$50	\$5 0	
Contractual	\$0 0	\$89 0	\$89 0	\$89 0	\$89 0	\$89 0	\$89 0	
Commodities	\$0 0	\$6 O	\$6 O	\$6 0	\$6 O	\$6 0	\$6 O	
Equipment	\$0 0	\$0 O	\$0 O	\$0 0	\$0 O	\$0 O	\$0 0	
Capital Outlay	\$0 0	\$0 0	\$0 0	\$0 0	\$0 O	\$0 0	\$0 O	• • •
Sub-total	\$0 0	\$118 0	\$118 0	\$122 8	\$122 8	\$122 8	\$122 8	\$0 0
General Administration	\$0 0	\$9 1	\$9 1	\$9 7	\$9 7	\$9 7	\$9 7	
Project Total	\$0 0	\$127 1	\$127 1	\$132 5	\$132 5	\$132 5	\$132 5	\$0 0
Full-time Equivalents (ETE)	0.0	0.4	0.4					
		• •	.		Amount	s are shown	In thousands	s of dollars
Budget Year Proposed Personne								
		Months						
Position		Budgeted	Cost			Comment		
Brogram Manager GS-12		1 2	¢5 0					
Project Leader GS-12		1	φ . 3	Reflects co	st and time a	associated w	ith managing) progrees
Project Leader GS-12		0.5	φ 4 Ο ¢1 G	of contracto	or's work			
Biologist CS 11		00	φι0 ¢70	Project con	tinuation bey	ond 1993 de	epends on ra	te of
Biologist GS-11		2	φιυ	recovery de	etermined			
* EV 03 is a transition year fro	m the providue	ly used oil fiscal a	waar to the fode	al fiscal yea		project also	includes	
proposed funding for longer	and February	1002		ai nəvai yeai		project also	noluues	
	y and rebruary	, 1995						
17 III 72		Project Nu	mber:9304#	2			FOI	л ол
		Project Ti	tle: Kille	r Whale	Recover	v		
1993		Agency: NO		~ "	TCCCACT	-	PRC	
page 1	of 2	Agency. NO						ТАТГ

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Numb	Project Number 93-043, 93-044							
rivject Sourc	e							
Project Title	Sea Otter Population Valdez Oil Spill	Demographics and	Habitat Use in A	areas Affected by the <i>Exxon</i>				
Project Categ	ory Restoration Monit	toring/Restoration I	Habitat Protectio	n				
Project Type	Marıne Mammals							
Lead Agency US Fish and Wildlife Service								
Cooperating Agencies None								
Project Term	Start Date	1 Aprıl 1993	Finish Date	31 March 1994				

INTRODUCTION

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<u>Background</u> --The sea otter (*Enhydra lutris*) is a well-known marine mammal species in Alaska They historically occurred throughout coastal waters of the Pacific, but as a result of fur harvests in the 18th and 19th centuries, they came close to extinction They have since increased in abundance and distribution, and presently are found in most coastal areas of southern Alaska Sea otters prey on a ariety of invertebrate species, including mussels, clams, crabs and sea urchins, and may have a strong influence in structuring prey populations

<u>Summary of Injury</u> --Immediate losses of sea otters due to the *Exxon Valdez* oil spill probably ranged from 3,500 to 5,000 animals Current sampling of sediments and sea otter prey items indicate exposure of otters to hydrocarbons may be continuing The results of several NRDA studies indicate that this exposure, at a minimum, may be affecting sea otters at an organismic level and, at a maximum, may be affecting survival and therefore recovery of the population Comparisons of post-spill sea otter surveys found no change in abundance between July 1990 and July 1991, with significantly lower densities in the oil spill area compared to non-oiled areas. The age distribution of sea otter carcasses recovered in oiled areas of Prince William Sound continues to reflect elevated mortality in prime-age sea otters, and a 1990-91 study determined the survival rate of weanling sea otters was significantly lower in oiled than nonoiled areas of PWS. This evidence, together with results from blood and contaminant analyses, suggests that the sea otter population within the spill zone may still be compromised by exposure to oil and that recovery to pre-spill levels is not occurring

Location -- The major focus of this project will be on sea otters in Prince William Sound

WHAT

<u>Goals</u> --The overall goal of this project is to restore sea otter populations affected by the <u>Exxon Valdez</u> oil spill by determining what is limiting their recovery and identifying areas with high value for sea otter habitat within Prince William Sound for possible protection

Objectives --

- 1 Monitor the recovery of sea otters in oiled areas by determining their abundance, distribution and mortality
- 2 Construct a population model to evaluate the potential recovery of the sea otters
- 3 Identify patterns of habitat use
- 4 Identify and evaluate areas with high value of sea otter habitat within PWS for possible protection

WHY

Studies to date have determined that initial damages to the sea otter population were severe (a loss of 3,500 to 5,000 sea otters), and suggest that chronic damages to sea otters are also occurring, delaying recovery of affected populations Through monitoring of affected populations and evaluation of patterns of habitat use, this restoration project will guide the development of strategies to aid in the recovery of the otters The various project activities will enhance our understanding of the demographics of sea otter populations, and identify potential sites for protection of sea otter habitat Protection of habitats important to sea otters (including foraging, pup rearing, pup weaning and haulout areas) will promote population recovery over the long-term as well as provide protection for other members of the nearshore marine community

HOW

<u>Aethodology</u>--In order to evaluate recovery of the sea otter population affected by the oil spill, annual nonitoring will be undertaken. Since the spill, detailed data on population size has been collected primarily in the Prince William Sound portion of the spill area. Efficient standardized survey techniques to increase precision and accuracy of population estimates were being developed through RESTORATION FEASIBILITY PROJECT #3, which was conducted in 1991 but not in 1992. The project evaluated the feasibility of using a small float equipped airplane (Piper P-18 super-cub) as a survey platform in a strip transect survey of sea otters. The design involves counting otters along transects according to a strict protocol and conducting "intensive searches" at pre-determined intervals to estimate the proportion of animals that remain uncounted (e.g. due to diving) during the strip count. Through the information gleaned in the feasibility project and subsequent work by the USFWS, this census technique can be implemented within Prince William Sound in 1993. Survey methodology will be field tested outside Prince William Sound in 1993, and an extended monitoring program may be implemented in subsequent years. In addition to aerial surveys, mortality surveys (recovery of beach-cast carcasses) will be continued as part of this project. The mortality surveys will build on data collected over a decade in PWS

A population model will be developed based on age structure and age specific reproduction and survival rates estimated from the carcasses recovered following the oil spill Model parameters will be modified to reflect available information on post-spill population size, reproduction and survival rates (including data from a 1992-93 USFWS study on juvenile sea otter survival in PWS) to predict recovery rates under a range of assumptions, including those related to potential restoration or management strategies Data collected in subsequent years will be used to refine and update the model and predictions

The habitat evaluation component of the project will 1) utilize data from a 1992-93 USFWS juvenile survival study to develop a data base on sea otter movements and patterns of habitat use, 2) integrate this information with other sea otter data on distribution and abundance (pre- and post-spill), and 3)

evaluate available data on commercial, recreational, and subsistence uses of PWS Continuing efforts (planned for 1994-95) will utilize the data base compiled on habitat use patterns to identify and evaluate potential areas of high habitat value in PWS for protection

<u>Coordination with Other Efforts</u> -- To date, aircraft and boat surveys have not been conducted concurrently Collection of survey data by both methods in 1993 would complement both projects by providing a basis for comparison of methods and continuity of data collection in subsequent years Data from both surveys will contribute to the analyses of habitat use patterns

ENVIRONMENTAL COMPLIANCE

This project does not involve capture or handling of sea otters, or any other methods that are intrusive It appears to qualify for categorical exclusion under the National Environmental Policy Act

WHEN

The first year of the project will be April 1, 1993 to March 31, 1994 The population and reproductive surveys will be conducted in the summer of 1993 Mortality surveys will be conducted in the late spring of 1993 The population modelling and evaluation of habitat use patterns do not involve field work Data compilation and analyses for these components of the project will occur throughout the year Progress reports for all components of the project will be produced by January 30, 1994, and "final" reports on 1993 activities will be produced by March 31, 1994 The identification of potential sites for abitat protection would occur in 1994-95 Monitoring of population recovery (through abundance, istribution, reproduction and mortality, and continued modelling) is planned as a long-term activity, extending through 2001 (pending availability of continued funding), or through recovery

Milestones

April 93 data compilation and entry, preparation for field work April-November 93 compilation and analysis of existing data for habitat and population modelling work May - September 93 - field activities for population, reproductive and mortality survey work September 93 - January 94 - data entry, analysis, report preparation January 30, 94 - Annual Report due on progress to date March 31, 94 - Final Report on 1993 activities due

EXXON VALDEZ TRUCTTE COUNCIL

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Project Description Sea otter recovered areas of high va	ery evaluation, lue to sea otte	population ass ers including for	sessment an raging, pup	d synthesis rearing, pup	of habitat info weanling an	ormation to d adult hau	determine g –out areas	eographic
Budget Category	Approved 01-Oct-92 28-Feb-93	Proposed* 01 – Mar – 93 30 – Sep – 93	Total FY 93	FY 94**	FY 95	FY 96	FY 97	Sum FY 98 & Beyond
Personnel	0.0	172.5	172 5					
Travel	0.0	14.5	14.5					
Contractual	0.0	32.2	32.2					
Commodifies	0.0	17 1	17 1					
Faupment	0.0	27.5	27.5					
Capital Outlay	0.0		0.0					
Sub-total	00	263.8	263.8	00	00	0.0	00	00
General Administration	00	28 1	28 1					
Project Total	0 0	291 9	291 9	423 9	305 5	195 8	170 0	170 0
Full-time Equivalents (FTE)	00	36	36					
					Amounts are	e shown in t	housands o	f dollars
Budget Year Proposed Personnel	FY 93	• • • •						
		Months	A 1			• •		
Position		Budgeted	Cost			Comment		
Supervisory Biologist		12	7,800					
Biostatistician		36	20,100					
Program Manager		30	15,000					
Wildlife Biologist (2)		96	48,000					
GIS Support		36	17,000					
Biologist		36	12,600					
Biotechnician (2)		90	27,000					
Clerical		30	9,000					
Biotechnician		60	16,000					
THY 93 IS a transition year fro	om the previo	usiy used oil fis	cal year to th	ne tederal fis	scal year Th	is new proje	ect also inclu	laes
proposed funding for Janua **The total shown in FY 94 t	ry anα ⊢ebrua to closeout wo	ry, 1993 ork started in FY	′ 93 is \$147	5				
17–Jul–92			· · ·			<u> </u>		
		Project Numbe	er 93–043,	93-044				FORM 2A
1993		Project Title S	ea Otter Dei	mographics	and Habitat			PROJECT
PAGE 4 OF 5		Agency	US Fish & W	/Ildlife Servic	e			DETAIL

	· · · · · · · · · · · · · · · · · · ·	FY 93	FY94	
Travel	To Prince William Sound	55	00	
	Outside Prince William Sound	60	0 0	
	Per diem	30	0 0	
		Т	otal travel FY93 14 5, FY94 0 0	
		FY 93	FY94	
Contractual	Aırcraft charter			
	In Prince William Sound (100 hrs @ 170/hr)	17 0	0 0	
	outside Prince William Sound (80 hrs @ 170/	hr) 136	0 0	
	Tooth reading	06	0 0	
	Shipping	0 5	0 5	
	Necropsies	0 5	0 0	
		Т	otal contractual FY93 32 2, FY94 0 5	
		FY93	FY94	
ommodities	Fuel (1800 gal @ 3/gal)	56	0 0	
	Field camp supplies & food	4 5	0 0	
	Office supplies, books	2 0	10	
	Computer training (Arcinfo)	30	0 0	
	Publication costs	0 0	20	
	Miscellaneous	20	20	
		Т	otal Commodities FY93 171, FY94 50	
		FY93	FY94	
quipment	Safety gear	4 5	0 0	
•••	Radio equipment	80	0 0	
	Vessel maintenance	10 0	0 0	
	Computer hardware/software	50	20	
	•	Т	otal equipment FY93 27 5, FY94 2 0	
7–Jul–92				
	Project	Number 93-043,	93–044 FOI	RM 2B
1993	Project	Title Sea Otter Dem	nographics and Habitat PRC	DJECT
	PAGE 5 OF 5 Agenc	v US Fish & Wi	Idlife Service DE	TAIL

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Ject Number 93-045

Project Source

Project Title Surveys to monitor marine bird and sea otter populations in Prince William Sound during Summer and Winter

Project Category Restoration Monitoring

Project Type Birds, Marine Mammals (Sea Otters)

Lead Agency US Fish and Wildlife Service

Cooperating Agencies None

Project Term Start Date 1 January 1993 Finish Date 15 March 1994

INTRODUCTION

<u>Background</u> --The U S Fish and Wildlife Service conducted boat surveys of marine bird and sea otter populations in Prince William Sound in the early 1970s, the mid-1980s and in 1989, 1990 and 1991 following the *Exxon Valdez* oil spill These surveys documented overall declines in Prince William Sound marine bird populations between 1972-1973 and the years after the spill for grebes, cormorants,

orthern pintail, harlequin duck, oldsquaw, scoters, goldeneyes, bufflehead, black oystercatcher, onaparte's gull, black-legged kittiwake, arctic tern, pigeon guillemot, marbled murrelet, Kittlitz's murrelet, and northwestern crow For five of these species or groups--cormorants, harlequin duck, black oystercatcher, pigeon guillemot and northwestern crow--populations declined more in the oiled area than in the non-oiled area, suggesting an oil spill effect Specific studies of three of these species--harlequin duck, black oystercatcher and pigeon guillemot--have corroborated the population changes found by the survey project In addition, these studies have investigated how the reproduction and foraging ecology of these species have been affected by the spill. These studies have also examined hydrocarbon contamination in these species. Links between the oil spill and effects on these species are still being investigated.

Relative to sea otters, the boat surveys documented declines in sea otter density and abundance in shoreline habitats of Prince William Sound following the spill The surveys also detected a continuing pattern of significantly lower sea otter densities in oiled coastal areas, suggesting that mortality or displacement of sea otters from these area was considerable

<u>Summary of Injury</u> --About 35,000 birds and 1,000 sea otters were recovered following the spill Based on modelling studies using carcass, search effort, and population data, the total number of marine birds killed by the spill was between 300,000 and 645,000 birds, with the best approximation between 375,000 and 435,000 birds. The majority of birds killed were murres. The total number of sea otters killed by the spill in Prince William Sound was estimated to be between 3,500 and 5,000 otters. These estimates reflect direct mortality occurring in the first five months after the spill and do not include chronic effects or loss of reproductive output

<u>_ocation</u> --This study will be conducted in Prince William Sound The entire sound, including oiled and unoiled areas, will compose the study area

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<u>Goal</u> --The purpose of this study is to obtain annual estimates of the summer and winter populations of marine birds and sea otters in Prince William Sound to determine whether species whose populations may have declined due to the *Exxon Valdez* oil spill are recovering

Objectives --

- 1 To determine distributions and estimate abundances, with 95% confidence limits, of marine birds and sea otters in Prince William during summer and winter
- 2 To estimate trends in populations of marine bird species whose populations declined more in oiled areas than in unoiled areas of Prince William Sound since the early 1970s, specifically cormorants, harlequin ducks, black oystercatchers, and pigeon guillemots
- 3 To support restoration studies on harlequin ducks, black oystercatchers, pigeon guillemots, marbled murrelets, other marine birds and sea otters by providing data on population changes, distribution and habitat use of Prince William Sound populations

WHY

Benefit to Injured Resources/Services and Relationship to Restoration Goals --This study meets the ustee Council restoration goal of restoration monitoring Restoration of marine bird and sea otter pulations will require population estimates to determine whether recovery is occurring or if declines are continuing This project will benefit marine birds and sea otters by revealing species that show continuing injury due to the *Exxon Valdez* oil spill, this information is necessary to plan meaningful restoration actions

This project will also provide valuable information on the distribution and habitat use of these species Survey data from this project have been used for these purposes by investigators of harlequin ducks, marbled murrelets, black oystercatchers and sea otters Survey methods are flexible enough to provide for collection of more detailed information (such as age class data) if such information is requested by investigators of those species

HOW

<u>Methodology</u> --Boat surveys will be conducted using methods developed by NRDA Bird Study 2 Surveys will be conducted in March (winter) and July (summer) of each year Surveys will be conducted using three 25-foot boats each staffed by an operator and two crew members All three will serve as observers Observers will record all birds and mammals within 100 m of each side of the boat within survey transects, and whether the animal is in the water, on land or in the air The survey window will extend approximately 40-50 m ahead of and 100 m above the moving boat, but will be extended for animals that exhibit strong avoidance behavior when the boat is more than 50 m away (e.g. scoters, murrelets, harlequin ducks, harbor seals) Surveys will be conducted only when seas are less than two feet Date and time of survey, and environmental variables including wind velocity and direction, air and water temperature, weather, observation conditions, sea state, tide, presence of oil, and presence of numan activity will be recorded for each transect stratified random sampling design using shoreline, coastal/pelagic and pelagic strata will be used The current design is powerful enough to detect small population changes (e.g. 15%) for some species. Data collected previously will be used to improve the design for other species, possibly lowering costs at the same time. The size of individual blocks in pelagic and coastal/pelagic strata will be decreased, and blocks reselected, to decrease variances. Such alteration will not affect our ability to compare population estimates among years.

Analyses aimed at reducing survey variances, detecting population changes, and identifying habitat use and distribution will continue Such analyses include exploration of post-stratification by habitat (using shoreline type or bathymetry to define habitats), examination of differences among observers' abilities to identify and count animals, and calculation of optimal sampling unit size and number of samples Future analyses should include the effects of survey vessel disturbance and distance from the vessel on counts of different species

<u>Coordination with Other Efforts</u> --This study will provide data on distribution and abundance of selected species for use by restoration study investigators (assuming these studies are approved) Proposed studies that would use data collected by this project include the following sea otters, black oystercatchers, pigeon guillemots, habitat (marbled murrelet portion), murres, and habitat acquisition

ENVIRONMENTAL COMPLIANCE This study relies on observations from boats and is a non-intrusive study Based on a review of the CEQ regulation 40 CFR 1500-1508, this study appears to be categorically exempt from the requirements of NEPA in accordance with 40 CFR 1508 4

VHEN

This project will require, at minimum, 15 months to complete Surveys are proposed to continue for several years The need to continue the surveys on an annual basis, and the need to conduct both winter and summer surveys in each year, will be evaluated

Logistical Planning Winter Survey - data collection Data compilation Summer Survey - data collection Data compilation Data analysis Draft Report Final Report January 1-March 1 1993 March 1-20, 1993 April-May 1993 July 1-20, 1993 August-September 1993 September-December 1993 January 1994 March 1994

Project Description Surveys to mon Note The first functional unit of this p	itor marine bir roject extends	d and sea otter from January	populations 1, 1993 to M	arch 31, 199	/illiam Sound 94			
Budget Category	Approved 01-Oct-92 28-Feb-93	Proposed* 01Mar93 30Sep93	Total FY 93	FY 94**	FY 95	FY 96	FY 97	Sum FY 98 & Bevond
Personnel		108 5	108 5					
Travel		12 0	12 0					
Contractual		80 0	80 0					
Commodities		10 0	10 0					
Equipment		30 0	30 0					
Capital Outlay		00	0 0					
Sub-total		240 5	240 5	0 0	00	0 0	0 0	0 0
General Administration		21 9	21 9					
Project Total	0 0	262 4	262,4	284 5	284 5	284 5	284 5	0 0
Full-time Equivalents (FTE)		` 3 4	34					
					Amounts are	e shown in t	housands of	dollars
Budget Year Proposed Personnel								
FY 93 only		Months						
Position		Budgeted	Cost			Comment		
Principal Investigator – Biol	ogist	90	34,600					
Supervisory Biologist		05	3,000					
Biologist GS9		20	8,700					
Biologist GS9		60	18,200					
Biotechnician (6 @ 2 month	s)	120	27,000					
Expeditor		10	2,000					
Program Manager		30	15,000					
*FY 93 is a transition year fr proposed funding for Janua **Includes 44 3 to complete	om the previou ry and Februa e work started	usly used oil fis ry, 1993 in 1993	cal year to th	ne federal fis	scal year Th	as new proje	ect also inclu	ıdes
<u>17–Jul–92</u>							-	
1993		Project Number Project Title	er 93–045 Marıne Bırd/	Sea Otter Sı	urveys			FORM 2A PROJECT
PAGE 4 OF 5		Agency	US Fish & W	ildlife Servic	e			DETAIL

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EXXON VALDEZ TRUSTEE COUNC'

Includes travel to/from Prince William Sound via train, boat, floatplane (12K)

Travel

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FORM 2B PROJECT DETAIL

Contractual	Winter charter vessel (25K), fuel and fuel transport (30K), boat maintenance (20K), and training (5K)
Commodities	Food (5K), miscellaneous (5K)
Equipment	Boat motors replacement (24K), electronic equipment (6K)
17–Jul–92	Project Number 93–045
1993	Project Title Marine Bird/Sea Otter Surveys PAGE 5 OF 5 Agency US Fish & Wildlife Service

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number	93-046							
Project Source								
Project Title	labitat Use, Behavior, and Monitoring of Harbor Seals in Prince William Sound, Alaska							
Project Category	Restoration Monitoring, Habitat Protection							
Project Type	Marine Mammals							
Lead Agency	Alaska Department of Fish and Game							
Cooperating Agencies	National Marine Fisheries Service (NMFS)							
Project Term 3 yrs	Start Date 1/10/92 Finish Date 9/30/95							

INTRODUCTION Harbor seals (<u>Phoca vitulina</u>) occur year-round in Prince William Sound (PWS) where they often haul out on rocks, reefs, beaches, and glacial ice They pup, breed, molt, and feed in the Sound During extensive surveys of PWS in 1991, 2,500-3,000 harbor seals were counted on haulouts Another 1,700 were counted in the Copper River Delta and Orca Inlet This under-estimates the population since some seals were in the water and some small haulouts were not surveyed. From 1984 1988, harbor seal numbers at trend sites in PWS declined by 43% for unknown causes. The decline continued in 1989-1990, exacerbated in oiled areas by the <u>Exxon Valdez</u> oil spill (EVOS), 1990 counts were 57% lower than in 1984. Following the oil spill, counts of harbor seals at oiled trend count sites were solved by 43% for unknown causes.

declined by 35%, compared to 13% at unoiled sites, indicating a reduction of about 20% at oiled haulouts. It is likely that over 200 harbor seals were killed by the EVOS in PWS. Although molting surveys in 1991 suggested that numbers might be increasing, pupping counts were 10% lower in 1992 than in 1991. Whether there are long-term effects is unknown.

Harbor seals are important to residents of PWS for subsistence in 1987-1989, they made up 13%-19% of the total harvest of subsistence foods in Tatitlek In Chenega Bay in 1985-1986, harbor seals accounted for 27% of the total pounds harvested Harbor seals are also watched by tourists and recreational users of PWS and they interact with and are incidentally killed in commercial fisheries. Like all marine mammals, they have special federal protection under the Marine Mammal Protection Act If the current decline continues or if up-to-date population data are not available, harbor seals could be placed in a more restrictive legal classification

The proposed study will take place in PWS The information obtained will benefit residents of Tatitlek, Chenega Bay, and other PWS communities who use harbor seals for subsistence, and tourists and other recreational users by providing information on trends in abundance, biology of the seals, and insight into possible causes for the ongoing decline Data will benefit PWS fishermen by ensuring that restrictive measures regarding incidental take of harbor seals are not implemented unnecessarily due o lack of data Information contributed by this study may lead to management recommendations will insure that human activities do not have further impacts on harbor seals

WHA' The goals of this study are 1) to monitor the abundance and trends of harbor seals in oiled d unoiled areas of PWS in order to determine trend in numbers since their decline following the'OS, and 2) to characterize habitat use and hauling out and diving behavior of harbor seals so that important habitat can be identified and properly managed

The objectives are 1) to conduct aerial surveys of harbor seals at 25 trend count sites in PWS during pupping and molting in 1993 and 1994, 2) to compare data from surveys to data collected following the EVOS to determine whether seals are recovering, 3) to describe hauling out and diving behavior, and by inference, feeding behavior of satellite-tagged seals in PWS relative to date, time of day, and tide, 4) to describe use of and frequency of movements between haulouts, and 5) to determine movement patterns within PWS and between PWS and adjacent areas

WHY. We cannot assume that the number of seals in oiled areas will return naturally to pre-spill levels It is necessary to have current data to know whether seal numbers in PWS have stabilized or are continuing to decline The proposed surveys will provide such information. To date, the data are equivocal 1991 molting counts increased slightly but 1992 pupping counts declined. Molting counts in oiled areas were 30% lower in 1991 than they were in 1988 before the EVOS. By comparison, counts at unoiled sites were approximately the same in 1988 and 1991. Overall since 1984, there has been a decline of more than 50% in numbers that has left much of the harbor seal habitat in PWS vacant. Subsistence hunters and other local residents complain about the scarcity of seals and want to know why there has been a decline.

While count data are essential for monitoring trends in abundance, they are of little help in explaining ie decline or designing conservation and management measures to facilitate recovery. There is no ... formation on site fidelity, movements between sites, seasonal changes, habitats used for feeding, or feeding behavior. It is clear based on data from harbor seals that were satellite-tagged as part of a pilot EVOS restoration study that some seals in PWS make unexpectedly long movements in short periods of time, and that there is more interchange among seals in PWS and the Copper River delta than was anticipated. Areas of particular biological significance must be identified and appropriately managed to be able to aid recovery in any way possible.

Under federal law, subsistence is the priority use of marine mammals Data on seal abundance should be shared with PWS residents so that hunters can regulate their seal harvest to ensure that the harvest is sustainable. If data are not current and adequate to determine that subsistence takes and fisheries removals are sustainable, this could result in very restrictive incidental take regulations for PWS salmon fisheries. While it is not clear what caused the declines prior to the EVOS, there is little question that the EVOS compounded the decline. Consequently, post-spill monitoring must continue until residual effects of the EVOS are no longer evident. This project will complement other activities of NMFS on conservation and management of harbor seals.

HOW We are proposing a two-year field study (1993, 1994) with final data analysis and reporting to take place in year three Harbor seal abundance will be monitored by flying aerial surveys during pupping (June) and molting (August/September) A fixed-wing aircraft will be used to fly a survey of 25 trend count sites at an altitude of 500 feet These 25 sites have been used for PWS harbor seal trend counts since 1984, including NRDA studies in 1989-1991 The observer will count all seals and photograph large groups Pups will be counted separately in June We will attempt to survey each site

Project Number 93-046

7-10 times during a survey period to reduce statistical variance of the counts Methodology and servers will be the same as those used in 1989-1991 NRDA studies Several surveys will also be ---nducted of seals in the Copper River Delta to gain understanding of the relationship between seal counts in PWS and the Delta Counts will be compared to data collected prior to and during the EVOS in order to document whether and how rapidly recovery in the oiled area occurs Project investigators will travel to Chenega Bay and Tatitlek at least once each year to exchange information with village residents

Satellite-linked time-depth recorders (PTTs) will be attached to 12 seals per year (6 each in spring and autumn) at a variety of locations in PWS in order to better evaluate geographical and seasonal differences in movements and behavior. Seals will be caught by in nets placed near haulouts and PTTs will be glued to their backs with epoxy resin. Each PTT will transmit signals to polar-orbiting satellites when the seal is hauled out or when it surfaces for a sufficient time. Sensor information will indicate when the animal is hauled out, and how deep and for how long it dives. PTTs will be shed during the annual molt in autumn. Pilot studies demonstrated that the project is feasible. During 1991-1992, PTTs were attached to eight seals and data were received for 3-67 days. Several seals made substantial movements within PWS and to the Gulf of Alaska and the Copper River Delta.

Aerial survey data will be analyzed using the trimean statistic as the measure of central tendency Between-year comparisons of pup production and abundance during the fall molt will be done using a Repeated Measures Analysis of Variance (ANOVA) performed on the trimeans of site count data Hypotheses will be tested using orthagonal contrasts derived from the specialized ANOVA Data on geographic location and movements will be plotted by computer Rates of movement and average ngths and depths of dives will be calculated depending on location, date, and size of the seal auling out periods relative to tidal stage will be examined by analyzing sensor data that indicates whether the seal is on land or at sea

ENVIRONMENTAL COMPLIANCE No environmental analysis is required for this study. As required by the Marine Mammal Protection Act, ADF&G has been authorized under Permit No. 700 to instrument up to 100 harbor seals with PTTs during the period 1992-1995. No additional permits are required

WHEN This project will be conducted during 1993 and 1994, with final report submission in 1995 Aerial surveys will be conducted during June and August/September of each year Each survey period will be 7-14 days, depending on weather and tides One of the investigators will visit Chenega Bay and Tatitlek once a year to discuss survey results with residents Satellite tags will be attached during 10-14 day periods in May and September of each year Because a lead time of 3-6 months is required to obtain PTTs, we will have to order PTTs by November of 1992 and 1993 Satellite data acquisition costs must be prepaid to Service ARGOS by February of each year Data are received monthly and preliminary analysis will begin as soon as data diskettes are received Final analyses cannot be completed until the PTTs have ceased to function (April-June 1995) A report of field activities will be submitted in letter form within 30 days following any field activity Annual progress reports will be submitted by 31 December 1993 and 1994 A final report will be submitted by 30 September 1995 Results will be prepared for publication in a peer-reviewed journal Project Description This project will monitor the abundance of harbor seals at 25 trend count sites in PWS and will characterize habitat use, hauling out, and diving behavior so that important habitat can be properly managed. Aerial surveys will be conducted during pupping in June and molting in ______ August/September Counts will be compared to historical data and to data collected following the oil spill to determine whether seals in oiled areas have stopped declining Satellite-linked transmitters will be attached to twelve harbor seals per year to obtain information on movements, use of different haulouts and movements between haulouts, and diving characteristics. This information will be used to identify and properly manage important habitat Data will also be used to improve interpretation of aerial survey data and to refine survey methodology.

	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Mar-93	Total	**				FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnei	\$0 0	104 7	\$104 7	\$110 4	\$49 8			
Travel	\$O O	10 2	\$10 2	\$12 1	\$0 7			
Contractual	\$0 0	46 7	\$46 7	\$54 4	\$8 3			
Commodities	\$0.0	49 9	\$49 9	\$53 2	\$0 7			
Equipment	\$0 0	0	\$O O	\$O O	\$0 0			
Capital Outlay	\$0 0	0	\$0 O	\$0 0	\$0 0			
Sub-total	\$0.0	\$211 5	\$211 5	\$230 1	\$59 5	\$0.0	\$0.0	\$0.0
General Administration	\$0.0	19	\$19 0	\$20 4	\$8 1			
Project Total	\$0 0	\$230 5	\$230 5	\$250 5	\$67 6	\$0.0	\$0.0	\$0.0
Full-time Equivalents (FTE)			16	15	08			
					Amounts	s are shown ii	h thousands	of dollars
Budget Year Proposed Personnel		Months				-		
Position		Budgeted	Cost					
2 WB II		60	48 4			Comment		
1 AP III		15	\$6 9					
1 WB II		2 0	\$8 6	** If not fur	nded in FY94,	the closeout	cost for this	project will
1 FWT IV		30	\$11 1	be 56 7K fc	or data acquis	ition for th <mark>e l</mark> i	fe of the sate	ellite
1 FWT V		05	\$2 3	transmitters	and report pr	eparation		
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1 A/P IV		05	\$2 7					
1 A/P II		05	\$2 1					
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January and February, 1993	Project N	lumber 93-04	46					
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Travel field effe and per remain t Costs in	Costs include transportation of field party of 6-8 people from Anchorage/Fairbanks to Valdez/Cordova for two orts per year Per diem will be a combination of commercial, state, and field facilities This also includes travel diem for one observer for each of two aerial surveys to travel from Anchorage/Fairbanks to Cordova and here for 10-14 days FY94 costs include travel and per diem to present study results at a professional conference all three years include travel and per diabase management (1 trip)	a -1						
Contractual process and ves hours po network	Contractual costs include data acquisition time from Service ARGOS at about \$400/mo including special animal ing and diskette costs Also included are costs of printing/graphics, phone/fax, air freight, equipment repair, sel charter at \$600/day for approximately 20 days per year Cost of charter aircraft for surveys is included at 35 er survey @ \$220/hr Database management cost of \$500/year is included to cover software licensing and access							
Commodities	ties This includes 12 PTTs per year at \$4000/PTT, a seal-catching net, vessel fuel, office and field supplies, repair supplies (small boats), and computer software for data analysis and presentation It also includes film for aerial surveys							
Equipment	No equipment will be purchased							
17 Jul 92	Project Number 93-046 Project Title Habitat Use, Behavior, and Monitoring of	FORM 2B						
1993	Harbor Seals in Prince William Sound, Alaska page 2 of 2 Agency ADF&G	PROJECT DETAIL						

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EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93047

Project Source:

Project Title: SUBTIDAL MONITORING: Recovery of sediments, hydrocarbon-degrading microorganisms, eelgrass communities, and fish in the shallow subtidal environment.

Project Category: Restoration monitoring

Project Type: Sediments, microorganisms, eelgrass beds, fish

Lead Agency: NOAA, NMFS

Cooperating Agencies: ADFG/UAF, ADEC/UAF

Project Term: Start Date: 1 Mar 1993 Finish Date: 30 Sep 1995

INTRODUCTION:

A. Background on the Resource/Service: This project will monitor the recovery of subtidal sediments, hydrocarbon-degrading microorganisms, eelgrass communities, rockfish, and bottom fish from SHALLOW subtidal areas of Prince William Sound. An important component of this study is tracking the loss of oil from the environment and from organisms in the spill area.

Hydrocarbons were found in the shallow subtidal sediments and in species (rockfish, flounders) associated with the shallow bottom sediments. Investigators attempting to restore or monitor recovery of populations of shallow subtidal organisms following the EXXON VALDEZ oil spill will want to know what concentrations of petroleum hydrocarbons are present in sediments, and if they continue to contaminate the organisms and have sub-lethal impacts.

We anticipate that complete recovery to background levels of hydrocarbons in subtidal sediments in the Sound is likely to take several years.

B. Summary of Injury: Subtidal sediments have been found to be contaminated by oil at no fewer than 15 sites within Prince William Sound by June 1990. Hydrocarbon contamination of sediments had reached a depth of 20 m at least 8 sites. Evidence of hydrocarbon movement down-slope into subtidal sediments was detected by 1991; further oil movement to greater depths is suspected (from weathering, cleaning, etc.) but is unknown.

Dead rockfish were found after the spill. Species exposure in rockfish and flounders (contaminated bile) was documented between 89-91, but not since. Eelgrass beds in oiled areas were affected by the spill.

Persistence of hydrocarbons and their impacts on associated species were not examined in 1992, and the current status of recovery is unknown

C. Location: All locations of the study will be in Prince William Sound (PWS; except for potential control sites outside PWS if needed). All projects within the study will sample the same oiled sites all of which were sampled in previous years. Five oiled and five reference sites will be studied intensively by all agencies cooperating in the project

The oiled sites will include Herring Bay, Northwest Bay, Sleepy Bay, Snug Harbor, and Bay of Isles. The control sites will include Drier Bay, Lower Herring Bay, Moose Lips Bay, Olsen Bay, and Zaikof Bay. All sites were sampled repeatedly under the NRDA program. Sites will be sampled in June/July 1993 and 1994.

WHAT:

A Goal. Monitor recovery of sediments, hydrocarbon-degrading microorganisms, eelgrass beds, and shallow fish species in the subtidal environment.

B. Objectives.

1. (NMFS- O'Clair) Determine Hydrocarbons concentration and composition in subtidal sediments in PWS by GC-MS (6 depths; 10 sites).

2. (NMFS- O'Clair) Determine hydrocarbon movement down slope in three oiled bays (150 samples per bay, all from 0-20 meters) by fast screening UV-Fluorescence procedures

3 (ADEC/UAF- Braddock) Measure the numbers of hydrocarbondegrading microorganisms and their activity as an indicator of persistence of biodegradable oil in PWS sediments

4. (ADFG/UAF- Jewett) Determine impacts and recovery of shallow eelgrass communities in western PWS that were impacted by the spill

5. (ADFG- McCarron; NMFS- Collier) Determine changes in exposure of fishes to hydrocarbons by monitoring bile, MFO activity and histopathogical lesions in Rockfish and near-shore bottom fish.

WHY:

A. Benefit to Injured Resources/Services.

The sediment hydrocarbons sub-project will determine the recovery of oiled sediments, if any, and the movement of subtidal oil, if any. The other sub-projects will determine if contamination continues in species, and if responses to contamination or impacts continues.

Management of species and habitats may be influenced by the level of recovery (e.g no contamination or detectable responses would permit higher rates of harvest for target species). Information on rates of recovery of contaminated habitats and species is needed to protect those habitats and species It is important to measure oil exposure as recovery proceeds until the environment fully recovers This project is the only subtidal monitoring study

HOW:

All of the sites proposed for sampling by this project were sampled by the cooperating agencies between 1989-91. None of the subprojects proposed here were implemented in 1992 All sub-projects will use methods comparable to the methods they employed in 1989-91 to insure temporal comparability of the results The project will be limited to 10 sites within PWS

Specific methods vary considerably between sub-projects. Sediments will be collected primarily by divers (some grab samples will be taken at greater depths) and will be analyzed by GC-MS. All sediment samples will be screened using the UV-Fluorescent procedures developed for analyzing sediments from the mussel bed study. Details of the methods for monitoring biological impacts/contamination will be given in detailed study plans and will follow the methods used in previous years.

Chain of custody procedures will be followed after collection of all samples

Coordination with Other Efforts The sub-projects will coordinate closely with each other to insure concurrent sampling dates and similar stations between studies Also, this project will coordinate with the mussel bed project, and will make use of the shoreline evaluations particularly to identify stations for the intense subtidal sampling at 3 oiled bays.

ENVIRONMENTAL COMPLIANCE:

It is not anticipated that this study will have a significant effect on the environment and an Environmental Impact Statement or Environmental Assessment will not be necessary

WHEN:

All field work will be conducted in June/July 1993 and 1994. An interim progress report will be completed by 1 Dec 1993 and 1994. Final reports for sub-projects with one field season will be completed by 1 May 1994; those for sub-projects with two field seasons will be completed by 1 May 1995.

BUDGET SUMMARY

All sub-projects are self-contained. Budgets include analytical costs, vessel-field logistics, university overhead, and final analyses/interpretation/write up

Note: Because the summer field season occurs in the fourth quarter of the fiscal year, much of the sample analysis will fall in the first two quarters of the next fiscal year. Project Description Subtidal Monitoring - 5 Parts Sediment hydrocarbons, microbiology, eelgrass communities, rockfish monitoring, and nearshore and subtidal fish monitoring

	Approved	Proposed*		**				Sum
Budget Category	1-Oct-92	1-Mar-93	Total				1	FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
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Personnel		\$271 2	\$271 2	\$301 0	\$192.0			
Travel		\$22 7	\$22 7	\$21 0	\$13 0			ł
Contractual		\$560 4	\$560 4	\$500 0	\$140 0			
Commodities		\$57 5	\$57 5	\$52 0	\$23 0		ĺ	
Equipment		\$90	\$9 0	\$2 0			ĺ	
Capital Outlay			\$0.0					
Sub-tota	\$0 0	\$920 8	\$920 8	\$876 0	\$368 0	\$0 0	\$0.0	\$0 0
General Administration		\$79 9	\$79 9	\$80 2	\$38 6			
Project Tota	\$0 0	\$1,000 7	\$1,000 7	\$956 2	\$406 6	\$0 O	\$0.0	\$0 0
Full-time Equivalents (FTE)							Í	
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* FY 93 is a transition year fro	om the previous	sly used oil fiscal y	ear to the feder	al fiscal year	This new	project also	includes	
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1993	page of	Project Number: Project Title: Agencies:	93047 Subtıdal Monıtorıng NOAA, ADEC & ADF&G	FORM 2B PROJECT DETAIL

Project Description Subtidal Monitoring, Part 1 - documentation of levels and changes in levels of petroleum hydrocarbons in sediments in subtidal areas of Prince William Sound, Alaska

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PROJECT			Sub-Project	Part 1 Sedi	ment Hydroc	arbons			PROJECT
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Travel	5 staff RT Juneau to Valdez and Prince William Sound 4 staff RT trips for intra and inter agency meetings and symposia											
Contractual	Vessel charters, hydrocarbon chemical (UV screening and gas chromatography/mass spectroscopy) analyses											
Commodities	Field gear and sampling supplies, dive supplies											
Equipment	Sampling and dive o	Sampling and dive equipment										
20 Aug 92		um	Project Number Project Title	93047 Subtidal Monitoring			FORM 3B					
1993	page c	of	Sub-Project Agency	Part 1 Sediment Hydroca NOAA/NMFS/ABL	irbons		PROJECT DETAIL					

Project Description Subtidal Monitoring, Part 2 - documentation of levels and changes in levels of microbiological populations in subtidal areas of Prince William Sound, Alaska

		Approved	Proposed*		**				Sum
Budget Category		1-Oct-92	1-Mar-93	Total					FY 98 &
		28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel			\$2.5	\$2.5					
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Contractual			\$62.4	\$62.4					
Commodities				\$0.0					
Equipment				\$0.0					
Capital Outlay				\$0.0					
	Sub-total	\$0 0	\$64 9	\$64 9	\$0 0	\$0 O	\$0 0	\$0 0	\$0 0
General Administ	tration	\$0 0	\$4 7	\$4 7	\$0 0	\$0 0	\$0 0	\$0 0	\$0.0
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* FY 03 is a trans	ation year fro	m the previous	ly used oil fiscal	vear to the fede	ral fiscal vea	r This now	nmert also		
includes propose	d funding for	January and F	ebruary 1993	your to the rough	iai novai yea	i ino new	project dise		
20 Aug 92		sandary and t							
20 Mag 22			Project Numbe	r 93047					FORM 3A
			Project Title	Subtidal Mo	nitonng				SUB-
			Sub-Project	Part 2 Mic	robiology				DROTECT
1993			Agency	ADEC			1		PRODECT
	page	of							DETALL

EXXON VALDEZ TI FEE COUNCIL

Travel					
Contractual	Contract to Un	versity of Al	aska Fairbanks		
Commodities					
Equipment					
20 Aug 92	7		Project Number Project Title	93047 Subtidal Monitoring	FORM 3B SUB-
1993	page	of	Agency	ADEC	PROJECT DETAIL

Project Description Subtidal Monitoring, Part 3 - documentation of changes in eelgrass communities in subtidal areas of Prince William Sound, Alaska

	Approved	Proposed*		**				Sum
Budget Category	1-Oct-92	1-Mar-93	Total					FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95 FY 96 FY 97 \$7 0 \$7 0 \$7 0 \$7 0 \$75 0 \$0 0 \$82 0 \$0 0 \$82 0 \$0 0 \$88 3 \$0 0 \$0 0 \$0 0 Amounts are shown in thousands of Comment	Beyond		
Personnel		\$7.0	\$7.0	\$7.0	\$7.0			
Travel		\$70	\$0.0	φ <i>ι</i> υ	φισ			[
Contractual		\$220.0	\$0.0	\$265.0	\$75.0			
Commodities		\$250.0	\$0.0	<i>\$</i> 203 <i>0</i>	φ/5 0			
Equipment			φ0 0 ¢0 0					
Equipment Capital Outlay			\$0.0					
Capital Outlay Sub total	\$0.0	\$227.0	\$00 \$227 0	\$272.0	\$82.0	\$0.0	\$0.0	500
General Administration	\$0.0	¢2370	\$257 U	\$10 G	402 V 66 3	\$0.0	\$0.0	\$0.0
Brouget Total	\$0 0 \$0 0	\$254.2	\$254.2	\$201 6	\$88.3	\$0.0	\$0.0 \$0.0	\$0.0
	φυυ	φ2.34 2	42J7 2	<i>\$</i> 2310	400 0	400	400	
Full-time Equivalents (ETE)		0.1						
		0.1			Amount	s are shown	in thousands	s of dollars
Budget Year Proposed Personne	L	L						
		Months						
Position		Budgeted	Cost			Comment		
Program Manager		12	\$7 0					
			•					
* FY 93 is a transition year fro	m the previous	lv used oil fiscal	vear to the fede	ral fiscal vea	r This new	project also		
includes proposed funding for	January and F	ebruary 1993 *	*FY94 includes of	loseout fund	ing at \$70 0	K		
20 Aug 92								
Ū		Project Numbe	er 93047					FORM 3A
		Project Title	Subtidal Mor	nitoring				SUB-
		Sub-Project	Part 3 Eelgi	rass Commu	nities			PROJECT
1993	<u></u>	Agency	ADF&G					DETATI
page	UT							لبله بلد 2 £ بلد إنك م

EXXON VALDEZ TI FEE COUNCIL

Travel		#*#**			
Contractual	Contract to University of Alas Vessel Charters	ka Fairbanks			
Commodities					
Equipment					
				A	
20 Aug 92		Project Number	93047 Subtidal Monitoring		FORM 3B
1993	page of	Sub-Project Agency	Part 3 Eelgrass Communities ADF&G		PROJECT DETAIL

Project Description Subtidal Moi metabolites in bile, mixed function	nitonng, Part 4 n oxidase levels	 documentation and histopathole 	of hydrocarbon ogy in rockfish f	exposure lev rom subtidal	vels through areas of Pri	changes in f nce William (nydrocarbon Sound, Alas	ka
Budget Category	Approved 1-Oct-92 28-Feb-93	Proposed* 1-Mar-93 30-Sep-93	Total FY 93	** FY 94	FY 95	FY 96	FY 97	Sum FY 98 & Beyond
Personnel Travel Contractual Commodities Equipment Capital Outlay Sub-total	\$0 0 \$0 0	\$31 1 \$1 9 \$83 0 \$6 5 \$122 5 \$125	\$31 1 \$1 9 \$83 0 \$6 5 \$0 0 \$0 0 \$122 5	\$3 5 \$3 5	\$0 0 \$0 0	\$0.0	\$0 0	\$0 0
Full-time Equivalents (FTE)	\$0 0 \$0 0	\$10 5 \$133 0 0 5	\$10 5 \$133 0	\$0 5 \$4 0	\$0 0 \$0 0	\$0 0 \$0 0	\$0 0 \$0 0	\$0 0 \$0 0
Budget Year Proposed Personn					Amounts	s are shown i	n thousands	of dollars
Position Program Manager Fish Biologist 1 Fish Technician III Fish Technician	-	Months Budgeted 1 2 2 1	Cost \$5 0 \$10 8 \$9 6 \$5 7		Comment			
* FY 93 is a transition year fro includes proposed funding for	m the previous January and F	ly used oil fiscal y ebruary 1993	ear to the feder	al fiscal year	This new	project also		
20 Aug 92	of	Project Number Project Title Sub-Project Agency	93047 Subtidal Mor Part 4 Roci ADF&G	ntoring cfish				FORM 3A SUB- PROJECT DETAIL
r

Travel	6 staff RT Anchorage to Pr	nnce William Sound	analainii koolooloolooloo aa kaalaanoo oo oo oo ahaa ahaa ahaa ahaa ahaa		
Contractual	Vessel and aircraft charters Contracts for MFO analyse	s s, histopathology, sto	mach content analyses		
Commodities	Field, sampling and office	supplies			
Equipment					
				_	
20 Aug 92	7	Project Number Project Title	93047 Subtidal Monitoring		FORM 3B SUB-
1993	page of	Sub-Project Agency	Part 4 Rockfish ADF&G		PROJECT DETAIL

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Project Description Subtidal Mor function oxidase levels, and histo	ntoring, Part 5 - pathology in ne	- monitoring of ex arshore and subti	posure to hydro dal fish from sul	carbons thro btidal areas o	ugh hydroca of Prince Wil	rbon metabo lliam Sound,	olites in bile, Alaska	mixed
Budget Category	Approved	Proposed*	Total	**				Sum
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel		\$130 9	\$130 9	\$166.0	\$125 0			
Travel		\$8 2	\$8 2	\$9 0	\$6 0			
Contractual		\$25 0	\$25 0	\$25 0	\$0.0			
Commodities		\$33 0	\$33 0	\$42 0	\$21 0			
Equipment			\$0.0					
Capital Outlay			\$0 0					
Sub-total	\$0 0	\$197 1	\$197 1	\$242 0	\$152 0	\$0.0	\$0 0	\$0 0
General Administration	\$0 0	\$21 4	\$21 4	\$26 7	\$18 8	\$0 0	\$0 0	\$0 0
Project Total	\$0 0	\$218 5	\$218 5	\$268 7	\$170 8	\$0 0	\$0 0	\$0 0
Full-time Equivalents (FTE)		2 4		34	22			
					Amounts	are shown	in thousand:	s of dollars
Budget Year Proposed Personne	el 🛛							
		Months	- .					
Position		Budgeted	Cost			Comment		
P Invest GS15		24	\$22 0					
Res Chem GS13		48	\$29 5					
Supv Res Chem GS12		40	920 9					
$\begin{array}{c} FISH BIOI GS T \\ (2)Comp Space GS7 \\ \end{array}$		40	⊅∠10 ¢259					
NMES Program Manager		102	φ200 \$5.0					
* EV 93 is a transition year fro	m the providue	1 Z Iv used oil fiscel v	φυ σ Inar to the feder	al fiscal voar		project also		
includes proposed funding for	January and F	ahruany 1003 **F	VQA funding ing	ai riscai year	niis iicw aut of \$68.8k			
20-Aug 92	oundary and th							
		Project Number	93047					FORM 3A
		Project Title	Subtidal Mon	iitoring				SUB-
		Sub-Project	Part 5 Subt	idal Fish				PROJECT
1993 page	of	Agency	NOAA\NMF	S/NWC				DETAIL
page	01							

Travel	4 staff RT Seattle to Prince	William Sound		
Contractual	Vessel and aircraft charters			
Commodities	Field, sampling and office s	supplies		
Equipment				
20-Aug 92	_	Project Number Project Title	93047 Subtidal Monitoring	FORM 3B SUB-
1993	page of	Sub-Project Agency	Part 5 Subtidal Fish NOAA\NMFS\NWC	 PROJECT DETAIL

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EXXON VALDEZOIL SPILL PROJECT TRUSTEES

I. TRANSMITTAL

II. BASIC INFORMATION

Project Number 93048

Project Source

Project Title Communication system for the oil spill area

Project Category Technical Support

Project Type Services

Lead Agency USDA Forest Service

Cooperating Agencies ADNR

Project Term 1-2 yrs Start Date Finish Date (day/month/year) (day/month/year)

III. INTRODUCTION

This project was to look at the feasibility of having a cellular phone system installed in the oil spill area F C C regulation limit this type of service to private contractors. The area is assigned to a contractor with exclusive rights and there are no plans to establish this service at this time. The Trustees would have to pay the contractor enough to make it worthwhile to set up the system. Estimates were from 10 to 100 million dollars plus service charges and equipment. The contractor would also require a long-term agreement.

Plans are for a communications satellite to be in place within 3-5 years. At that time cellular phone service in the spill area will cost only equipment purchase and service charges

EXXON VALDEZ OIL SPILL BRIEF PROJECT DESCRIPTION

Project Number 93050

Project Source

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Project Title	Update Restoration Feasiblity Study #5 (Identification and Recordation of Information Sources Relevant to Land and Resources Affected by the Exxon Valdez Oil Spill)
Project Category	Technical Support

Lead Agency State of Alaska Department of Natural Resources

Cooperating Agencies

Project Term	Start Date	3/1/93 (day/month/year)	Finish Date 5/31/93 (day/month/year)

INTRODUCTION

Restoration planning and implementation projects proposed to enhance and accelerate the recovery of areas affected by the Exxon Valdez oil spill require information on natural resources, land status, and damage assessment. In a previous study, Restoration Feasibility Study #5, DNR compiled information identifying available sources of information pertaining to land status, existing and proposed uses of both public and private lands, natural and cultural resource inventories, existing infrastructure, management plans, maps and other resource documents that were relevant to the restoration process. Since this project was completed in March, 1991, much damage assessment and other ancillary information has become available. To facilitate the restoration process it is necessary to identify available damage assessment information, locate its source, determine its availability and evaluate its relevance within the context of restoration.

Information will be collected and added to an existing DNR database and be published as an Update to Restoration Feasibility Study #5, *Identification and Recordation of Information Sources Relevant to Land and Resources Affected by the Exxon Valdez Oil Spill* This document would then be made available to Principle Investigators, Restoration Planners and the public

WHAT

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The goal of this project is to identify sources of existing information pertinent to the Exxon Valdez Oil Spill Restoration Process Specific objectives include

- Identify location and source of damage assessment studies and update the existing document to reflect new information
- * Identify the sources and locations of maps, management plans, and other resource documents pertaining to land status, public resources, land use patterns, ownership, existing and proposed land use, vegetation, fish and wildlife populations, habitat, recreational value, commercial resources and cultural resources
- * Produce a selected bibliography identifying the source and location of reports, maps, scientific literature, management plans and studies relevant to the restoration process

WHY

In order to properly plan for the design and implementation of appropriate restoration projects, it is necessary to review and make accessible existing information about land and resource status, damage assessment in the affected area, and existing and proposed land use. This information should be updated to reflect new and recently released damage assessment studies. The restoration team should consider updating this publication on a yearly basis to provide a complete body of knowledge for Restoration Planners, Principle Investigators and the public

HOW

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A survey of existing and ongoing damage assessment studies will be conducted as well as an update of previously compiled information published in Restoration Feasibility Study #5 Information collected will be added to the existing DNR database and an Update to Restoration Feasibility Study #5 will be published Technicians collecting information for this study will coordinate with other agencies in order to provide a comprehensive survey of existing information

ENVIRONMENTAL COMPLIANCE

The project qualifies for a categorical exclusion under terms of the National Environmental Policy Act (NEPA)

WHEN

The project will begin March 1, 1993 and be completed May 31, 1993

March 1, - April 1, 1993	Survey damage assessment studies
April 1, - May 15, 1993	Update RFS #5 database
May 15, - May 31, 1993	Prepare database for publishing

Project Description Update RFS #5 Valdez Oil Spill	5, Identification a	and Recordation of	f Information Sour	ces Relevant	to Land and F	Resources At	fected by th	e Exxon 🗸
Budget Category	Approved 1-Oct-92 28-Feb-93	Proposed* 1-Mar-93 30-Sep-93	Total FY 93	FY 94	FY 95	FY 96	FY 97	Sum FY 98 & Beyond
Personnel Travel Contractual Commodities Equipment		\$6 9 \$1 5 \$0 2 \$0 2	\$6 9 \$0 0 \$1 5 \$0 2 \$0 2					
Capital Outlay Sub-total General Administration Project Total		\$8 8 \$1 4 \$10 2	\$0 0 \$8 8 \$1 4 \$10 2	\$0 0 \$0 0	\$0 0 \$0 0	\$0 0 \$0 0	\$0 C \$0 C	\$0 0 \$0 0
Full-time Equivalents (FTE)	alents (FTE) 02 02 Amounts are shown in thousand			thousands o	of dollars			
Position Technician	02	Months Budgeted 3	Cost \$6 9			Comment		
* FY 93 is a transition year from January and February, 1993	the previously us	sed oil fiscal year to	o the federal fisca	year This r	new project al	so includes p	roposed fun	dıng for
17-Jul 92	of 2	Project Numbo Project Title Agency ADN	er 93050 Update, RFS # IR	5				FORM 2A PROJECT DETAIL

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Travel	Not Applicable		
Contractual	\$1 5 Estimate to produce 200	copies of a 50 page document	
Commodities	\$0 1 Toner Cartridge \$0 1 Paper and Supplies		
Equipment	\$0 2 Software		
17 Jul 92			
1993	page 2 of 2	Project Number 93050 Project Title Update RFS #5 Agency ADNR	FORM 2B PROJECT DETAIL

EXXON VALDEZOIL SPILL TRUSTEES

I. TRANSMITTAL

II. BASIC INFORMATION

Project Number: 93051 A

Project Source:

Project Title: Information Needs for Habitat Protection and Acquisition

Project Category: Habitat Protection and Acquisition

Project Type:Coordinated Agency Research Project

Lead Agency: USDA Forest Service

Cooperating Agencies: ADF&G, USF&WS

Project Term: Start Date: 10/1/92 (day/month/year) Finish Date: 9/30/94 (day/month/year)

III. INTRODUCTION

This project will acquire detailed information on the locations and characteristics of habitats and services of injured resources so that habitat/protection or acquisition options can be evaluated Data collection efforts will focus on anadromous fish and murrelets Anadromous fish were affected by the oil spill in a number of ways pink salmon had high egg mortalities, reduced growth rates, and possible morphological abnormalities, sockeye salmon suffered poor smolt survival due to overescapement Marbled and Kittlitz's murrelet populations were significantly impacted by initial mortalities and continue to be depressed

This project willencompass lands throughout the spill-affected area

IV. WHAT This project has two components 1) Murrelet nesting habitat assessment and, 2) Stream habitat assessment

1) Murrelet Nesting Assessment

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The purpose of this subproject is to help restore murrelet populations injured due to the *Exxon Valdez* oil spill by providing information that could be used to protect, through acquisition or other means, murrelet nesting habitat

This subproject will further characterize the nesting habitat of marbled and Kittlitz's murrelets in the spill-affected area. Two objectives will be implemented to achieve this goal

- 1 Determine habitat features that are reliable indicators of high density murrelet nesting areas in the spill-affected area
- 2 Determine feasibility of using radio telemetry to determine nesting habitat of murrelets in the spill-affected area

Based on results from the 1992 season, selected habitat types willbe tested for predicted levels of murrelet activity, particularly behaviors indicating occupation of the habitat for nesting Potential nesting areas will be surveyed using intensive dawn watches along elevational or distance-from-water gradients Previously monitored high-density nesting areas will be surveyed to determine the relative level of murrelet upland activity for 1993 The U S Forest Service willdetermine forest cover attributes (specifically, forest structure, volume and stand class as well as plant associations) for dawn watch sites within each survey area. These data willbe used to determine the habitat characteristics of occupied and unoccupied sites. The study area for this portion of the project willinclude Prince WilliamSound (PWS) and areas outside PWS (Kenai Peninsula, Kachemak Bay, Afognak Island). The specific areas to be studied outside of PWS willbe determined after results from 1992 field work are available.

Radio-telemetry could be a useful technique for determining the nesting areas of murrelets, however, capture methods, radio life-span and ability to track murrelets are still experimental. We propose to conduct a pilot study on capturing and tagging murrelets to determine the feasibility of using radio-telemetry to determine the nesting habitat of murrelets in the spill zone. Given the experimental nature of this work, we propose to conduct the study in Kachemak Bay, which is relatively accessible and has a high density of both murrelet species.

2) Stream Habitat Assessment

The stream habitat assessment project is intended to be a comprehensive survey of anadromous fish stream resources that willprovide basic information needed to evaluate candidate lands for restoration, protection, enhancement or acquisition actions

The project is composed of three sub-projects

Stream Habitat Assessment Study Surveying anadromous fish distribution and documenting the total number and extent of anadromous fish streams on candidate lands

Stream Classification Study Developing channel typing procedures that will allow comparative evaluations of stream habitat on private and public lands

Spawning Distribution and Escapement Study Developing a database and maps that define spawning distribution and escapements for anadromous fish streams throughout the oil spill area

<u>VII. ENVIRONMENTAL COMPLIANCE</u> The proposed project qualifies for a categorical exclusion under terms of the National Environmental Policy Act (NEPA)

<u>VIII. WHEN</u> Several of the planned project components are continuing studies previously funded by the Trustee Council The general timelines for the individual components are as follows

- 1 Stream habitat assessment Present September, 1994
- 2 Stream channel typing October September, 1994
- 3 Spawning distribution and escapement study October September, 1994
- 4 Murrelet nesting habitat assessment Present September, 1994

Project Description Habitat Protection and Acquisition This project will acquire detailed information on the location and characteristics of habitats and services of injured resources so that habitat/protection or acquisition options can be evaluated

Budget Category	Approved 1 Oct-92 28 Ech-93	Proposed* 1-Mar 93	Total	EV 94	EV 06	EY 98	EV 97	Sum FY 98 & Bevond
	20-F00-33	30 360-93	F1 35	F1 24	F1 90	F1 30	FT 37	Deyond
Personnel	\$247 4	\$766 5	\$1,013 9					
Travel	\$4.0	\$86.0	\$90.0					5
Contractual	\$170	\$575 7	\$592 7					
Commodities	\$110	\$45 5	\$565				1	}
Equipment	\$30.0	\$62.0	\$92.0				1	
Capital Outlay	\$0.0	\$0.0	\$0.0					
Sub-total	\$309.4	\$1,535 7	\$1,845 1					\$00
General Administration	\$38 3	\$155.3	\$193 6					
Project Total	\$347 7	\$1,691 0	\$2,038 7	\$871 3				\$00
Full time Equivalents (FTE)	17	17	17	17	17	17	17	
		Amounts are shown in thousand			thousands of	dollars		
Budget Year Proposed Personnel								
		Months						
Position		Budgeted	Cost			Comment		
17 Jul 92		Project Numb	er 93-051	<u> </u>]	[
F		Design Title	1 00-001 1 1 00-001	CTION				FORM 2A
1002		Froject little F	ADITAL PRUT	LON				PROJECT
1993 page of	of	Agency USDA	A FOREST SERV	VICE				DETAIL
		L			····]	L	

Travel			\$90 C)
sub-tot Contractual			\$90 C \$592 7) 7
sub-tot Commodities			\$592 7 \$56 5	7
sub-tot Equipment.			\$56 5 \$92 (5
sub-tot			\$92 (>
TOTAL			\$831 2	2
i7-Ju1 52	annar - yr gyr er i fel y fel allyn allyf a rag o'r fel a gynt ar far gynt ar flyn yn yn ann yn gynag faland y	Project Number 93-051 Project Title HABITAT PROTECTION	FOF	RM 2B
1993	page of	Agency USDA FOREST SERVICE	-PR(DE	TAIL

Project Description STREAM HABITAT AND EXTENT OF ANADROMOUS FISH	ASSESSMENT S STREAM S ON 1	TUDY SURVEYING CANDIDATE LAND	S ANADROMOUS S	FISH DISTRIB	UTION AND D	OCUMENTING	S THE TOTAL	. NUMBER
	Approved	Proposed*				1		Sum
Budget Category	1-Oct 92	1-Mar-93	Total					FY 98 &
	28 Feb-93	30-Sep-93	FY 93	FY94**	FY 95	FY 96	FY 97	Beyond
Personnel	\$90.4	\$182.8	\$273.2	\$79.8				
Travel	\$4.0	\$15.0	\$19.0	\$0.0				
Contractual	\$2.0	\$101.0	\$103.0	\$3.5				
Commodifies	\$0.0	\$10	\$10	\$0.0				
Fauloment	\$0.0	\$1.5	\$15	\$0.0				
Capital Outlay	\$0.0	\$0.0	\$0.0	\$0.0				
Sub total	\$96.4	\$301.3	\$397.7	\$83.3	\$0.0	\$0.0	\$0.0	\$0.0
General Administration	\$13.5	\$34.4	\$47.9	\$120	** •	100	100	14 5
Project Total	\$109.9	\$335 7	\$445 6	\$95 3				
Full time Equivalents (FTE)				-	Amounts a	are shown in t	housands of	dollars
Budget Year Proposed Personnel								
		Months						
Position		Budgeted	Cost			Comment		
PRINCIPAL INVESTIGATOR		7	\$410					
FISHERIES BIOLOGIST I		Б	\$24 6					
FISHERIES TECHNICIAN III		5	\$168					
HABITAT BIOLOGIST		5	\$20.0					
PROJECT LEADER		7	\$317					
CLERK/TYPIST III		7	\$20.6					
DATABASE MANAGER		7	\$131					
OSIAR MANAGEMENT		7	\$15.0					
* FY 93 is a transition year from the January and February, 1993	ne previously use	d oil fiscal year to t	he federal fiscal ye	ear This nev	v project also	includes propo	osed funding	for

17 Jul 92

1993

Project Number 93-051 Project Title Habitat Protection Sub-Project Stream Habitat Assessment Agency ADF&G

FORM 3A SUB-PROJECT DETAIL

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Travel	Airfare and per diem		\$190
sub-tot Contractual	Helicopter for 45 days, phone, fax, vide	o processing, map repreoduction, xerox	\$19 0 \$103 0
sub-tot Commodities	Office and field supplies, survey supplies	s, GPS parts, computer disks, paper	\$103 0 \$1 0
sub-tot Equipment	GIS software and computer equipment		\$1 O \$1 5
sub-tot			\$15
TOTAL			\$124 5
17 Jul 92		Project Number 93-051 Project Title Habitat Protection	FORM 3B SUB-
1993	page of	SubProject Stream Habitat Assessment Agency ADF&G	PROJECT DETAIL

Project Description Characterize the nesting habitat of murrelets in the spill affected area Project has 2 elements 1) conduct dawn watches and habitat surveys throughout Prince William Sound and in other areas of the spill zone (sample sites stratified by forest cover type) to determine what habits are used most 2) radio telemetry fesibility study

	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1 Mar-93	Total					FY 98 &
	28-Feb-93	30 Sep-93	FY 93	FY94**	FY 95	FY 96	FY 97	Beyond
Personnel	\$145.0	\$339.0	\$484.0	\$99.0				
Travel	\$0 0	\$30.0	\$30.0					
Contractual	\$0.0	\$240 0	\$240.0					
Commodities	\$10.0	\$20.0	\$30 0					
Equipment	\$20.0	\$30.0	\$50 0					
Capital Outlay	\$0.0	\$0.0	\$0.0					1
Sub total	\$175.0	\$659.0	\$834 0	\$99.0	\$0.0	\$0.0	\$0.0	\$00
General Administration	\$22.0	\$67 6	\$89 6	\$15.0				
Project Totel	\$197.0	\$726.6	\$923 6	\$213.0				
						1		
Full-time Equivalents (FTE)								
					Amounts	are shown in	thousands of	dollars
Budget Year Proposed Personnel								
		Months						
Position		Budgeted	Cost			Comment		
PRINCIPAL INVESTIGATOR		12	\$60 0					
FISHERIES BIOLOGIST		48	\$180.0					
FISHERIES TECHNICIAN		72	\$160 0					
PROGRAM MANAGER		1	\$4 0					
GIS TECHNICIAN		18	\$50 0					
CLERK/TYPIST		12	\$30.0					
* FY 93 is a transition year from t January and February, 1993	he previously use	ed oil fiscal year to) the federal tiscal	/ear This ne	w project also	includes prop	oosed funding	for

17 Jul-92

1993

 Project Number 93-051
 FORM 3A

 Project Title Habitat Protection
 SUB

 Sub-Project Channel Typing
 PROJECT

 page of
 Agency USDA Forest Service
 DETAIL

EXXON VALD RUSTEE COUNCIL

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Travel	Airfare to Cordova, Kodiak, AP, Homer and Seward, per diem		\$30 0
sub-tot Contractual	Boat Charter (\$160K), Helicopter Charte	er (\$80K)	\$30 0 \$240 0
sub-tot Commodities	Maps, photos, stream survey forms, GIS	supplies	\$240 0 \$30 0
sub-tot Equipment	Stream survey equipment and supplies	\$30 0 \$50 0	
sub-tot			\$50 0
TOTAL			\$350 O
17 Jul 92		Project Number 93-051 Project Title Habitat Protection	FORM 3B SUB-
1993	page 9 of 11	SubProject Channel typing Agency USDA Forest Service	PROJECT DETAIL

Project Description Characterize the nesting habitat of murrelets in the spill affected area Project has 2 elements 1) conduct dawn watches and habitat surveys throughout Prince William Sound and in other areas of the spill zone (sample sites stratified by forest cover type) to determine what habits are used most 2) radio telemetry fesibility study

	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Mar-93	Total	1				FY 98 &
	28 Feb-93	30-Sep-93	FY 93	FY94**	FY 95	FY 96	FY 97	Beyond
Personnel	ł	\$160.0	\$160.0					
Travel		\$30.0	\$30.0					
Contractual		\$146.0	\$146.0					
Commodities		\$10.0	\$10.0					
Equipment		\$15.0	\$15.0					
Capital Outlay		\$0.0	\$0.0					
Sub total	\$0.0	\$361.0	\$361.0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
General Administration		\$39.0	\$39.0					
Project Total	\$0.0	\$400.0	\$400.0	\$430 0	\$430 0	\$430 0	\$430 0	\$0.0
Full-time Equivalents (FTE)	ł	50						
					Amounts	are shown in	thousands of	dollars
Budget Year Proposed Personnel								
		Months						
Position		Budgeted	Cost			Comment		
PRINCIPAL INVESTIGATOR (GS-1	1)	12	\$48 0					
SUPERVISORY BIOLOGIST		05	\$3 O					
PROGRAM MANAGER		3	\$15 0					
EXPIDITOR		1	\$2 0					
BIOLOGIST (GS 09) (1)		12	\$40 0					
BIOTECHNICIAN (GS 05 (8)		34	\$12.0					
BIOTECHNICIAN (GS-07) (1)		6	\$10.0					
* FY 93 is a transition year from t	he previously use	id oil fiscal year to	the federal fiscal y	/ear This ne	w project also	includes prop	osed funding	for
January and February, 1993								
**The total shown in FY 94 to clo	seout work start	ed in FY 93 is \$30)					

17-Jul-92

Project Number 93-051B Project Title Information Needs for Habitat Sub-Project Murrelet Nesting Habitat Assessment Agency US Fish and Wildlife Service

FORM 3A SUB-PROJECT DETAIL

1993

EXXON VALE RUSTEE COUNCIL

Travel	To and from Whittler (road, train) and to and from Prince William Sound, Homer and other places, per diem	420.0
	(SUDSISTENCE)	\$30.0
sub tot		\$30.0
Contractual	GIS support (20K), boat maintenance (5K), boat charter (Prince William Sound, 60K), boat charter	
1	(outside Prince William sound 30K), safety training (8K), contract for murrelet radio telemetry study (20K), and werehouse (3K)	
	and wateriouse (SN)	\$146.0
sub tot		\$1460
Commodities	Camp food, fuel (10K)	\$10.0
eub-tot		\$10.0
Equipment		\$100
ach tot		
500-101		\$186.0
17 Jul 92		
	Project Number 93-00183	FORM 3B
[Project little Information Needs for Habitat	SUB-
1993	Supproject Murrelet Nesting Habitat Assessment	PROJECT
	page 3 of 5 Agency US Fish & Wildlite Service	DETAIL
An		and the second s

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udget Category	Approved 1-Oct 92 28-Feb-93	Proposed* 1 Mar 93 30 Sep-93	Total FY 93	FY94 * *	FY 95	FY 96	FY 97	Sum FY 98 & Beyond
Personnel	\$12.0	\$25.5	\$37.5	\$62.5				
Travel	\$0.0	\$20	\$2.0	\$1.0				
Contractual	\$15.0	\$18.7	\$33.7	\$56.2]			
Commodities	\$10	\$2.0	\$3.0	\$0.0				
Faunment	\$10.0	\$14.0	\$24.0	\$0.0		1		
Capital Outlay	\$0.0	\$0.0	\$0.0	\$0.0				
Sub total	\$38.0	\$62.2	\$100.2	\$1197	\$0.0	\$0.0	<u>\$0 0</u>	\$0.0
General Administration	\$2.9	\$5.1	\$8.0	\$13.3	+0.0	10 0	40.0	+0 U
Project Total	\$40 9	\$67 3	\$108.2	\$133.0				
Full-time Equivalents (FTE)								
			L	l.	Amounts are shown in thousands of dollars			
udget Year Proposed Personnel								
		Months	0			0		
Position		Budgeted	Cost			Comment		
PRINCIPAL INVESTIGATOR		9	\$37 5					

 Project Number 93-051
 FORM 3A

 Project Title Habitat Protection
 SUB

 Sub-Project Spawning Distribution and Escapement
 PROJECT

 of
 Agency ADF&G
 DETAIL

17 Jul-92

1993

EXXON VALE RUSTEE COUNCIL

Travel	Travel to Anchorage, Cordova, Juneau, and Kodiak	\$2 0	
sub-tot Contractual	Mapping and ARC/INFO consultant	\$2 0 \$33 7	
sub tot Commodities	Office supplies, computer disks	\$33 7 \$3 0	
sub-tot Equipment	486 computer, hard drive, digitizer, software	\$1 0 \$24 0	
sub tot		\$24 0	
TOTAL		\$60 7	
17-Jul-92	Project Number 93-051 Project Title Habitat Protection	FORM 3B	7
1993	SubProject Spawning Distribution and Esca page of Agency ADF&G	apement PROJECT DETAIL	

Project Description Characterize the nesting habitat of murrelets in the spill affected area Conduct habitat surveys at dawn watch sites throughout Prince William sound and in other areas of the spill zone, determine forest cover attribures (specifically, forest structure, volume stand class and plant associations) for dawn satch sites

<u> </u>								
	Approved	Proposed*						Sum
Budget Category	1 Oct 92	1-Mar-93	Total					FY 98 &
	28-Feb 93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel		\$59.2	\$592				1	
Iravel		\$90	\$90			}		
Contractual		\$70.0	\$70.0		1			
Commodities		\$2.5	\$2 5		1			
Equipment		\$15	\$15				ļ	
Capital Outlay		\$0.0	\$0.0					
Sub-total		\$142.2	\$142.2					
General Administration		\$13.8	\$13 8					
Project Total		\$156.0	\$1560					
Full-time Equivalents (ETE)		19	19					
			10		Amounts	s are shown in	thousands of	fdollars
Budget Year Proposed Personnel								
		Months						
Position		Budgeted	Cost			Comment		
ECOLOGIST GS 12		1	\$5.5					
BIOTECHNICIAN GS 07 (2)		12	\$317					
BIOTECHNICIAN GS 05 (2)		10	\$22 0					
	·····							
17 Jul-92		Project Numbe	r 93-051B	·····			Γ	FORM 3A
		Project Title IN	FORMATION	NEEDS FOI	R HABITAT			
r		Sub-Project MI	IBBELET NES	TING HAR	ΤΔΤ			500-
1993		ACCECOMENT	EEDEDAI		.,]		PROJECT
page 4	of 5	ASSESSIVIENT	- FEVENAL					DETAIL
		Agency.USDA	FOREST SERV	/ICE			L.	

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EXXON VALD RUSTEE COUNCIL

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Travel	To and From Whittier (road, train), to and from Princ Homer and Seward, per diem	e William Sound occassionally by plane, to and from	، فع 0
sub-tot			\$9.0
Contractual	Boat Charter		\$70 0
sub-tot			\$70.0
Commodities	Office Supplis and field books		\$2.5
sub-tot			\$2 5
Equipment	Aerial phots, waterproof camera, backpacks, field eq	upment	\$15
sub-tot			\$15
TOTAL			\$83 O
17 Jul 92	Project N Project T	umber 93-051 tle Habitat Protection	FORM 3B
	SubProject	t Murrelet Nesting Habitat	PRO JECT
1993	page 9 of 11 Agency	USDA Forest Service	DETAIL
L	- Addo o or ri		UEIAIL

PROJECT NUMBER	93-051B
JJECT TITLE	Information Needs for Habitat Protection/Acquisition Process
SUBPROJECT	Murrelet Nesting Habitat Assessment
LEAD AGENCY	U S Fish & Wildlife Service
COOPERATING AGENCY	U S Forest Service

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The purpose of this subproject is to help restore murrelet populations injured due to the *Exxon Valdez* oil spill by providing information that could be used to protect, through acquisition or other means, murrelet nesting habitat

This subproject will further characterize the nesting habitat of marbled and Kittlitz's murrelets in the spillaffected area Two objectives will be implemented to achieve this goal

- 1 Determine habitat features that are reliable indicators of high density murrelet nesting areas in the spill-affected area
- 2 Determine feasibility of using radio telemetry to determine nesting habitat of murrelets in the spill-affected area

Based on results from the 1992 season, selected habitat types will be tested for predicted levels of murrelet activity, particularly behaviors indicating occupation of the habitat for nesting Potential nesting

eas will be surveyed using intensive dawn watches along elevational or distance-from-water gradients rieviously monitored high-density nesting areas will be surveyed to determine the relative level of murrelet upland activity for 1993 The U S Forest Service will determine forest cover attributes (specifically, forest structure, volume and stand class as well as plant associations) for dawn watch sites within each survey area These data will be used to determine the habitat characteristics of occupied and unoccupied sites The study area for this portion of the project will include Prince William Sound (PWS) and areas outside PWS (Kenai Peninsula, Kachemak Bay, Afognak Island) The specific areas to be studied outside of PWS will be determined after results from 1992 field work are available

Radio-telemetry could be a useful technique for determining the nesting areas of murrelets, however, capture methods, radio life-span and ability to track murrelets are still experimental. We propose to conduct a pilot study on capturing and tagging murrelets to determine the feasibility of using radio-telemetry to determine the nesting habitat of murrelets in the spill zone. Given the experimental nature of this work, we propose to conduct the study in Kachemak Bay, which is relatively accessible and has a high density of both murrelet species.

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Project Description Charac	terize the nesting habi	tat of murrelets in	h the spill aff	ected area	Project has	2 elements	1) Conduct	dawn
watches and habitat surveys t	hroughout Prince Willi	am Sound and Ir	n other areas	s of the spill	zone (sampl	e sites strati	fied by fores	t cover type)
to determine what habitats are	e used most, 2) radio t	elemetry feasibili	ty study					
	Approved	Proposed*						Sum
Budget Category	01-Oct-92	01-Mar-93	Total					FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94**	FY 95	FY 96	FY 97	Beyond
Personnel		160.0	160 0					
Travel		30.0	30 0					
Contractual		146 0	146 0					
Commodities		10.0	10 0				I	
Equipment		15 0	15 0					
Capital Outlay		00	00				-	
Sub-to	otal 0.0	361 0	361 0	0 0			1	00
General Administrat	tion 00	39 0	39 0	00				
Project	Total 00	400 0	400 0	430 0	430 0	430 0	430 0	0 0
Full-time Equivaler	nts (FTE)	50	50					
•			·	ĺ	Amounts are	e shown in th	nousands of	dollars
Budget Year Proposed Persor	nnel							
		Months						
Position		Budgeted	Cost			Comment		
Principal Investigato	or (GS11)	120	48,000					
Supervisory Biologi	st	0 5	3,000					
Program Manager		30	15,000					
Expeditor		10	2,000					
Biologist GS9 (1)		12 0	40,000					
Biotechnician GS5 ((8)	34 0	12,000					
Biotechnician GS7		6 0	10,000					
*FY 93 is a transition	n year from the previou	usly used oil fisca	al year to the	e federal fisc	al year This	new projec	t also includ	es
proposed funding fo	or January and Februa	ry, 1993				-		
**The total shown ir	n FY 94 to closeout wo	rk started in FY 9	93 is \$30					
7-Jul-92	-						٤	

				Project Number 93–051B	FORM 3A
1993				Project Title Information Needs for Habitat	SUB-
				Sub-Project Murrelet Nesting Habitat Assessment	PROJECT
	PAGE	2 OF	5	Agency US Fish & Wildlife Service	DETAIL

Travel To	and from Whittier (road, train)	and to and from Prince William Sound, Homer and other places, per diem (subsistence) (30	ι κ)
Contractual	GIS support (20K), boat mai boat charter (outside PWS, 3	ntenance (5K), boat charter (Prince William Sound) (60K), 0K), safety training (8K), contract for murrelet radio telemetry study (20K), warehouse (3K)	
Commodities	camp food, fuel (10	9	
Equipment	Atlas GIS software (2K), GPS	(2K), aerial photography (2K), and replacement of field gear (8K)	1
17–Jul–92		Project Number 92-051P	38
1993	PAGE 3 OF 5	Project NumberS0=001BProject NumberPointProject TitleInformation Needs for HabitatSUBSub – ProjectMurrelet Nesting Habitat AssessmentPROJEAgencyUS Fish & Wildlife ServiceDETA	- ECT

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Project Des	cription Characterize the	e nesting habit	at of murrelets	n the spill aff	ected area	Conduct ha	abitat survey	s at dawn wa	tch sites
throughout	Prince William Sound and	in other areas	of the spill zone	e, determine	forest cover	attributes (s	specifically, f	orest structu	re, volume,
Stariu Class	and plant associations) to	Approved	Proposed*			l			Sum
Budget Cat	9007/		01_Mar_03	Total					
Duuger Oar	egory	28 - Ech - 93	30-Sen-93	EV 03	EV QA	EV 05	EV 06	EV 07	Provend
		20-160-30	00 0ep 30	1130	1134	1130	1190	<u> </u>	Deyond
P	ersonnel		59 2	59 2					
Т	ravel		90	90					
C	ontractual		70 0	70 0					
C	ommodities		2 5	25					
E	quipment		15	15					
с	apital Outlay		0 0	00					
	Sub-total	00	142 2	142 2	0 0	00	0 0	00	00
G	eneral Administration		138	13 8					
	Project Total	0 0	156 0	156 0	0 0	00	0 0	0 0	0 0
FI	ull–time Equivalents (FTE)		19	19					
						Amounts ar	e shown in t	housands of	dollars
Budget Yea	r Proposed Personnel	1				L			
-			Months						
P	osition		Budgeted	Cost			Comment		
E	cologist GS12		- 1	5,500					
B	iotechnician GS7 (2)		12	31,700					
B	iotechnician GS5 (2)		10	22,000					
*F	FY 93 is a transition year fro	om the previou	isly used oil fisc	al year to the	e federal fisc	al year Thi	s new projec	t also includ	les
pi	roposed funding for Janua	ry and Februa	ry, 1993						
7–Jul–92		-							
			Project Numbe	r (93-051B				FORM 3A
1993			Project Title	Information r	needs for Ha	abitat			SUB-
			Sub-Project	Murrelet Nes	ting Habitat	Assessmen	t		PROJECT
	PAGE 4 OF 5		Agency	US Forest Se	ervice				DETAIL

				* ว
Travel To	/from Whittier (road, t	rain), to/from Prince William sound occasionally by plane, to/from Homer/Seward,	per diem	
Contractual	Boat charter (70K)			
Commoditie	s Office suppl	ies, fiel books		
Equipment	Aerial photos, water	proof camera, backpacks, field equipment		
17–Jul–92 1993		Project Number 93-051B Project Title Information Needs for Habitat Sub-Project Murrelet Nesting Habitat Assessment	FORM 3B SUB- PROJECT	
	PAGE 5 OF	5 Agency US Forest Service	DETAIL	

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Numbe	er 93052			
roject Source)			
Project Title	Identification and pi	otection of important b	ald eagle habitats	
Project Catego	ory Restoration hal	pitat protection and/or a	acquisition	
Project Type	Birds			
Lead Agency	US Fish and Wild	Ilife Service		
Cooperating A	gencies None			
Project Term	Start Date	1 January 1993	Finish Date	30 September 1995

INTRODUCTION

1

Bald eagles are closely associated with intertidal habitats They use these areas for feeding, and they nest almost exclusively within 200 meters of the beach The *Exxon Valdez* oil spill caused direct mortality to an estimated 800-900 bald eagles throughout the spill area and significant losses to productivity in Prince William Sound This project would complete the nest inventory in Prince William Sound which was begun during damage assessment studies, nest tree marking and other habitat protection work would be undertaken cooperatively with landowners, emphasizing areas likely to be eveloped in the near future identification of important feeding or seasonal concentration areas may volve areas from the Kenai Peninsula to Cape Yakataga Primary benefits would be to bald eagles and other species dependent on timbered, shoreline habitats in Prince William Sound Secondary benefits

would occur in areas outside Prince William Sound, which are deemed critical to bald eagles

WHAT-

<u>Goal</u> --The goal of this project is to identify and protect threatened or important bald eagle habitats to ensure the recovery of bald eagles from the *Exxon Valdez* oil spill, and maintain healthy bald eagle populations over the long term

Objectives -

- 1 Inventory and mark bald eagle nests, emphasizing areas likely to be developed
- 2 Provide land managers with maps depicting locations of bald eagle nest sites on their lands
- 3 Develop a list of lands that require additional measures to ensure protection, such as conservation easements or outright acquisition
- 4 Monitor a sample of radio-tagged bald eagles to gain a better understanding of shoreline use for feeding and nesting, improve management guidelines, and to identify important concentration areas for bald eagles

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Bald eagle habitats within the spill area have been identified in development plans for timber, minerals, oil and gas, and other types of uses that may not be compatible with eagle nesting, feeding, and roosting requirements. Some threats to habitat are imminent, such as logging of which might be essential bald eagle habitat in Prince William Sound, Copper River Delta, Kenai Peninsula, Cape Suckling, and Afognak Island. The timely identification and protection of threatened habitats will enhance the recovery of bald eagles from the *Exxon Valdez* oil spill, and maintain healthy bald eagle populations over the long term.

This study will improve the rate of recovery and prevent further degradation of critical bald eagle habitat Data acquired from this study will provide input for an overall habitat protection strategy for the spill area, which will benefit not only bald eagles, but any species dependent upon timbered shoreline, old growth forest, and intertidal or riparian areas. This study represents an essential step towards justifying and prioritizing specific lands for acquisition.

HOW

The study will have three main elements 1) inventory and marking of bald eagle nest trees, 2) distributing maps of eagle nests to landowners and providing guidelines for protection of habitats, and 3) continuing to monitor a sample of eagles radio-tagged during the damage assessment study to document shoreline use and identify important concentration areas

The first element will involve habitat reconnaissance by helicopter to locate bald eagle nests These forts would concentrate in areas not previously surveyed in Prince William Sound during damage assessment studies Areas with nests would later be visited by boat to mark the tree and record the characteristics of the site The location would be verified using a Global Positioning System (GPS) receiver These data would be entered into the GIS database

The second element would provide land owners with a map of nests on their lands and a copy of the regional guidelines for bald eagle management Lands under imminent threat of logging would be targeted for initial reconnaissance and subsequent cooperative habitat protection work with landowners

The third element of this project will involve monitoring a sample of radio-tagged adult and immature eagles to document habitat use throughout the year Flights will be conducted weekly and specific locations will be mapped for individuals in each age group. These locations will be examined to determine the extent and types of habitats that eagles use as requirements for food and shelter shift throughout the year. Nests of tagged adults will represent an unbiased sample, which will be characterized to assess nesting habitat. Information will be gathered on concentration areas as they are observed, recording the location and cause of the concentration. Low level surveys will be conducted to determine the numbers of eagle using concentration areas.

Information acquired through this study will complement data collected during the damage assessment study on bald eagles It will help identify important eagle habitats, and contribute to other efforts directed at assessing the relative value of certain habitat or specific areas to wildlife

NVIRONMENTAL COMPLIANCE

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The proposed project is a non-intrusive study that appears to qualify for a categorical exclusion from the requirements of the National Environmental Policy Act

WHEN.

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This project should be initiated immediately because 1) some lands containing high densities of eagle nests are targeted for logging in the immediate future, 2) this information is necessary to guide decisions on land acquisitions or other types of habitat protection, and 3) a huge investment in time, resources, and money were made to capture and radio-tag a large sample of bald eagles from 1989 to 1991, as part of the damage assessment process. A delay in initiating this project will result in the loss of these transmitters as their battery life is consumed, and a valuable investment will be wasted.

Monitoring of radio-tagged birds would be resumed as soon as funds are available, and continued weekly for 12 months Contacts with landowners would begin during winter 1993 Nest surveys will conducted in May 1993 Tree marking, focusing on areas with the greatest threat of logging, would be conducted during the summers of 1993 and 1994 Mapping and GIS work will be accomplished during winters

EXXON VALDEZ T⁻ TEE COUNCIL

	Proposed	Proposed	Total					Sum
udget Category	01–Jan–93 30–Sep–93	01-Oct-93 31-Dec-93	12-month Proposal	FY 94	FY 95	FY 96	FY 97	FY 98 & Beyond
Personnel	55,500	16,500	72,000					
Travel	3,000	0	3,000					
Contractual	89,000	0	89,000					
Commodities	2,000	0	2,000					
Equipment	25,000	0	25,000					
Capital Outlay	0	0	0					
Sub-total	174,500	16,500	191,000			0	(D
General Administration	13,500	13,500	17,030					
Project Total	188,000	30,000	208,030	175,000	105,000	0	(D
Full-time Equivalents (FTE) 2 25		2 25	2 25	22			
udget Year Proposed Personnel							A	
_		Months	-			-		
Position		Budgeted	Cost			Comment		
Wildlife Biologist GS9		120	37,000					
Biological Technician GS7		120	29,000					
Program Manager		12	6,000					
_Ju -92		Drojort Numb	or gares					FORM 2
1003		Project Title	Bald Fanla Li	abitat Protoc	stion			
								- TOULO

Travel	Expenses would include local travel, travel for meetings and/or training, and in—field per diem
Contractual	For 1993, contracts would be issued for helicopter (26K) to survey for eagle nests, fixed—wing aircraft (42K) for monitoring radio—tagged birds to identify habitat use and concentration areas, fuel caches (5K) to support helicopter surveys in remote areas, office rental and phone charges (7K), and GIS technical support (9K)
Commodities	This will include office and lab supplies, postal expenses, and fuel for boat motors
Equipment	This would include a boat and motor, and a GPS receiver
17-Jul-92	
1993	Project Number 93052FORM 2BProject TitleBald Eagle Habitat ProtectionPROJECTPAGE 5OF 5AgencyUS Fish & Wildlife ServiceDETAIL

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(XON VALDEZ OIL SPILL BRIEF PROJECT DESCRIPTION

Project Number: 93053

Project Source:

7.

Project Title: Hydrocarbon Data Analysis, Interpretation, and Database Maintenance for Restoration and NRDA Environmental Samples Associated with the Exxon Valdez Oil Spill

Project Category: Technical Support

Lead Agency: National Marine Fisheries Service, Alaska Fisheries Center, Auke Bay Laboratory

Cooperating Agencies:

Project Term: Start Date: 1 Jan 1993 Finish Date: 30 Sep 2000

INTRODUCTION:

A. Background on the Resource/Service Several thousand environmental samples have been collected ind analyzed for hydrocarbons in support of the Exxon Valdez NRDA effort, and it is anticipated that at least several hundred more samples will be collected and analyzed as part of Restoration efforts to evaluate the recovery of areas affected by the spill The data from completed NRDA analyses are stored in a database at the Auke Bay Laboratory, where methods are under continuing development to distinguish samples containing oil from the Exxon Valdez oil spill from samples containing oil from other sources, and to determine the oil concentration and weathering status of Exxon Valdez-oiled samples. The results of these efforts provide numerical correlates that are directly related to oil, and that may be used by principal investigators (PI's) of other Restoration projects, by other governmental agencies, and by the general public, to assess associations of observed biological effects with concentrations of Exxon Valdez oil The purpose of the proposed project is to apply and extend these hydrocarbon interpretation methods to samples analyzed for the Restoration effort, and to insure the comparability of analytical and interpretive results with those of the NRDA effort

B Summary of Injury This project provides technical support to other projects addressing injuries resulting from the Exxon Valdez oil spill This project will provide fundamental interpretive services to all Restoration PI's, governmental agencies, and the public at large, and as needed

C Location This project will be undertaken at the Auke Bay Laboratory in Juneau, Alaska

WHAT:

Goal The goal of this project is to estimate the amount of Exxon Valdez oil that is present in environmental samples analyzed for hydrocarbons that are collected for the Restoration effort, such that the methods used and the results are comparable with those used for Exxon Valdez NRDA samples and to continue maintenance of results in a database for access by all appropriate parties This project will not be responsible for archival and disposal of collected samples

B Objectives 1 Provide a statistically defensible basis for deciding which environmental samples analyzed for hydrocarbons contain oil from the Exxon Valdez spill, 2 Estimate the original concentration of Exxon Valdez oil in environmental samples that have been determined to contain Exxon Valdez oil, 3 Assess the weathering status of sediment hydrocarbon samples, and 4 Archive these results in a database extension of the NRDA database and as physical maps

WHY:

A Benefit to Injured Resources/Services This project will make possible the evaluation of (1) the recovery of areas affected by the oil spill by identifying the amount of Exxon Valdez oil remaining, and (2) the association of continuing biological impacts of the spill with Exxon Valdez oil remaining in impacted areas

B Relationship to Restoration Goals The Trustees should fund this project so that they can determine the extent of recovery (here defined as absence of Exxon Valdez oil) of areas oiled by the spill
HOW:

Methodology Hydrocarbon data from environmental samples will be examined using pattern recognition techniques related to principal component analysis. The pattern of hydrocarbon measurements in a sample will be compared with the pattern in samples of pure and of weathered Exxon Valdez oil, and the pattern variance of known samples of weathered Exxon Valdez oil will be used to evaluate the likelihood that the pattern observed in an environmental sample could have derived from Exxon Valdez oil contamination. Samples with patterns that could likely have derived from Exxon Valdez oil will be presumed to contain Exxon Valdez oil, and the concentration of oil initially present will be determined after correction for weathering or biological alteration, by calculating the minimum concentration of Exxon Valdez oil necessary to explain the observed hydrocarbon pattern in the sample. Sample archival and database procedures will follow NRDA NRDA and restoration databases will be merged and placed on a database server to facilitate data retrieval

B Coordination with Other Efforts This project will provide basic, interpreted hydrocarbon results that will be of great use to all other projects that either monitor the persistence of Exxon Valdez oil in affected areas, or assess the biological effects of persistent Exxon Valdez oil In addition, this project will promote consistency among published results by providing a uniform and consistent approach to hydrocarbon interpretation

ENVIRONMENTAL COMPLIANCE:

This is not a field study nor does it have any significant effect on the environment Consequently, an Environmental Impact Statement nor Environmental Assessment need not be provided

All federal, state, and local laws are followed in the management of chemical analysis

WHEN:

The project will continue as long as samples are collected and need interpretation Restoration sample data will be interpreted as received Therefore there is no set beginning or ending time. We intend to work with PI's to interpret and map their data to their needs on an ongoing basis. We anticipate this need to continue as long as restoration hydrocarbon samples are collected. We propose to interpret and analyze a set of data within several months of receipt.

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Project Description H Restoration and NRDA	lydrocarbon A samples a	data analyses nd hydrocarboi	and interpretation n data	i, database mai	nagement and	d sample arc	chiving for E	XXON VAL	DEZ oli spill
Budget Category		Approved 1-Oct-92	Proposed* 1-Mar-93	Total					Sum FY 98 &
		28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel			\$82.9	\$82.9	\$90.0				
Travel			\$6.2	\$6.2	\$8.3				
Contractual			++ -	\$0.0	* ***				
Commodities			\$4.0	\$4.0	\$4 0				
Equipment			÷.•	\$0.0	• •••				
Capital Outlay				\$0.0					
	Sub-total	\$0.0	\$93 1	\$93 1	\$102 3	\$0 0	\$0 0	\$0 0	\$0 0
General Administr	ation		\$12.4	\$12.4	\$13 5				
P	roject Total	\$0 0	\$105 5	\$105 5	\$115 8	\$0 0	\$0 0	\$0 0	\$0 0
	_								
Full-time Equivale	nts (FTE)		14		15				
						Amount	s are shown	in thousand	Is of dollars
Budget Year Propose	d Personne	el 🛛							
			Months						
Position			Budgeted	Cost			Comment		
P Biologist GS1	1		5	\$30 1	NOAA/ABL	contribution	Project coo	rdination (F	hysiologist
Chemist GS11			4	\$20 4	GS14, 1 mo), facility usa	ige = \$18 0k	Č Č	, ,
Chemist GS09			4	\$16 3	•		0		
Biologist GS11			2	\$10 2					
NMFS Prog Mana	ger GS12		12	\$5 9					
* FY 93 is a transit	ion year fro	m the oil fiscal	year to the federa	AIFY This nev	v project				
includes funding fo	or January a	ind February, 1	993				-		
20 Aug 92			Project Number	93053	<u> </u>]	
			Project Title	Hydrocarbon	data technica	al support			FORM 2A
1003			Agency	NOAA		aupport			PROJECT
1335	page	of							DETAIL

Travel	6 staff trips to Anchorage and els conferences	sewhere for inter an	d intra agency meetings &		
Contractual					
Commodities	Mapping supplies, computer soft	tware upgrades (Exc	cel), office supplies, etc		
Equipment					
20-Aug 92	· · · · · · · · · · · · · · · · ·			· · · · · · · · · · · · · · · · · · ·	
1993	page of	Project Number Project Title Agency	93053 Hydrocarbon data technical support NOAA		FORM 2B PROJECT DETAIL

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KXON VALDEZ OIL SPILL BRIEF PROJECT DESCRIPTION

Project Number 93057 - A

Project Source

Project Title DAMAGE ASSESSMENT GIS

Project Category Technical Support

Lead Agency ALASKA DEPARTMENT of NATURAL RESOURCES

Cooperating Agencies None (USF&WS considered separately)

Project Term 7 0 mos Start Date 1-Mar-93 (day/mon/yr) Finish Date 30-Sept-93 (day/mon/yr)

- **INTRO** Background This project provides a baseline information repository (shoreline, oiling, Environmental Sensitivity Index, shore type, ownership, salmon streams, bathymetry data) for statistical analysis and mapping in support of damage assessment projects scheduled for completion during this last budget period, and for final database and product documentation, repository storage, and distribution and dissemination
- WHAT Goal Complete statistical analysis and GIS mapping support for existing damage assessment studies, and provide a quality controlled and documented database of baseline information for restoration study use and data publication

Objectives Complete statistical reports and maps for shoreline assessment, produce updated land status maps and anadromous streams maps, deliver fully documented, digital GIS database of oil spill related themes for final public release, and for use by restoration and habitat acquisition projects, provide direct technical support to PI's on document graphics and maps Workload and analysis based on those projects scheduled for completion by September, 1993

- WHY Benefits Completing the damage assessment database of baseline information will provide restoration studies with information relevant to their projects current ownership and designated use status, oiled areas, oiling change over time, beach treatment areas, geographic links to injury determinations, baseline information critical to habitat acquisition objectives
- **HOW** Methodology Complete major documentation project to prepare data layers for final publication Quality control newly acquired data, and produce statistical reports and maps for the shoreline assessment study, against spring 91 and spring 92 data Acquire current ownership data from

August 21, 1992

various sources (BLM, DNR, USFS), synthesize data, produce most current land status maps, and distribute to damage assessment and restoration studies

VIRONMENTAL COMPLIANCE

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ADNR GIS is a technical service project, and is subordinate to the environmental compliance of the damage assessment projects supported

WHEN Data publication, ready for public distribution by August of 1993 Spring 91 shoreline data maps quality controlled, and produced spring 93 Produce shoreline maps and reports from spring 92 data within 3 to 4 months of receipt and quality control of data Technical assistance to PI's subject to PI deadlines, all work complete by October 93

Project Description Demage Assessment CIS Manning and Assivers								
l roject Description Damage	Assessment GI	S wapping and A	Analysis					
1								
	Approved	Proposed*			· · · · ·			Sum
Budget Category	1-Oct-92	1-Mar-93	Total					FY 98 &
g.,	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Bevond
Personnel	\$69 7	\$53 0	\$122 7					ſ
Travel	\$0 8	\$0.0	\$0 8					
Contractual	\$121	\$5 0	\$171					
Commodities	\$8 2	\$15	\$9 7					
Equipment	\$5 0	\$0.0	\$5 0					
Capital Outlay	\$0 0	\$0.0	\$0 0					
Sub-tota	al \$95 8	\$59 5	\$155 3	\$0 0	\$0 0	\$0 0	\$0 0	\$0.0
General Administration	\$10 5	\$8 0	\$18 5					
Project Tota	al \$1063	\$67 5	\$173 8	\$0 0	\$0 0	\$0 0	\$0 0	\$0 0
Full-time Equivalents (FTE)	13	09	22					
					Amounts	s are shown	in thousand	ts of dollars
Budget Year Proposed Person	nel							
		Months						
Position		Budgeted	Cost			Comment		
Analyst/Programmer		70	\$35 0					
GIS Project Manager		05	\$3 2	See Page 2	for summar	y duties perf	ormed by p	ositions
Section Chief		05	\$4 0					
System Analyst		05	\$3 2					
Clerk		10	\$3 0					
Project Manager			\$4.6					
[•] FY 93 is a transition year fr	om the previous	ly used oil fiscal	year to the feder	al fiscal year	I his new	project also	includes pro	oposed
tunding for January and Fe	oruary, 1993							
17-Jul 92		Project Num	ber 93057-/	4			Γ	EOBMOA
		Project Title	Damage Ass	essment (als			
1993			eka Dont of N	latural Roc				PROJECT
page	of	Ala	isna Depi Ul h	aluial nes	Sources			DETAIL

Travel	No monies requested
Contractual	Contractual monies are needed for maintenance and support services of GIS system software and hardware (SUN workstation, CPU, and peripheral hardware, ESRI software including ARC/Info, Network, Tin, Cogo, SdI, and Grid, Versatec plotter, hardware and software)
Commodities	Supply expenses are required for plotter paper and chemicals, and office and graphic supplies (color electrostatic and thermal plotter paper, chemicals, and toner, foam core, data cartridges, and diskettes)
Equipment	No monies requested
	Summary duties performed by positions
	Analyst Programmer (& advanced Student Intern) - database design, analysis, data integrity, coding, testing (direct) GIS Proj Mgr - needs analyses, product definition, reporting, user and public interface (direct) Section Chief - project administration, budget, Restoration Team interface, meetings (direct and indirect) Systems Analyst - database and system administration, data translation, data integration (direct) Clerk - product distribution, plotter maintenance, phones, mail, supplies, invoices, timesheets (direct and indirect) Project Mgr - Restoration Team Representative (indirect)
17-Jul 92	



Project Number 93057-A Project Title Damage Assessment GIS Agency Alaska Dept of Natural Resources



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XXON VALDEZ OIL SPILL BRIEF PROJECT DESCRIPTION

Project Number 93057 - B

Project Source

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Project Title RESTORATION GIS

Project Category Technical Support

Lead Agency ALASKA DEPARTMENT of NATURAL RESOURCES

Cooperating Agencies None (USF&WS considered separately)

Project Term 7 0 mos Start Date 1-Mar-93 (day/mon/yr) Finish Date 30-Sept-93 (day/mon/yr)

- **INTRO** Background ADNR is currently a major repository for EVOS damage assessment GIS data, most of which is highly relevant to restoration analysis and planning ADNR GIS provides the most comprehensive, automated land status ownership data available ADNR also has extensive experience dealing with the various land status implications that result from state and native selection rights, inholdings and access, and entitlement rights such as navigability and tidelands ADNR GIS also has extensive experience providing the multi-thematic GIS analysis and mapping that will be required as habitat protection and acquisition becomes a central focus of the Restoration Team
- WHAT Goal Provide statistical and spatial analysis, and GIS mapping support for approved restoration projects Products will be map series, data transmittal, and online query support Consistent, current, and quality control repository services will be provided for this comprehensive geographic database

Objectives Acquire, convert, and process necessary incremental resource themes that must be integrated geographically to support restoration. For example, acquire slope/aspect data, perform needs analysis with PI, and perform the programming and data synthesis necessary to identify ideal habitats for *fucus* recovery. Provide maps and statistical analysis products, data repository services and data dissemination. Report to the Restoration Team GIS Review Committee.

WHY Benefits Using GIS for restoration project support will allow the most informed analysis of geographically dependent information Using ADNR GIS will allow the current economies of highly specialized personnel, database access, system and project management to transition from the historic damage assessment themes to the restoration focus ADNR has access to, both directly and through multi-agency contacts, land use planning and land cover databases

August 21, 1992

Complex restoration alternatives may be rapidly evaluated using a GIS approach

HOW Methodology ADNR GIS will work directly with the PIs directing the approved Restoration projects to assess necessary GIS and analysis support. The Restoration Team has provided a tentative list of data themes required for *habitat protection*. These themes are referenced and evaluated below.

Line graph - Complete as of date Cities, towns, villages - Complete as of date Land ownership - Mostly complete as of date, precision and currency may need to be updated and revised to consider specific project needs Hydrography - Currently being completed, 1 63360, KAP area outstanding only Hypsography - Currently requested from USFS/USGS Vegetation - Currently have some land cover in the affected area, will require largest data gathering and acquisition process for restoration needs Anadromous streams - Currently integrating this information with the hydrography above Some is complete, with the rest currently scheduled for completion Wildlife habitat - Some of this information is already available via damage assessment studies Habitat information for uplands will need to be acquired, converted and processed, this work may require extensive effort Shoreline oiling - Complete as of date Easements - Complete for state lands, need to acquire for other lands, convert, and process Land use activities - Need to acquire, convert, and process from various sources Bathymetry - Complete as of date Additional approved Restoration projects that have high GIS potential are Restoration of Second Growth Habitat for Wildlife in PWS

Restoration of Second Growth Habitat for Wildlife in PWS Harlequin Duck Restoration and Monitoring Study Natural Recovery of Oiled and Treated Shoreline Mussels and Sediments Develop Harvest to Aid Restoration of Injured Terrestrial Mammals and Sea ducks

ADNR GIS will work with the GIS Review Committee of the Restoration Team to identify, analyze, and schedule all data acquisition, conversion, processing, and GIS production work Additionally, ADNR GIS will work with CACI Building staff to design and implement an interactive GIS workstation environment to support immediate query needs of the Restoration Team Analysis and representation of generalized data themes, such as vegetation, land use, and habitat, will be coordinated with and reviewed by the contributing agencies This type of information coordination, in addition to work with the PIs, is anticipated with the USFS, ADF&G, USF&WS, native corporations, and ADEC Other coordination efforts may be necessary to integrate broad resource agency information into PI studies

ENVIRONMENTAL COMPLIANCE

ADNR GIS is a technical service project, and is subordinate to the environmental compliance of the restoration projects supported

WHEN ADNR GIS staff will continue to advise the Restoration Team on ongoing data acquisition and processing efforts that are projected to continue, or be initiated, in this seven month period. To the extent feasible, data acquisition that can be initiated before this period, for receipt and processing during this period, will be facilitated by ADNR GIS.

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Project Descriptio	n Restorati	on GIS Mappır	ng and Analysis						
Budget Category		Approved 1-Oct-92 28-Feb-93	Proposed* 1-Mar-93 30-Sep-93	Total FY 93	FY 94	FY 95	** FY 96	FY 97	Sum FY 98 & Beyond
Personnel Travel Contractual Commodities Equipment Capital Outlay General Admin	Sub-total	\$25 8 \$0 3 \$0 0 \$0 3 \$0 0 \$0 0 \$26 4 \$3 4	\$97 7 \$1 0 \$12 0 \$7 0 \$6 0 \$0 0 \$123 7 \$14 7	\$123 5 \$1 3 \$12 0 \$7 3 \$6 0 \$0 0 \$150 1 \$18 1	\$176 0 \$1 8 \$21 6 \$12 7 \$4 0 \$0 0 \$216 1 \$26 4	\$185 0 \$1 9 \$22 7 \$13 3 \$4 0 \$0 0 \$226 9 \$27 8	\$0 0	\$0 0	\$0 0
Full-time Equin	Project Total valents (FTE)	\$29 8 0 5	\$138 4 1 8	\$168 2 2 3	\$242 5 2 3	\$254 7	\$0 0	\$0 0	\$0 0
Budget Year Proposed Personnel Months Cost Comment Analyst/Programmer 7 0 \$35 0 See Page 2 for summary duties performed by po Analyst/Programmer 3 5 \$17 5 Clerk 3 5 \$10 3 Student Intern 3 5 \$9 6 GIS Project Manager 1 0 \$6 4 Section Chief 1 0 \$8 0 Systems Analyst 1 0 \$6 3 Project Manager 1 0 \$4 6 * FY 93 is a transition year from the previously used oil fiscal year to the federal fiscal year This new project also includes prop funding for January and February, 1993						posed			
17-Jul 92	page	of	Project Num Project Title Agency Ala	ber 93057-B Restoration Iska Dept of N	GIS latural Res	sources			FORM 2A PROJECT DETAIL

Travel	PI needs analysis travel
Contractual	Contractual monies are needed for maintenance and support services of GIS system software and hardware (SUN workstation, CPU, and peripheral hardware, ESRI software including ARC/Info, Network, Tin, Cogo, SdI, and Grid, Versatec plotter, hardware and software)
Commodities	Supply expenses are required for plotter paper and chemicals, and office and graphic supplies (color electrostatic and thermal plotter paper, chemicals, and toner, foam core, data cartridges, and diskettes)
Equipment	Disk storage capacity, restoration data acquisition
	Summary duties performed by positions Analyst Programmer (& advanced Student Intern) - database design, analysis, data integrity, coding, testing (direct) GIS Proj Mgr - needs analyses, product definition, reporting, user and public interface (direct) Section Chief - project administration, budget, Restoration Team interface, meetings (direct and indirect) Systems Analyst - database and system administration, data translation, data integration (direct) Clerk - product distribution, plotter maintenance, phones, mail, supplies, invoices, timesheets (direct and indirect) Project Mgr - Restoration Team Representative (indirect)
17-Jul 92	



Project Number 93057-B Project Title Restoration GIS Agency Alaska Dept of Natural Resources



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EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93058

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Project Source: Habitat Protection Work Group

Project Title: Habitat Protection and Acquisition

Project Category: Habitat/Land Protection and Acquisition

Project Type: Habitat Protection

Lead Agency: USDA, ADEC, USDI, ADNR, NOAA, ADF&G

Cooperating Agencies:

Project Term: Start Date: 1/10/92 **Finish Date:** 31/9/98 (day/month/year) (day/month/year)

INTRODUCTION:

Funding Requested FY93 - funding for FY93 is an integral part of the Restoration Plan budget, FY94 - FY98 - funding to be determined based on habitat protection/acquisition objectives as established in the Restoration Plan

Resource experts and the public have identified the protection of fish and wildlife habitats and recreation sites as a method of preventing further harm to, and assisting the recovery of, natural resources and services injured by the oil spill. Suggested approaches have included changes in management practices on public lands and land acquisition

This project outlines the framework in which habitat protection and acquisition (other than short-term) will be considered. Short-term protection necessary to ensure that important habitat protection opportunities are not lost pending completion of the Restoration Planning process will be carried out as described in project number 93059, Imminent Threat Habitat Protection Project. 930589

WHAT:

Goal - The goal of the Habitat Protection and Acquisition project is to identify and protect strategic lands and habitats that will benefit the long term recovery of resources and services injured by the Exxon Valdez oil spill. Objectives - The objective of this project is to identify and protect strategic wildlife and fisheries habitats, cultural resources, and recreation sites and to prevent further potential environmental damages to resources injured by the Exxon Valdez oil spill The project will include the identification and evaluation of potential properties which if publicly owned will contribute to this objective. Where acquisition of property rights is determined to be appropriate, they will be acquired on a willing buyer/willing seller basis. Primary considerations in deciding which properties should be acquired during this project will be determined through the Restoration Planning process.

There have been numerous proposals by agencies, interest groups and individuals of areas believed to deserve protection and or acquisition under this project Included as attachment A is a listing and brief description of these proposals.

WHY:

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Although upland areas were not directly affected by the spill, they provide feeding and reproductive habitat for many of the injured species Populations of salmonids and harlequin ducks are specifically dependent upon anadromous streams and their adjacent riparian lands. Undisturbed uplands and riparian lands provide important habitats and natural buffers that protect the quality of watersheds, streams and rivers. Uplands in the oil-spill area are also important recreation areas and contribute to the aesthetic experience enjoyed by recreational users throughout the spill area. Both recreation and tourism are dependent upon the pristine nature of these areas. By acquiring easements, property rights or fee-simple title to these strategic areas, injured species can be safeguarded during recovery and various resources and services can be restored and enhanced.

HOW:

In the April 1992 Restoration Framework, the Trustees outlined how options for identifying and protecting marine and upland habitats would be evaluated. This included use of the basic criteria as outlined in the Restoration Framework document but also noted the necessity of additional steps needed to properly evaluate habitat and acquisition options

Pending adoption of a final Restoration Plan by the Trustee Council, each of the nominated parcels listed in attachment "A" will be evaluated for the need for short-term protection in accordance with the Imminent Threat Protection Process as published in the July, 1992 Supplement to the Restoration Framework. The supplement seeks public comment on the Imminent Threat Protection Process as well as the Habiatat Protection and Acquisition Process in general

Upon adoption of a final Restoration Plan by the Trustee Council, each nominated parcel will be evaluated in accordance with the 1

direction of the plan This will include both those parcels which have received short-term protection under the Imminent Threat project as well as all other nominated parcels

The cost of an individual habitat protection/acquisition action will be based on appraised value of the right or interest received. Individual proposals received to date are estimated to range in cost from the low thousands of dollars to hundreds of millions.

The cost of such associated items as analysis, negotiation, environmental compliance and acquisition actions could range from 5 to 25 per cent of acquisition cost depending on the scope and complexity of the individual action.

ENVIRONMENTAL COMPLIANCE:

Individual habitat and acquisition actions will be evaluated individually to determine the level of environmental analysis and documentation necessary to comply with the standards of the National Environmental Policy Act (NEPA) Environmental compliance could range from categorical exclusion to a full Environmental Impact Statement.

WHEN:

Protection and acquisition strategies will be considered as a part of the draft and final Restoration Plan The draft plan is scheduled for release for public review and comment in February 1993 The final plan is scheduled to be completed by May, 1993. Following completion of the Restoration Plan, acquisition/protection measures, if authorized by the plan can proceed.

The time required for implemention of any given acquisition/protection option may vary considerably depending on the scope and complexity of the particular option, the analysis requirements, appraisal needs, negotiations required with the owner(s), and the environmental compliance requirements. A flow chart of the acquisition/protection process is included in the July, 1992 Supplement the Restoration Framework.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93059
Project Source: Habitat Protection Work Group
Project Title: Imminent Threat Habitat Protection
Project Category: Habitat/Land Protection
Project Type: Habitat Protection
Lead Agency: USDA Forest Service
Cooperating Agencies: ADF&G, NOAA, ADNR, DOI, ADEC

Project Term: Start Date: 1/10/92 Finish Date: 9/30/93 (day/month/year) (day/month/year)

INTRODUCTION:

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Public comment, to date, has overwhelmingly supported use of the Habitat Protection and Acquisition option as a method of preventing further harm to, and assisting the recovery of, natural resources and services injured by the oil spill. Numerous proposals or nominations of lands believed to be deserving of protection or acquisition were received from the public as FY 93 work plan proposals A summary of these proposals is included as attachment "A"

In response, where an imminent threat is determined to exist, this project accelerates important elements of the Habitat Protection and Acquisition option within the context of maintaining the integrity of the overall Restoration Planning process and accompanying compliance with NEPA and other legal and regulatory requirements An imminent threat is defined as a change in land use which (1) is is likely to foreclose restoration options, and (2) can reasonably be expected to occur before adoption and implementation of the Restoration Plan.

WHAT:

Goal- The goal of this project is to identify and provide interim protection for those parcels of non-public lands within the oil spill affected area which contain critical habitats necessary for the recovery of natural resources and services injured by the oil spill and which are determined to be under imminent threat.

WHY:

The Habitat Protection and Acquisition option is but one of a number of restoration tools being considered in the draft Restoration Plan scheduled for release for public review and comment in February, 1993. A final Restoration plan is expected in May, 1993 In the interim, protection of key parcels of non-public lands which contain critical habitats is needed to ensure that the Habitat Protection and Acquisition option is not foreclosed by events preceeding Trustee Council adoption and implementation of a final Restoration Plan

HOW:

1. <u>BY NOVEMBER 1, 1992</u> - The Habitat Protection and Acquisition workgroup, in cooperation with The Nature Conservancy, will conduct and document a series of workshops to be attended by scientists and other resource specialists for the purpose of (1) assessing the rate and degree of recovery of resources and services injured by the oil spill, and (2) identifying and characterizing the habitats associated with the recovery of injured resources or services

2 <u>BY NOVEMBER 1, 1992</u> - The Habitat Protection and Acquisition workgroup will identify those parcels of non-public land within the oil spill affected area which face an imminent threat.

If the threat analysis indicates that there is no imminent threat, further analysis of the nomination may be deferred to the more detailed evaluation process emanating from the Restoration Planning process.

3. <u>BY NOVEMBER 1, 1992</u> - The Habitat Protection and Acquisition workgroup, using existing data, will apply <u>threshold criteria</u> to parcels facing an imminent threat Each nomination will be evaluated against a set of threshold criteria designed to determine whether or not a nomination is acceptable for further consideration. The threshold criteria should

- Eliminate proposals that will not facilitate recovery of injured resources/services
- Eliminate proposals that do not represent a reasonable selection for equivalent resource acquisition

4 <u>BY DECEMBER 1, 1992</u> - The Habitat Protection and Acquisition workgroup, through the Restoration Team, will make recommendations to the Trustee Council of prefered short-term protection actions to be applied to specific parcels. A suite of short-term protection actions will be identified that address the specific situation at hand. Implementation of one or several of these options will provide additional time to allow for the Trustee Council to conduct a detailed evaluation of the proposal.

Project Number: 93059

Information needed to carry out this evaluation may require additional field studies. Consequently, the short-term protection action(s) that is recommended must provide additional time to collect, analyze and incorporate the additional information into the detailed evaluation. Examples of short-term actions are purchase options, development moratorium, lease, or management agreement

5. <u>BY JANUARY 1, 1993</u> - The Trustee Council will select the specific parcels, appropriate protection tools, and assign responsibility for negotiation with the land owner for implementation of short term protection

ENVIRONMENTAL COMPLIANCE:

Each short-term habitat protection action will be evaluated to determine the level of environmental analysis and documentation necessary to comply with the National Environmental Policy Act (NEPA) It is expected that NEPA compliance for most contemplated short-term protection measures would not exceed an Environmental Analysis level of documentation

WHEN:

The project will commence October 1, 1992. The initial imminent threat analysis is expected to be completed by January 1993. Each subsequent year lands will be evaluated for imminent threat and, if necessary and appropriate, protection tools will be applied

COST: Process						\$42,200	
Short-term	habıtat	protection	Ş	\$2 \$2	5 5	million million	State Federal

Each protection action, and necessary funding, will be approved by the Trustee Council as a specific revision of this sub-project.

Project Description Imminent Threat Habitat Protection Conduct a series of workshops to assess the rate and degree of recovery of resources and services injured by the oil spill and identify and characterize the habitats associated with the recovery of injured resources and services Provide interim protection to land under imminent threat where a willing seller has been identified

		Approved	Proposed*		-				Sum
Budget Category		1-Oct-92	1-Mar-93	Total					FY 98 &
		28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel		\$0.0	\$0.0	\$0.0					
Travel		\$0 0	\$10.0	\$10.0				1	
Contractual		\$0.0	\$5,029 5	\$5,029 5				1	
Commodities		\$0.0	\$0.0	\$0.0					
Equipment		\$0 0		\$0.0					
Capital Outlay		\$0 0		\$0.0					
	Sub-total	\$0 0	\$5,039 5	\$5,039 5	\$0.0	\$0 0	\$0 0	\$0.0	\$0.0
General Administrat	tion		\$127 7	\$127 7				l	
	Project Total	\$0 0	\$5,167 2	\$5,167 2	\$0.0	\$O O	\$O O	\$0.0	\$0.0
Full-time Equivalent	s (FTE)						<u> </u>	L	<u> </u>
						Amounts	are shown ir	<u>thousands</u> o	of dollars
Budget Year Proposed Pe	ersonnel								
			Months						
Position			Budgeted	Cost			Comment		
Project to begin Oc	tober 1, 1992	2							
* FY 93 is a transit	ion year from	the previously i	used oil fiscal year	r to the federal fise	cal year Thi	s new project	t also include:	s proposed fu	unding for
January and Febr	uary, 1993								
17 Jul 92				00050					
			Project Numbe	er 93059					FORM 2A
			Project Title I	mminent Threa	t Habitat Pi	rotection			PROJECT
1993	D 200	of	Agency US[Department of A	Agriculture				
page of righter boper there of righter and									

Travel Travel a importa	and per diem to cover the cost o nt uplands linked to injured reso	f scientists and other experts to assist in workshops to identify urces and services \$10,000	
Contractual	Contractual costs include TNC resources and services (29,50 imminent threat and a willing s	C contract to run workshops to identify imminent threat lands linked to inju 00) and to provide interim protection to lands identifed ashaving an seller has been identified (\$5,000,000)	red
Commodities			
Equipment			
17 Jul 92			· · · · · · · · · · · · · · · · · · ·
		Project Number 93059	FORM 2B
1993	page of	Project Title Imminent Threat Habitat Protection Agency US Department of Agriculture	PROJECT DETAIL

Project Description The Habitat Protection Work Group, in cooperation with The Nature Conservancy, Will conduct and document a series of workshops to be attended by scientists and other resource specialists for the purpose o (1) asessing the rate and degree of recovery of resources and services injured by the oil spill, and (2) identifying and characterizing the habitats associated with the recovery of injured resources and services

	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Mar-93	Total					FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	_FY 96	FY 97	Beyond
Demonstra	*0.0		40.0					
	\$0.0		\$0.0					
Iravel	\$0 O	\$10.00	\$10.0					
Contractual	\$0 0	\$29 50	\$29 5					
Commodities	\$0.0		\$0 0					
Equipment	\$0.0		\$0 0					
Capital Outlay	\$0.0		\$0 O				1	
Sub-total	\$0.0	\$39 50	\$39 5	\$O O	\$0 0	\$0.0	\$0.0	\$0.0
General Administration		\$2 70	\$2 7					
Project Total	\$0 0	\$42 2	\$42 2	\$0 0	\$0 0	\$0 0	\$0 0	\$0.0
Full-time Equivalents (FTE)								
					Amounts	s are shown ii	n thousands o	of dollars
Budget Year Proposed Personnel								
		Months						
Position		Budgeted	Cost			Comment		
The Project is to begin October	I, 1992							
1								

* FY 93 is a transition year from the previously used oil fiscal year to the federal fiscal year This new project also includes proposed funding for January and February, 1993

		Project Number 93059		FORM 3A
		Project Title Imminent Threat Habitat Protection		SUB-
page	of	Sub-Project Workshops Agency US Department of Agriculture		PROJECT
	page	page of	Project Number 93059 Project Title Imminent Threat Habitat Protection Sub-Project Workshops Page of Agency US Department of Agriculture	Project Number 93059 Project Title Imminent Threat Habitat Protection Sub-Project Workshops page of Agency US Department of Agriculture

Travel \$ tł	Fravel \$10,000 covers the travel and per diem costs of scientists and resource expertes to attend workshops theat will identify uplands linked to injured resources and services									
Contractua	al \$ C	29,500 for works Conservancy	shops to be facılı	tated and documented through cost share agreement with The Nature						
Commodıt	ies									
Equipment	t									
17	' Jul 92			Project Number 93059 Project Title Imminent Threat Habitat Protection		FORM 3B				
19	93	page	of	Sub-Project Workshops Agency US Department of Agriculture		PROJECT				

Project Description Implementation of	of Trustee Coun	cil decisions to app	ly short-term hat	oitat protectio	n measures to	specific pare	cels	
deemed to be facing an imminent thr	eat and a willing	seller has been ide	entified					
			·	T	·		-	····
	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Mar-93	lotal			514.0.0		FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Personnel	\$0.0	о	\$0.0					
Travel	\$0.0	0	\$0.0					
Contractual	\$0.0	2500	\$2,500 0					
Commodities	\$0.0	0	\$0.0					
Equipment	\$0.0	0	\$0.0					
Capital Outlay	\$0.0	0	\$0.0					
Sub-total	\$0.0	\$2,500 0	\$2,500 0	\$0.0	\$0.0	\$0.0	\$0 0	\$0.0
General Administration		62 5	\$62 5					1
Project Total	\$0 0	\$2,562 5	\$2,562 5	\$0 0	\$0.0	\$0 0	\$0 0	\$0 0
Full-time Equivalents (FTE)								
					Amounts	are shown in	thousands o	of dollars
Budget Year Proposed Personnel				-				
		Months						
Position		Budgeted	Cost			Comment		
Project to start once Trustee Cou	incil identifies w	ulling seller and land	d facing imminen	t threat				
* FY 93 is a transition year from January and February, 1993	the previously i	used oil fiscal year	to the federal fise	cal year Thi	s new project	also includes	s proposed fu	inding for
17 Jul 92		Project Number	- 030E0					
				• 11=h:+=+ P				FORM 3A
		Project litle in	nminent inrea	t Habitat Pi	rotectin			SUB-
1000		Sub-Project Im	nminent Threat	Protection	l			PROJECT
1993 page	of	Agency Federa	al Agency to b	e Determin	ed			DETAIL

Travel			
Contractual	\$2,500,000 to be allocated to recovery of injures species and	a federal agency once a willing seller and imminent threat lands linked to the services is identifed	
Commodities			
Equipment			
- - - -			
17 Jul 92		Project Number 93059 Project Title Jumminent Threat Habitat Protection	FORM 3B
1993	page of	Sub-Project Imminent Threat Protection Agency Federal Agency to be Determined	PROJECT DETAIL

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Project Description Implementation of Trustee Council decisions to apply short-term habitat protection measures to specific parcels deemed to be facing an imminent threat and where a willing seller has been identified

	Approved	Proposed*						Sum
Budget Category	1-Oct-92	1-Mar-93	Total					FY 98 &
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY 96	FY 97	Beyond
Parsonnal	\$0.0	0	\$0.0					
Travel	\$0.0	0	0 0¢ ¢0 0					
Contractual	\$0.0	2500	\$0.0 \$2.500.0					
Commodities	\$0.0	2300	\$2,500 0 \$0 0					
Faunment	\$0 0 \$0 0	0	\$0 0 \$0 0					
	\$0.0	0	\$0 0 \$0 0					
Sub-total	\$0 0 \$0 0	\$2 500 0	\$2 500 0	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
General Administration	400	62 5	\$62.5	40.0	+0 0	+0 0	+ •••	
Project Total	\$0 0	\$2 562 5	\$2 562 5	\$0.0	\$0.0	\$0.0	\$0.0	\$0.0
	100	<i>42,002</i> 0	+2,002 0	100	+0 0	100		
Full-time Equivalents (FTF)								
					Amounts	are shown ir	n thousands o	of dollars
Budget Year Proposed Personnel	J	└╌╾╶╼═╍╌═╺╴╴╴╸╀		"I				
		Months						
Position		Budgeted	Cost			Comment		
Project to begin once Trustee Co	ouncil identifies I	ands under immin	ent threat with a	willing seller				
, ,				U				
* FY 93 is a transition year from	n the previously i	used oil fiscal yea	r to the federal fis	cal year Thi	s new projec	t also include:	s proposed fu	unding for
January and February, 1993								
17 Jul 92		Project Numb	er 93059					50014.0.1
		Project Title	Imminant Thra	ot Upbytet 5	Protoction			FURM 3A
					TOLECTION			SUB-
1002		Sub-Project 1	mminent Threa	t Protection	l i			PROJECT
l 993 page	of	Agency State	e Lead Agency	to be Deter	mined			DETAIL

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Travel			
Contractual	\$2,500,00 to be allocated to with land under imminent thr	appropriate state agency for imminent threat protection once a willing seller eat linked to injured resources or services is identified	r
Commodities			
Equipment			
17 Jul 92			
		Project Number 93059 Project Title Imminent Threat Habitat Protection	FORM 3B SUB-
1993	page of	Sub-Project Imminent Threat Protection Agency State Agency to be Determined	PROJECT DETAIL

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93060

Project Title: Accelerated Data Acquisition

Project Category: Habitat Protection

Lead Agency: U.S Department of Agriculture Forest Service

Cooperating Agencies: ADEC, DOI, ADNR, NOAA, ADF\$G

Project Term October 1, 1992to September 30, 1993

INTRODUCTION:

This project, in cooperation with The Nature Conservancy, accelerates the collection, and compilation of existing resource data needed for evaluation of proposals for habitat protection and acquisition and for other restoration activities.

WHAT:

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Goal- Facilitate acceleration of the Habitat Protection and Acquisition option by collecting and organizing existing resource data needed to evaluate habitat protection and acquisition proposals and for other restoration activities

WHY:

A substantial amount of data on injured resources and services is essentially unusable in its present form due to the data being located in a variety of different federal and state agencies and in a variety of different and sometimes conflicting formats A common data base useable by all of the Trustee Agencies is needed for these data to be most useful in analysis and identification of critical habitats in the spill affected area.

HOW:

<u>BY MARCH 31, 1993</u> - The Nature Conservancy, in cooperation with the Trustee Council Agencies and others, will complete collection and compilation of existing resource data from the oil spill affected areas into a data base having the following characteristics and "layers"

DATA BASE CHARACTERISTICS

The data base will be compatible with existing Trustee agency hardware and software

DATA	BASE '	"LAYERS"			SOURCE
Lıne	graph	(shoreline	corrected	post-	DNR

Project Number	r: 93060
eartnquake) Cities, towns, villages, roads	DNR (update with current
information) Land ownership (surface and subsurface, 2 5 FWS, BLM, NPS acre resolution outside of built up areas)	DNR, FS,
Hydrography	DNR, FS, USGS,FWS remote sensing update)
Hypsography (elevation)	USGS, FS
Vegetation	FS (update with remote sensing and ground truthing)
Anadromous streams	DFG (digital point data for all) FS (digital line data for Big Is) DNR (digital line data for some PWS and Kenai areas)
Wildlife habitat (location data i e points an	FWS, DFG, FS, NPS, NMFS
polygons, and habitat modeling)	
Shoreline oiling	DNR, DEC
Management boundaries, conservation units	DNR, FS, FWS, NPS

	Project	Number	: 930(50
Easements			BLM, DNR, NPS	FS, FWS,
Land use activities			DFG, DNR, DGC	COE, DEC,
Bathymetry			DNR	

ENVIRONMENTAL COMPLIANCE:

This project is categorically excluded from formal documentation in an environmental impact statement or environmental analysis under Depatment of Agriculture and Forest Service regulations.

WHEN:

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October 1, 1992 to March 31, 1993.

Project Description Accelerated collection and compilation of existing resource data needed for evaluation of proposals for habitat protection and , acquisition, and for other restoration activities

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	Approved	Proposed*						Sum	
Budget Category	1-Oct-92	1-Mar-93	Total					FY 98 &	
	28-Feb-93	30-Sep-93	FY 93	FY 94	FY 95	FY_96	FY 97	Beyond	
Personnel	\$0.0		\$0.0						
Travel	\$0.0		\$0.0						
Contractual	\$0.0	\$41 0	\$41.0						
Commodifies	\$0.0		\$0.0						
Equipment	\$0.0		\$0.0						
Capital Outlay	\$0.0		\$0.0						
Sub-total	\$0.0	\$41 0	\$41 0	\$0.0	\$0.0	\$0.0	\$0 0	\$0.0	
General Administration		\$2.9	\$2.9						
Project Total	\$0.0	\$43 9	\$43 9	\$0.0	\$0 0	\$0 0	\$O O	\$0.0	
Full-time Equivalents (FTF)									
				ŀ	Amounts	are shown in	thousands o	of dollars	
Budget Year Proposed Personnel									
		Months							
Position		Budgeted	Cost			Comment			
Project to begin October 1, 1992	2								
· · · ·									
* FY 93 is a transition year from	the previously u	sed oil fiscal year	to the federal fisc	al year This	s new project	also includes	proposed fu	nding for	
January and February, 1993									
17 Jul 92		Project Number	93060						
								FORM 2A	
1002		Project litle A	ccelerated Dat	a Acquisitio	on			PROJECT	
1993 page	of	Agency US D	Department of	artment of Agriculture DETAIL					

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Travel			
Contractual		t with The Networ Concernance to identify leastion, format and upofulne	an of aganov
Contractual	and other information as it relat	tes to injured resources and services and their habitats	ss of agency
Commodities			
Equipment			
-40.5			
17 Jul 92			
		Project Number 93060	FORM 2B
1000		Project Title Accelerated Data Acquisition	PROJECT
1993	page of	Agency US Department of Agriculture	DETAIL

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93061

Project Source: Habitat Protection Work Group

Project Title: New Data Acquisition

Project Category: land/habitat protection

Lead Agency: U.S. Department of Agriculture Forest Service

Cooperating Agencies: ADEC, ADNR, ADF&G, NOAA, DOI

Project Term: FY93/94

Funding Requested: \$500,000

INTRODUCTION:

The purpose of this project is to acquire currently unavailable data needed for evaluation of proposals for habitat protection and acquisition and for other restoration activities.

WHAT:

Goal- Fill gaps in existing data that are needed to evaluate habitat protection and acquisition proposals and for other restoration activities

WHY:

It is important that the Trustee Council be able to evaluate proposed habitat protection options in terms of the relative contribution that each option will have toward furthering restoration objectives Existing data, though useful, may be inadequate for evaluation of habitat protection options particularly long-term and acquisition

HOW:

<u>BY JANUARY 1, 1993</u> - The Habitat Protection workgroup will evaluate the existing data base and determine additional data elements necessary for the base to be fully functional as an analytical tool for identifying and evaluating critical habitats being considered for protection. Specific projects to acquire needed data will then be developed and presented to the Trustee Council for approval as revisions to this project. Such projects may involve field data collection, remote sensing, digitizing or other techniques as appropriate.

ENVIRONMENTAL COMPLIANCE:

Project Number: 93061

This project is solely a data collecton project and is categorically excluded from formal documentation in an environmental impact statement or environmental assessment under USDA Forest Service regulations. WHEN:

The project will start October 1, 992 and be completed by January, 1993.

COST:

It is difficult to determine the cost of this project until such time as the evaluation of the exisitng data base is completed in April 1993. However, the necessity of collecting at least some additional data at a cost in the range of \$500,000 is a reasonable probability.

The lead agency(s) and appropriate general administrative costs will be determined and approved by the Trustee Council when approving revisions to this project for collection of specific additional data

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Project Description activities	Acquire currently	y unavailable da	ta needed for eval	luation of proposa	ls for habitat	protection and	d acquisition	and for other	restoration
Budget Category		Approved 1-Oct-92 28-Feb-93	Proposed* 1-Mar-93 30-Sep-93	Total FY 93	FY 94	FY 95	FY 96	FY 97	Sum FY 98 & Beyond
Personnel Travel Contractual Commodities Equipment		\$0 0 \$0 0 \$0 0 \$0 0 \$0 0	\$500 0	\$0 0 \$0 0 \$0 0 \$500 0 \$0 0					
Capital Outlay General Adminis	Sub-total tration Project Total	\$0 0 \$0 0 \$0 0	\$500 0 \$500 0	\$0 0 \$500 0 \$0 0 \$500 0	\$0 0 \$0 0	\$0 0 \$0 0	\$0 0 \$0 0	\$0 0 \$0 0	\$0 0 \$0 0
Full-time Equival	ents (FTE)					Amounts	are shown ir	n thousands o	f dollars
Position	Personnel		Months Budgeted	Cost			Comment		
* FY 93 is a tran January and F	nsition year from ebruary, 1993	the previously i	used oil fiscal year	r to the federal fis	cal year Thi	s new project	also includes	s proposed fu	nding for
17 Jul 92	page	of	Project Numbe Project Title Agency To be	er 93061 New Data Acque e Determined	uisition				FORM 2A PROJECT DETAIL

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Travel			
Contractual			
Commodities	The Habitat Protection Work G and determine additional data e identfying and evaluating critics needed data will then be develo	roup will evaluate the existing data base in light of the Accelerated elements necessary for the base to be fully functional as an analytic al habitats being considered for protection Special projects to acq oped and presented to the Trustee Council for approval as revisions	Data Collection project (93060) cal tool for juire s to this project
Equipment			
17 Jul 92			
1/ 944 /L		Project Number 93061	FORM 2B
1993	page of	Project Title New Data Acquisition Agency To be Determined	PROJECT DETAIL