DAMAGE ASSESSMENT

CONTINUATION

TS1	Hydrocarbon Analyses	NOAA/USPS	$750,000		
TS3	GIS Mapping	ADNR/USFWS	350,000		
		Category Subtotal		$1,100,000	
ST4	Fate and Toxicity of EVOS Oil	NOAA	$160,000		
ST5	Injury to Shrimp	ADF&G	60,000		If no injury, $20,000 for final report
ST8	Mussel Tissue and Sediment Hydrocarbon Data Synthesis	NOAA/NMFS	180,000		
		Category Subtotal		$400,000	
TN3	Assessment of the Effects of the EVOS on River Otter and Mink in PWS	ADF&G	$183,700		
		Category Subtotal		$183,700	
FS27	Sockeye Salmon Overescapement	ADF&G	$490,000		Policy Decision Needed
FS28	Run Reconstruction	ADF&G	440,000		Policy Decision Needed
FS30	Database Management	ADF&G	178,700		Policy Decision Needed
		Category Subtotal		$1,108,700	
		CONTINUATION TOTAL		$2,792,400	

DAMAGE ASSESSMENT

CLOSEOUT

ST1A	Petroleum Hydrocarbon-induced Injury to Subtidal Marine Sediment Resources	NOAA/NMFS	$100,300 ✓		
ST1B	Hydrocarbon Mineralization Potentials and Microbial Populations in Sediment	ADEC	16,000 ✓		
ST2A	Injury to Shallow Benthic Communities	ADF&G	125,000 ✓		
ST2B	Deep Water Benthos	ADF&G	80,000 ✓		
ST3A	Bioavailability and Transport of Hydrocarbons in the Near Shore Water Column	NOAA	29,300 ✓		
ST3B	Bioavailability and Transport of Hydrocarbons in the Near Shore Water Column	ADEC	46,700 ✓		
ST6	Injury to Rockfish	ADF&G	15,000 ✓		
ST7	Injury to Demersal fishes	NMFS	66,000 ✓		
		Category Subtotal		$478,300	
CH1A	Comprehensive Assessment of Coastal Habitat	USFS	$2,950,000 ✓		
CH1B	Pre-spill and Post-spill Concentrations of Hydrocarbons in Mussels in PWS	NOAA	40,000 ✓		
		Category Subtotal		$2,990,000	
MM1	Effects of EVOS on Distribution and Abundance of Humpback Whales in PWS	NOAA/NMFS/NMML	$15,000 ✓		
MM2	Assessment of Injuries to Killer Whales in PWS, Kodiak Archipeligo, Southeast Alaska	NOAA/NMFS/NMML	35,000 ✓		
MM5	Assessment of Injury to Harbor Seals	ADF&G/NOAA	0 ✓		Final Report Only
MM6	Assessment of Magnitude/Extent/Duration of Oil Impacts to Sea Otters	USFWS	200,000		
		Category Subtotal		$250,000	
ARCH1	Archaeological Survey	ADNR/USFS	$47,000 ✓		
		Category Subtotal		$47,000	
FS1	Salmon Spawning Area Injury	ADF&G	$50,000 ✓		
FS2	Egg/Pre-emergent Fry Sampling	ADF&G	30,000 ✓		
FS3	Coded-wire Tag Recovery and Analysis	ADF&G	90,000 ✓		
FS4A	Early Marine Salmon Injury	ADF&G	136,400 ✓		
FS4B	Effects of Oil Contamination on Juvenile Pink Salmon in PWS	NOAA/NMFS	120,000 ✓		
FS5	Dolly Varden Injury	ADF&G	18,000 ✓		
FS11	Herring Injury	ADF&G	266,300 ✓		
FS13	Clam Injury	ADF&G	77,000 ✓		
		Category Subtotal		$787,700	
B2	Boat Surveys to Determine Distribution and Abundance of Migratory Birds	USFWS	$60,000 ✓		
B3	Population Surveys of Seabird Colonies (Murres)	USFWS	125,000 ✓		
B4	Assessing Effects of the EVOS on Bald Eagles	USFWS	75,000 ✓		
B6	Assessment of the Abundance of Marbled Murrelets at Sites Along the Kenai Peninsula	USFWS	18,000 ✓		
B7	Assessment of the Effects of Petroleum Hydrocarbons on Petrels	USFWS	5,000 ✓		
B8	Assessment of Injuries to Reproductive Success of Blacklegged Kittiwakes in PWS	USFWS	5,000 ✓		
B9	Assessment of Injuries-Pigeon Guillemots	USFWS	18,000 ✓		
B11	Injury Assessment of Hydrocarbon Uptake by Sea Ducks in PWS	ADF&G	50,000 ✓		
B12	Assessment of Injury to Shorebirds Staging and Nesting in PWS and Kenai Peninsula	USFWS	18,000 ✓		
		Category Subtotal		$374,000	
		CLOSEOUT TOTAL		$4,927,000	
		DAMAGE ASSESSMENT TOTAL		$7,719,400	

9301000

17020400

RESTORATION

RECOVERY MONITORING

R6	Population Monitoring Component-Sea Otter (Combine MM7, MM8, MM9)	USFWS	$606,000		
R11	Monitoring Rate of Recovery/Continuing Changes of Murre Numbers/Productivity	USFWS	590,000		
R13	Boat Surveys to Determine Distribution and Abundance of Migratory Birds	USFWS	275,000		
R15	Surveys to Identify Habitat Use by Murrelets	USFWS	360,000		
R76	Monitoring of Intertidal Oiled Areas	NOAA	500,000		Incorporate oiled mussel portions of harlequin ducks & sea otters
R90	Dolly Varden/Cutthroat Trout/Anadromous Sport Fish Status & Evaluation (Combine R44 & R85)	ADF&G/USFS	227,000		
R95	River Otter Restoration Study	ADF&G	65,000		
R101	Subtidal 101 (Combine R32, 51, 74, 75, 77, 83)	ADF&G/ADEC/NOAA	900,000		Maximum
R102	Coastal Habitat 102 (Combine R4, 65, 67, 79, R4)	USFS/EPA/NOAA	700,000		Maximum
R103	Oiled Mussel Beds	NOAA	7500,000		
		Category Subtotal		$4,723,000	

TECHNICAL SUPPORT

R12	Aging of Alcid Carcasses from the EVOS: Obtaining Demographic Information	USFWS	$100,000		Policy Decision Needed
R92	GIS Mapping & Analysis	USFWS/ADNR	250,000	250,000	
		Category Subtotal		$350,000	

RESTORATION IMPLEMENTATION

Management Actions

R20	Bald Eagle Restoration Project	USFWS	$225,000		
R52	Development of a Restoration Plan for Rockfish	ADF&G	$175,000		Policy Decision Needed
R53	Kenai River Sockeye Salmon Restoration	ADF&G	590,000		Policy Decision Needed
R58	Herring Restoration & Monitoring	ADF&G	520,000		Synthesis Meeting
R59	Assessment of Genetic Stock Structure of Salmonids	ADF&G	250,000	move to recovery monitoring	Policy Decision Needed
R60	Stock Identification/Population Monitoring	ADF&G	180,000		Part C Approved
R73	Harbor Seal Restoration Study	ADF&G	204,000		
R104	Archaeological Resource Protection	DOI/DOA/ADNR	335,000		
R106	Anadromous Sport Fish Status & Evaluation/ Technical Support Study for the Restoration of Dolly Varden/Cutthroat Trout (Combine R44, 85)	USFS/ADG&G	250,000		Maximum
		Category Subtotal		$2,729,000	

Manipulation/Enhancement

R45	Montague Island Chum Salmon Restoration	USFS	$26,000		
R105	W. PWS Restoration Survey & Project Planning/ Survey/Evaluation of Instream Habitat & Stock Restoration Techniques (Combine R42 & R86)	USFS/ADG&G	400,000		Maximum
		Category Subtotal		$426,000	

Habitat Acquisition/Protection

R47	Stream Habitat Assessment	ADF&G	368,000		
R71	Harlequin Duck Restoration & Monitoring	ADF&G	455,000		
R96	Identification of Habitats Relevent to Injured Species	MULTI-AGENCY	600,000		
		Category Subtotal		$1,423,000	
		RESTORATION TOTAL		$9,651,000	
		DAMAGE ASSESSMENT AND RESTORATION TOTAL		$17,370,400	

17,020,400

PRINTING INSTRUCTIONS:
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	Federal	State	Combined
DAMAGE ASSESSMENT	$5,218,100	$2,501,300	$7,719,400
RESTORATION	$5,363,000	$4,288,000	$9,651,000
	$10,581,100	$6,789,300	$17,370,400

DAMAGE ASSESSMENT RESTORATION SUMMARY SHEET
3 Jan. 1992

Restoration

- Recovery Monitoring
  R6, R101, R102, R103, R95, R60, R90, R11, R13, R20

- Technical Support
  R92

Restoration Implementation

Management Actions
R73, R104*, R106,R53*, R58*, R59*

Manipulation/enhancement
R105, R45

Habitat acquisition/protection
R15, R71, R96, R47

Damage Assessment

Closeout
ST1A, ST1B, ST2A, ST2B, ST3A & B, ST6, ST7, CH1A, CH1B, TM4, MM1, MM2, MM5, MM6, Arch 1, FS1, FS2, FS3, FS4B, FS4A, FS5, FS11, FS13, B2, B3, B4, B6, B7, B8, B9, B11, B12, B13

Continuation
ST4, ST5, ST8, TM3, FS27*, FS28*, FS30*, TS1, TS3

Policy
R52 (secondary impacts)
Management Funding levels vs injury
Consideration of Public Proposals
FS27 & R53 (overescapement & multi-year commitment)
(2) increased mgmt needs as a result of the EVOS
*Revisit proposals for mgmt vs oil spill costs (salmon 27 -OK)

Karen Kingie

R47 Stream Habitat Assessment
- Document anadromous fish distribution and stream habitat.
- Delineate habitats which are important for the recovery of injured resources.

R52 Development of a Restoration Plan for Groundfish Stocks Affected by the Exxon Valdez Oil Spill
- Identify species of concern.
- Describe biological characteristics of species or stocks of concern.
- Identify stocks to be enhanced through modification of human use.
- Describe current and past patterns of human use.

R53 Kenai River Sockeye Salmon Restoration
- Increase stock identification capabilities using parasites as biological markers.
- Increase accuracy and precision of escapement monitoring.
- Provide more accurate estimates of abundance of sockeye.

R55 Spot Shrimp Restoration
- Describe baseline population genetic structure.
- Define stock boundaries and stocks to be enhanced.
- Develop restoration plan identifying enhancement techniques.

R58 Herring Restoration and Monitoring
- Estimate total spawning biomass of herring.
- Estimate discreetness and distribution of herring stocks.
- Identify the level of immigration and emigration in herring populations inside and outside PWS.
- Identify the origins of spawning and rearing areas and sensitive larval retention areas.

R59 Assessment of Genetic Stock Structure of Salmonids for Restoration Planning and Monitoring
- Improve genetic stock identification capabilities.
- Define genetic structure of pink and chum salmon, Dolly Varden, and cutthroat trout.
- Identify oil-affected populations.

R60A Stock Identification and Population Monitoring of Wild Pink Salmon
- Sample coded-wire tagging of wild fry.
- Recover coded-wire tags and otoliths from commercial catches.
- Recover coded-wire tags and otoliths from spawning populations.

R60B Pink salmon Escapement Enumeration
- Enumerate the total intertidal and upstream escapement of pink and chum salmon.
- Estimate the accuracy of aerial counts.
- Estimate average stream life of pink and chum salmon.
- Determine the persistence of oil on intertidal spawning

habitat.
- Document the presence or absence of morphological, cytological, and cytogenetic abnormalities in adult salmon.
- Increase accuracy and precision of aerial survey estimates.

R60C Monitoring Recovery From Damage of Pink Salmon Egg and Pre-emergent Fry
- Estimate relative densities and survival rates of eggs and fry in oiled and unoiled streams.
- Determine whether oil contamination persists in spawning streams and continues to contribute to reduced survival.
- Monitor recovery of populations from genetic damage.

R63 Evaluation of Carrying Capacity and Effects of Hatchery Salmon on Other Juvenile Fishes in Prince William Sound
- Is prey species composition significantly different between juvenile fishes?
- Are growth rates of juvenile fish limited by food availability?
- Does stomach fullness, prey size composition, condition, and growth rate differ significantly between areas of high and low juvenile salmon density and between hatchery and wild salmon?
- Is the frequency of occurrence of hatchery and wild stocks in the stomachs of predators significantly different?

R90 Dolly Varden/Anadromous Sport fish Status and Evaluation
- Conduct studies of habitat capability.
- Develop detailed study plans.

R105 W. PWS Restoration Survey and Project Planning / Survey and Evaluation of Instream Habitat and Stock Restoration Techniques
- Evaluate fish habitat, abundance and limnological data from priority sites.
- Determine optimal fish restoration methods.
- Develop restoration proposals.

R106 Anadromous Sport fish Status and Evaluation/Technical Support Study for the Restoration of Dolly Varden/Cutthrout Trout
- Identify and categorize stream systems in unoiled locations that support Dolly Varden/Cutthroat Trout.
- Evaluate stock structure of overwintering populations.

R 71 Harlequin Duck Restoration

- document undisturbed nesting habitat
- determine potential impacts of timber harvest
- collect habitat information

R 73 Harbor Seal Restoration Study

- monitor the behavior and habitat use in PWS
- monitor the abundance and population trends

- design effective conservation measures

R 95 River Otter Restoration

- monitor abundance and population trends
- monitor food habits
- monitor habitat and latrine utilization patterns
- determine change in genetic diversity within the oiled area

R 92 GIS Mapping and Analysis

- provide a reservoir of geographic data
- assure the consistency and quality of geographic data
- serve as a repository to protect the long-term public interest in scientific and resource data
- produce and disseminate maps and analytical products

MM 5 Assessment of Injury to Harbor Seals in Prince William Sound, Alaska, and Adjacent Areas

- investigate and quantify the effects of oil
- investigate and quantify the disturbance associated with cleanup
- determine the abundance and population trends

Arch 1 Archaeological Survey

- determine the effects of oiling on accurate C^{14} analysis
- determine the degree of oiling at archaeological sites
- determine the effect of vandalism at archaeological sites
- salvage artifacts at disturbed sites

TM 3 Assessment of the Effects of the EVOS on River Otter in PWS

- quantify the lethal and sub-lethal effects of oil
- determine abundance and population trends
- determine changes in diet in oiled areas
- determine habitat utilization patterns

J. Strand

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Archeology				
2 M	Cultural Resource Protection	USFS	480000.	Yes; modified;(monitoring components)
		Category Total:$		

Byron:

Here is copy of proposed 1992 Restoration work plan with ranking (high, medium or low) and also with 1-2 sentence descriptions of NOAA projects.

Jo

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Coastal Habitat				
65 H	Coastal Habitat Comprehensive Intertidal Program	USFS et al	900000.	Yes; modified to reduce focus and budget
67 H	High Intertidal Fucus Recovery and Restoration	?	59175.	Yes; for objectives 1 and 2
79 M	Recovery Monitoring of Intertidal/Nearshore Subtidal Communities Impacted	NOAA	250,000 ~~850000.~~	Yes; modify site locations Monitor recovery of intertidal and shallow subtidal communities, particularly those habitats receiving intensive cleaning. Endpoint - monitoring, eliminate/minimize human disturbance
84 M	Herring Bay Experimental and Monitoring Studies	UAF	270000.	Yes; modified

Category Total:$

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Habitat				
33 H	Injured Species Habitat Identification	US Forest Serv.	1000000.	Yes; in modified form; coordinates with R15
39 H	Fish Habitat Limiting Factors Analysis	USFS	125000.	Yes; mod to combine w R88:coord w/ R42, 86,44,85
47 L	Stream Habitat Assessment	ADF&G	485000.	Yes
88 H	Stream Carrying Capacity for Evaluating Restoration in PWS	NMFS	175000.	Yes; combine with R39 coord. w/ 42, 86, 44 & 85 Determine habitat availability for stream rearing of salmonids and determine abundance and habitat utilization (carrying capacity). Endpoint - enhance production (restore) wild stocks; also monitoring.
96 L	Identification of Habitats Relevent to Injured Species	TBN	0.	Yes; modified form, provide budget
		Category Total:$		

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
DataBase Management				
92 M	Gis Mapping	ADNR	100000.	Yes
93 M	Gis Mapping	USFWS	200000.	Yes
		Category Total:$		

Proposed 1992 Restoration Workplan

Project	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Harbor Seals				
73 H	Harbor Seal Progress Report Restoration Study	ADF&G	204000.	Yes
		Category Total:$		

Proposed 1992 Restoration Workplan

roject D	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
ea Otters				
6 H	Population Monitoring Component - Sea Otter	USFWS	934000.	Yes; modified to include components of R7-9
7 H	Habitat Utilization by Sea Otters	USFWS	160000.	Yes; Include in R6
8 L	Sea Otter Recovery Model Validation Component	USFWS	138000.	Yes; Include in R6
9 M	Pathology and Toxicology Monitoring Component	USFWS	44000.	Yes; Include in R6
95 M	River Otter Restoration	ADF&G	65000.	Yes
		Category Total:$		

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Killer Whales				
82 H	Killer Whale Monitoring and Habitat Studies	NOAA	219500.	Document recovery of killer whales (particularly AB, AT pods) in PWS. Identify individual whales; describe changes in pod social structure, determine reproductive rates and trends in abundance; determine habitat requirements through satellite tagging. End point: monitor recovery. restoration - minimize disturbance and adverse interactions with human activities
		Category Total:$		

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Subtidal				
M	Monitoring the Fate and Persistence of Oil in NPS	NPS	165000.	Yes; modified to reduce scope
32 M	Injury and Recovery of Deep Benthic Macrofaunal Communities	AK Fish/Game	170000.	Yes; modified;reduce scope
51 H	Natural Restoration/Shallow Subtidal Communities	ADF&G	270000.	Yes; modified;reduce focus
52 L	Development of a Restoration Plan for Rockfish	ADF&G	225000.	Yes; modified
55 L	Spot Shrimp Restoration	AK Fish/Game	60000.	Yes
74 H	Recovery Monitoring of Contaminated Resources	NOAA	480000.	Yes Determine occurrence, persistence, depuration and chemical composition of petroleum hydrocarbons in and from subtidal sediments. Endpoint: monitoring recovery (depuration of PAHs).
75 H	Natural Recovery of Subtidal Species in PWS	NOAA	230000.	Yes; modified;include portion of R77 Document recovery in demersal fish/shellfish. Analyze for residual PAH metabolites, MFO induction, histopathological changes. Conduct lab exposures to establish likely cause in field. Endpoint: monitoring recovery
77 L	Monitoring Recovery of Intertidal/Nearshore Subtidal specis in PWS	NOAA	300000.	Yes; combine subtidal components with R75. Determine recovery in intertidal and shallow subtidal zones/shellfish. Analyze for residual PAH metabolites, MFO induction, and histopathological changes. Endpoint: monitoring recovery.
78 M	Mussel Tissue/Sediment Hydrocarbon Data Synthesis	NOAA	100000.	Yes; modified Examine hydrocarbon data generated by restoration science program for consistency and reasonable uses. Conduct principle components analysis. End point: quality assurance
83 H	Monitoring Microbial Populations in Marine Sediment as Indicators	ADEC	55000.	Yes; modified to reduce scope

Category Total:$

Proposed 1992 Restoration Workplan

use for 103

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Mussel Beds				
76 H	Recovery Monitoring of Intertidal Oiled Mussel	NOAA	500000.	Determine fate and effects of petroleum hydrocarbons in oiled mussel beds; determine potential for transport to other ecosystem components and assess effects (linkage). Yes; modified ~~Endpoint: monitoring rate of recovery; possible additional clean-up.~~
81	Hydrocarbon Analyses of Mussels and Substrates/ Sediments Collected from PWS	NOAA	0.	Yes; Provide budget

Category Total:$

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Herring/Dolly Varde				
44 L	Anadromous Sport Fish Status and Evaluation	USFS	12000.	Yes; supports R85 and coordinate with R39 and 88
58 M	Herring Restoration and Monitoring	AK Fish/Game	725000.	Yes; modified;reduce scope
85 M	Technical Support Study for the Restoration of Dolly Varden/Cutthroat Trout	AK Fish/Game	260000.	Yes
90 H	Dolly Varden	ADFG	227000.	Yes
		Category Total:$		

2

Resource Category: Subtidal

Study Number: R52

Study Title: Development of a Restoration Plan for Rockfish Stocks

Sponsoring Agency: ADF&G

Consequential Injury? Yes, mortality, hydrocarbon exposure, histopathology.

Continuing? Uncertain

Recovery Occurring? Uncertain

Identifiable restoration endpoint?

Modify human use, improve fishery management of rockfish.

Recommendation:

Should a detailed study plan be prepared?

Yes__X___

Yes, in modified form_____

Maybe_____

No_____

Comments: Focus on rockfish and ling cod.
Large increase in fish landings in 1990 and 1991.
This study is illustrative of a number of studies where fishery management questions arise either directly or indirectly as a result of EVOS. Are these studies that support fishery management decision making wholly or partly appropriate under restoration funding?
Rename to "for Rockfish".

175,000
Budget ~~225,000~~
ADF&G budget 26.5 m

Resource Category: Subtidal

Study Number: R52

Study Title: Development of a Restoration Plan for Rockfish Stocks

Sponsoring Agency: ADF&G

Consequential Injury? Yes, mortality, hydrocarbon exposure, histopathology.

Continuing? Uncertain

Recovery Occurring? Uncertain

Identifiable restoration endpoint?

Modify human use, improve fishery management of rockfish.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No_____

Policy decision needed ~~by Trustee~~

Comments: Focus on rockfish and ling cod.
Large increase in fish landings in 1990 and 1991.
This study is illustrative of a number of studies where fishery management questions arise either directly or indirectly as a result of EVOS. Are these studies that support fishery management decision making wholly or partly appropriate under restoration funding?
Rename to "for Rockfish".

Budget ~~$225,000~~ to $175,00

Projects Combined into Other Proposals

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Subtidal				
32	Injury and Recovery of Deep Benthic Macrofaunal Communities	AK Fish/Game	170000.	combined in R101
51	Natural Restoration/Shallow Subtidal Communities	ADF&G	270000.	combined in R101
74	Recovery Monitoring of Contaminated Resources	NOAA	480000.	combined in r101
75	Natural Recovery of Subtidal Species in PWS	NOAA	230000.	combined in R101
77	Monitoring Recovery of Intertidal/Nearshore Subtidal specis in PWS	NOAA	300000.	Combined in R101
83	Monitoring Microbial Populations in Marine Sediment as Indicators	ADEC	55000.	combined in R101

Projects Combined into Other Proposals

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Coastal Habitat				
4	Monitoring the Fate and Persistence of Oil in NPS	NPS	0.	Combined with R102.
5	Trophic Investigation of Intertidal Use by Birds and Mammals	NPS	685000.	
65	Coastal Habitat Comprehensive Intertidal Program	USFS	900000.	Combine in R102
67	High Intertidal Fucus Recovery and Restoration	EPA	59175.	Combine in R102
79	Recovery Monitoring of Intertidal/Nearshore Subtidal Communities Impacted	NOAA	850000.	Combine in R102
84	Herring Bay Experimental and Monitoring Studies	USFS	270000.	Combine in R102

Projects Combined into Other Proposals

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Birds				
16	Identification of Nesting Habitat Criteria and Reproductive Success	USFWS	0.	combine with R15
18	Murre Recovery Modeling	USFWS	0.	combine with R11
19	Control/Eliminate Human Disturbance near Murre Colonies	USFWS	0.	combine with R11
21	Develop Bald Eagle Population Model and Understanding of Survival Rates	USFWS	0.	modified;combine elements of 21 and 22
22	Monitor Productivity of Bald Eagles within the EVOS area	USFWS	0.	combine with R20
89	Harlequin Ducks Restoration Study	ADF&G	0.	combined with R71
Marine Mammals				
7	Habitat Utilization by Sea Otters	USFWS	0.	Include in R6
8	Sea Otter Recovery Model Validation Component	USFWS	0.	Include in R6
9	Pathology and Toxicology Monitoring Component	USFWS	0.	Include in R6

Projects Combined into Other Proposals

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Herring/Dolly Varden				
44	Anadromous Sport Fish Status and Evaluation	USFS	0.	Combined into R106
85	Technical Support Study for the Restoration of Dolly Varden/Cutthroat Trout	ADF&G	0.	Combine into R106
Salmon				
42	W. PWS Restoration Survey and Project Planning	USFS	0.	Combined with R86
86	Habitat Survey and Evaluation, Project Planning, for Salmonids in Prince William Sound	ADF&G USFS	400000.	Combine with R42
Archeology				
2	Cultural Resource Protection	USFS	480000.	combined in R104
72	State Archaeological Restoration Project	DNR	350000.	combined in R104
Habitat				
33	Injured Species Habitat Identification	USFS	0.	Combined with R15
39	Fish Habitat Limiting Factors Analysis	USFS	125000.	Combine with R88:coord plan w/ R42, 86,44,85
88	Stream Carrying Capacity for Evaluating Restoration in PWS	NOAA	175000.	Combine with R39, coord. plan w/ 42, 86, 44 & 85

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ATTORNEY WORK PRODUCT

DAMAGE ASSESSMENT CLOSE-OUT

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Subtidal				
1a	Petroleum Hydrocarbon-induced Injury to Subtidal Marine Sediment Resources	NOAA	100300.	Closeout; Final Report due February 1993.
1b	Hydrocarbon Mineralization Potentials and Microbial Pops. in Sediment	ADEC	16000.	Closeout; Final Reptort due June 1992.
2a	Injury to Shallow Subtidal Benthic Communities	ADF&G	125000.	Closeout; Final Report due February 1993. Need to complete analysis of 1991 data.
2b	Injury to Deep-water Subtidal Benthic Communities	ADF&G	80000.	Closeout; Final Report due February 1993. Need to complete analysis of 1991 data.
3a	Bioavailability and Transport of Hydrocarbons in the Near Shore Water Column	NOAA	29300.	Closeout; Final Report due November 1992.
3b	Bioavailability and Transport of Hydrocarbons in the Near Shore Water Column	ADEC	46700.	Closeout; Final Report due November 1992.
6	Injury to Rockfish	ADF&G	15000.	Closeout; Final Report due June 30, 1992. Need to complete analysis of 1991 data.
7	Injury to Demersal Fishes	NOAA	66000.	Closeout; Final Report due August 1992.
		ADF&G	0.	Finished.
Coastal Habitat				
1A	Comprehensive Assesment of Coastal Habitat	USFS	2950000.	Closeout; Final Report due June 1993, with an interim report due October 1992.
1B	Pre-spill and Post-spill Concentrations of Hydrocarbons in Mussels in PWS	NOAA	40000.	Closeout; Final Report due February 1993.

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Terrestrial Mammals				
1	Sitka Black Tailed Deer	ADF&G	0.	Finished.
2	Black Bear	ADF&G	0.	Finished.
4	Brown Bears	ADF&G	0.	Finished.
5	Small Mammals	ADF&G	0.	Finished.
6	Mink Reproduction	ADF&G	0.	Finished.
Marine Mammals				
1	Effects of EVOS on Distribution and Abundance of Humpback Whales in PWS	NOAA	15000.	Closeout; Final Report due June 1992.
2	Assessment of Injuries to Killer Whales in PWS, Kodiak Archipelago, SE AK	NOAA	35000.	Closeout; Final Report due May 1992.
3	Cetacean Necropsy	NOAA	0.	Finished.
4	Sea Lions	ADF&G/NOAA	0.	Final Report due January 1992.
5	Assessment of Injury to Harbor Seals	ADF&G/NOAA	0.	Closeout; Final Report due February 1992.
6	Assessment of Magnitude/Extent/Duration of Oil Spill Impacts on Sea Otters	FWS	200000.	Closeout; Final Report due September 1992.
Archeology				
Arch. 1	Archaeological Survey	ADNR USFS	127000. 20000.	Closeout; Final Report due June 1992.

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Fish & Shellfish				
1	Salmon Spawning Area Injury	ADF&G	50000.	Closeout; Final Report due June 1992.
2	Eggs/Pre-Emergent Fry Sampling	ADF&G	30000.	Closeout; Final Report due November 1992.
3	Coded-Wire Tag Recovery and Analysis	ADF&G	90000.	Closeout; Final Report due December 1992.
4a	Early Marine Salmon Injury	ADF&G	136400.	Closeout; Final Report due March 1993. Need to complete data analysis.
4b	Effects of Oil Contamination on Juvenile Pink Salmon in PWS	NOAA	120000.	Closeout; Final Report due November 1992.
5	Dolly Varden Injury	ADF&G	18000.	Closeout; Final Report due November 1992.
7	Salmon Spawning Area Injury Outside PWS	ADF&G	0.	Closeout; Final Report due February 1992.
8	Egg and Pre-Emergent Fry Sampling, Outside PWS	ADF&G	0.	Closeout; Final Report due February 1992.
11	Herring Injury	ADF&G	266300.	Closeout; Final Report due February 1993. Monitor recovery.
13	Clam Injury	ADF&G	77000.	Closeout; Final Report due December 1992.

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Birds				
1	An Assessment of Damage to Seabirds in PWS and the Western GOA from EVOS	FWS	0.	Finished. Closeout; Final Report November 1991.
2	Boat Surveys to Determine Distribution and Abundance of Migratory Birds	FWS	60000.	Closeout; Final Report due September 1992.
3	Population Surveys of Seabird Colonies in the Spill Area (Murres)	FWS	125000.	Closeout; Final Report due September 1992.
4	Assessing the Effects of EVOS on Bald Eagles	FWS	75000.	Closeout; Final Report due September 1992.
6	Assessment of the Abundance of Marbled Murrelets at Sites along Kenai Penin.	FWS	18000.	Closeout; Final Report due September 1992.
7	Assessment of the Effects of Petroleum Hydrocarbons on Petrel	FWS	5000.	Closeout; Final Report due September 1992.
8	Assessment of Injuries to Reproductive Success of Blacklegged Kittiwakes-PWS	FWS	5000.	Closeout; Final Report due September 1992.
9	Assessment of Injury to Waterbirds Based on Pop. and Breeding Pig. Guillemot	FWS	18000.	Closeout; Final Report due September 1992.
11	Injury Assessment of Hydrocarbon Uptake by Sea Ducks in PWS	ADF&G	50000.	Closeout; Final Report due September 1992.
12	Assessment of Injury to Shorebirds Staging and Nesting in PWS and Kenai Pen.	FWS	18000.	Closeout; Final Report due September 1992.
		Category Total:	$5027000.	

DAMAGE ASSESSMENT CONTINUATION

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Subtidal				
4	Fate and Toxicity of EVOS Oil	NOAA	160000.	Yes; Modified to reduce scope.
5	Injury to Shrimp	ADF&G	60000.	Yes; Closeout; Final Report due February 1993.
8	Mussel Tissue and Sediment Hydrocarbon Data Synthesis	NOAA	180000.	Yes.
Terrestrial Mammals				
3	Assessment of the effects of the EVOS on River Otter in PWS	ADF&G	183700.	Yes; Final Report due December 1992. Need analysis of 1991 data.
Fish/shellfish				
27	Sockeye Salmon Overescapement	ADF&G	490000.	Yes; Modified; Include other Cook Inlet Streams.
28	Run Reconstruction	ADF&G	440000.	Yes; modified.
30	Database Management	ADF&G	178700.	Yes.
Technical Support				
1	Hydrocarbon Support Services and Analysis of Distribution/Weathering of Oil	NOAA	600000.	Yes.
	Hydrocarbon Analytical Support Services	FWS	150000.	Yes.
3	GIS Mapping and Analysis of Damage Assessment Data	FWS	100000.	Yes.
		DNR	250000.	Yes.
		Category Total:	$2792400.	

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan	
Marine Mammals					
1	Effects of EVOS on Distribution and Abundance of Humpback Whales in PWS	NOAA/NMFS/NMML	15000.	Closeout; Final Report due June 1992.	Closeout $ 15,000
2	Assessment of Injuries to Killer Whales in PWS, Kodiak Archipelago, SE AK	NOAA/NMFS/NMML	35000.	Closeout; Final Report due May 1992.	? $ 35,000
3	Cetacean Necropsy	NOAA	0.	Finished.	
4	Sea Lions	ADF&G/NOAA	0.	Final Report due January 1992.	
5	Assessment of Injury to Harbor Seals	ADF&G/NOAA	0.	Closeout; Final Report due February 1992.	Closeout $?
6	Assessment of Magnitude/Extent/Duration of Oil Spill Impacts on Sea Otters	FWS	200000.	Closeout; Final Report due September 1992.	

Category Total: $

Post-it™ brand fax transmittal memo 7671	# of pages ▸ 8
To Karen Klinge	From Ken Chalk
Co. RRCG	Co. ADF&G
Dept. CACI	Phone # 267-2421
Fax # 276-7178	Fax # 522-3148

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Terrestrial Mammals				
1	Sitka Black Tailed Deer	ADF&G	0.	Finished.
2	Black Bear	ADF&G	0.	Finished.
3	Assessment of the effects of the EVOS on River Otter and Mink in PWS	ADF&G	183700.	Yes; Final Report due December 1992. continue 183,700
4	Brown Bears	ADF&G	0.	Finished.
5	Small Mammals	ADF&G	0.	Finished.
6	Mink Reproduction	ADF&G	0.	Finished.

Category Total: $

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Birds				
1	An Assessment of Damage to Seabirds in PWS and the Western GOA from EVOS.	FWS	0.	Finished. Closeout; Final Report November 1991.
2	Boat Surveys to Determine Distribution and Abundance of Migratory Birds	FWS	60000.	Closeout; Final Report due September 1992. Closeout $ 60,000
3	Population Surveys of Seabird Colonies in the Spill Area (Murres)	FWS	125000.	Closeout; Final Report due September 1992. Closeout $ 125,000
4	Assessing the Effects of EVOS on Bald Eagles	FWS	75000.	Closeout; Final Report due September 1992. Closeout $ 75,000
6	Assessment of the Abundance of Marbled Murrelets at Sites along Kenai Penin.	FWS	18000.	Closeout; Final Report due September 1992. Closeout $ 18,000
7	Assessment of the Effects of Petroleum Hydrocarbons on Petrel	FWS	5000.	Closeout; Final Report due September 1992. Closeout $ 5,000
8	Assessment of Injuries to Reproductive Success of Blackleggec Kittiwakes-PWS	FWS	5000.	Closeout; Final Report due September 1992. Closeout $ 5,000
9	Assessment of Injury to Waterbirds Based on Pop. and Breeding Pfg. Guillemot	FWS	18000.	Closeout; Final Report due September 1992. Closeout $ 18,000
11	Injury Assessment of Hydrocarbon Uptake by Sea Ducks in PWS	ADF&G	50000.	Closeout; Final Report due September 1992. Closeout $ 50,000
12	Assessment of Injury to Shorebirds Staging and Nesting in PWS and Kenai Pen.	FWS	18000.	Closeout; Final Report due September 1992.

Category Total: $

1992 Damage Assesment Workp.an

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan	
Fish & Shellfish					
1	Salmon Spawning Area Injury	ADF&G	50000.	Closeout; Final Report due June 1992.	Closeout $ 50,000
2	Eggs/Pre-Emergent Fry Sampling.	ADF&G	30000.	Closeout; Final Report due November 1992.	Closeout $ 30,000
3	Coded-Wire Tag Recovery and Analysis	ADF&G	30000.	Closeout; Final Report due December 1992. (Budget increased to cover needs expected to be covered in R60)	Closeout $ 90,000
4a	Early Marine Salmon Injury	ADF&G	136400.	Closeout; Final Report due March 1993.	Closeout $ 136,400
4c	Effects of Oil Contamination on Juvenile Pink Salmon in PWS	NOAA/NMFS	~~186300.~~ 68,000	Yes; Modified.	Closeout $ 120,000
5	Dolly Varden Injury	ADF&G	~~25300.~~ 18000	Closeout; Final Report due November 1992.	Closeout $ 18,000
7	Salmon Spawning Area Injury Outside PWS	ADF&G	0.	Closeout; Final Report due February 1992.	
8	Egg and Pre-Emergent Fry Sampling, Outside PWS	ADF&G	0.	Closeout; final Report due February 1992.	
11	Herring Injury	ADF&G	566300.	Closeout Yes; Final Report due February 1993.	Closeout $ 266,300
13	Clam Injury	ADF&G	77000.	Closeout; Final Report due December 1992.	Closeout $ 77,000
16	Injury to Oysters	NOAA	6000.	Closeout.	N/A N/A
27	Sockeye Salmon Overescapement	ADF&G	445244.	Yes; Modified; Include other Cook Inlet Streams.	Continue $ 490,000
28	Run Reconstruction	ADF&G	~~440000.~~ 0/C 300000.	Yes.	Continue $ 440,000
30	Database Management	ADF&G	188700.	Yes.	Continue $ 178,700 (Coordinate w/ R40)

Category Total: $

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	GY4 Cost	Recommendation for Detailed Study Plan
Coastal Habitat				
1A	Comprehensive Assesmen: of Coastal Habitat	USFS	2473300.	Yes; Final Report due June 1993. Closeout $ 2,950,000
1B	Pre-spill and Post-spill Concentrations of Hydrocarbons in Mussels in PWS	NOAA	40000.	Closeout; Final Report due February 1993. Closeout $ 40,000

Category Total: $

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Subtidal				
1a	Petroleum Hydrocarbon-induced Injury to Subtidal Marire Sediment Resources	NOAA/NMFS	100300.	Closeout; Final Report due February 1993. Closeout $100,300
1b	Hydrocarbon Mineralization Potentials and Microbial Pops. in Sediment	DEC	16000.	Closeout; Final Reptort due June 1992. Closeout $16,000
2a	Injury to Shallow Benthic Communities	ADF&G	125000.	Closeout; Final Report due February 1993. Closeout $125,000
2b	Deep Water Benthos	ADF&G	80000.	Closeout; Final Report due February 1993. Closeout $80,000
3b	Bioavailability and Transport of Hydrocarbons in the Near Shore Water Column	ADEC	46700.	Closeout; Final Report due November 1992. Closeout $46,700
3a	Bioavailability and Transport of Hydrocarbons in the Near Shore Water Column	NOAA	29300.	Closeout; Final Report due November 1992. Closeout $29,300
4	Fate and Toxicity of EVOS Oil	NOAA	160000.	Yes; Modified to reduce scope. Continue $160,000
5	Injury to Shrimp	ADF&G	60000.	Yes; Closeout; Final Report due November 1992. Continue $60,000 CIP no injury, $20,000 for final report
6	Injury to Rockfish	ADF&G	15000 ~~25000.~~	Closeout; Final Report due June 30, 1992. Closeout $15,000
7	Injury to Demersal Fishes	NMFS	66000.	Closeout; Final Report due August 1992. continue $66,000
		ADF&G	0.	Finished.
8	Mussel Tissue and Sediment Hydrocarbon Data Synthesis	NOAA/NMFS	90000.	Yes. Continue $180,000

Category Total: $

1992 Damage Assesment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Technical Support				
1	Hydrocarbon Support Services and Analysis of Distribution/Weathering of Oil	NOAA	600000.	Yes.
	Hydrocarbon Analytical Support Services	FWS	150000.	Yes.
3	GIS Mapping and Analysis of Damage Assessment Data	FWS	100000.	Yes.
		DNR	300000.	Yes.

Category Total: $

1992 Damage Assessment Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for Detailed Study Plan
Archeology				
Arch. 1	Archaeological Survey	DNR	27000.	Closeout; Final Report due June 1992. Closeout $ 47,000 (USFS 20,000) (DNR 27,000)
		USFS	20000.	

Category Total: $

Resource Category: Mussel Beds

Study Number: ~~R81~~ withdrawn -

Study Title: Hydrocarbon analysis of mussels and substrates/sediments collected from PWS.

Sponsoring Agency: NOAA

Consequential Injury?

Continuing?

Recovery Occurring?

This one was Not on the disk. Should some be created? R.

NO progress report

Identifiable restoration endpoint?

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No_____

Comments:

Comments for Coastal Habitat # R102 (includes R4, 5, 65, 67, 79, 84)

Subcommittee of RRCG and Restoration Subgroup schedule to meet in January to decide on objectives for focused coastal habitat study which will be coordinated with Response work already scheduled.
Plan on budget of less than 700,000.

Comments for Subtidal 32, 51, 74, 75, 77, 83

A synthesis meeting between the principle investigators of subtidal restoration projects 32, 51, 74, 75, 77 and 83 will be held in January 1992. One combined, focused proposal will be developed from this meeting. Only those elements which must be done in 1992 should be included. PI's should consider focusing on specific environments to condense sampling locations. Inclusive budget should be reduced from 1.5m to less than 900 thousand.

notes from Jerome

1/6/92

NRDA MM6 200,000

Arch 1 47,000 (20000 USFS
27000 DNR)

R101 NOAA
DEC
ADF&G 900,000

R106 239,000 ADF&G
11,000 USFS

R105 317,917 ADF&G
82,883 USFS

Species, Resources, and Services to be covered in the "Endpoints and Options" Section of the Restoration Framework Document

Status...18 Dec. 1991

SPECIES COMPLETED	NEED TO COMPLETE
Sea otter	River otter
Harbor seal	Killer whale
Common murre	Brown bear
Marbled murrelet	Pigeon guillemot
Harlequin duck	Bald eagle
Dolly/C-T trout	Black oystercatcher
Salmon[1]	Sockeye salmon
	Pacific herring
	Rockfish
	Spot shrimp
	Recreation
	Historical/Archeological
	Coastal Habitat
	Wilderness (designated) qualities
	Intrinsic values

[1] All salmon, except sockeye, have been covered in this one matrix.

n/c e

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Salmon				
40	PWS Wild Fish Stock Information Assessment	USFS	50000.	Yes; modified;coordinate with f/s 30
42	W. PWS Restoration Survey and Project Planning	US ~~Forest Serv.~~ FS	92000.	Yes; combine with R86; coord. w/ R39 & R88
45	Montague Island Chum Salmon Restoration	US ~~Forest Serv.~~ FS	26000.	Yes
53	Kenai River Sockeye Salmon Restoration	ADF&G	590000.	Yes; modified;perhaps include Kodiak
59	Assessment of Genetic Stock Structure of Salmonids	ADF&G	250000.	Yes
60	Stock Identification/Population Monitoring	ADF&G	2920000.	Yes; modified;2.100K(stockID)bal for samp/mortalit
63	Evaluation of Wild-Hatchery Salmon Stock	ADF&G	600000.	Yes; in modified form from forage fish workshop
86	Survey/Evaluation of Instream Habitat and Stock Restoration Techniques	ADF&G	352000.	Yes; combine w/ R42; coord. w/ 89 & 88
		Category Total:$		

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LITIGATION SENSITIVE
ATTORNEY WORK PRODUCT
ATTORNEY-CLIENT PRIVILEGE

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
erring/Dolly Varde				
44	Anadromous Sport Fish Status and Evaluation	USFS	12000.	Yes; supports R85 and coordinate with R39 and 88
58	Herring Restoration and Monitoring	~~AK Fish/Game~~ ADFG	725000.	Yes; modified;reduce scope
85	Technical Support Study for the Restoration of Dolly Varden/Cutthroat Trout	~~AK Fish/Game~~ ADFG	260000.	Yes
90	Dolly Varden	ADFG	227000.	Yes
		Category Total:$		

ATTORNEY-CLIENT PRIVILEGE

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
~~Sea Otters~~ Marine Mammal				
6	Population Monitoring Component - Sea Otter	USFWS	934000.	Yes; modified to include components of R7-9
7	Habitat Utilization by Sea Otters	USFWS	~~160000.~~ ∅	Yes; Include in R6
8	Sea Otter Recovery Model Validation Component	USFWS	~~138000.~~ ∅	Yes; Include in R6
9	Pathology and Toxicology Monitoring Component	USFWS	~~44000.~~ ∅	Yes; Include in R6
73 → 82				
95	River Otter Restoration	ADF&G	65000.	Yes
		Category Total:$		

more to deferred

(combine killer whales & Harbor seals here)

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Killer Whales →				
82	Killer Whale Monitoring and Habitat Studies	NOAA	219500.	~~Yes~~ No more to deferred

Category Total:$

combine under Marine Mammals

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Harbor Seals				
73	Harbor Seal ~~Progress Report~~ Restoration Study	ADF&G	204000.	Yes

Category Total:$

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Proposed 1992 Restoration Workplan

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Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Birds				
11	Monitoring Rate of Recovery/Continuing Changes of Murre Numbers/Productivity	USFWS	~~700000.~~ 590000	Yes; modified to include R19 and 30
12	Aging of Alcid Carcasses from the EVOS: Obtaining Demographic Information	USFWS	100000.	Yes; modified;reduce scope and budget
15	Surveys to Identify Upland Use by Murrelets in the EVOS Zone	USFWs	300000.	Yes; modify to include R16
16	Identification of Nesting Habitat Criteria and Reproductive Success	USFWS	0.	Yes;combine with R15 listed as 'not recommended' on short form. move to deferred
17	Feeding Ecology and Reproductive Success of Black Oystercatchers in PWS	USFWS	~~200000. Yes~~	add element to oiled mussel bed study move to deferred
18	Murre Recovery Modeling	USFWS	0.	Yes; combine with R11 ~~listed as "not recommended" on short form~~ move to deferred
19	Control/Eliminate Human Disturbance near Murre Colonies	USFWS	0.	Yes; combine with R11 ~~"~~ ~~"~~ move to deferred
20	Identification and Protection of Important Bald Eagle Habitats	USFWS	~~350000.~~ 225,000	Yes; modified to include R21 and R22
21	Develop Bald Eagle Population Model and Understanding of Survival Rates	USFWS	0.	Yes; modified;combine elements of 21 and 22 listed as "not recommended" on short form move to deferred
22	Monitor Productivity of Bald Eagles within the EVOS area	USFWS	0.	Yes; combine with R20 " " move to deferred.

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
71	~~Preliminary Progress Report of~~ Harlequin Duck Restoration Study	ADF&G	455000.	Yes; modified to include R89 add orted mussel
89	~~Monitoring recovery of~~ Harlequin Ducks Restoration Study	ADF&G	0.	Yes;combined with R71

Category Total:$

'roposed 1992 Restoration Workplan

oject	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
astal Habitat				← Add R-5 → Study
65	Coastal Habitat Comprehensive Intertidal Program	USFS ~~et al~~	900000.	Yes; modified to reduce focus and budget
67	High Intertidal Fucus Recovery and Restoration	~~2~~ EPA	59175.	Yes; for objectives 1 and 2
79	Recovery Monitoring of Intertidal/Nearshore Subtidal Communities Impacted	NOAA	850000.	Yes; modify site locations. Do not do intertidal species
84	Herring Bay Experimental and Monitoring Studies	~~UAF~~ USFS	270000.	~~Yes; modified~~ incorporate into #65
		Category Total:$		

102 inter 700,000

Proposed 1992 Restoration Workplan

DRAFT

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Habitat				
33	Injured Species Habitat Identification	US ~~Forest Serv.~~ FS	~~1000000.~~	Yes; in modified form; coordinate~~s~~ with R15
~~39~~ 107	Fish Habitat Limiting Factors Analysis	USFS	125000.	Yes; mod to combine w R88:coord plan w/ R42, 86,44,85
47	Stream Habitat Assessment	ADF&G	~~485000.~~ 368,000	Yes
~~88~~ 107	Stream Carrying Capacity for Evaluating Restoration in PWS	~~AMES~~ NOAA	175000.	Yes; combine with R39, coord. plan w/ 42, 86, 44 & 85
96	Identification of Habitats Relevent to Injured Species	TBN	0. 600,000	Yes; modified form, provide budget
		Category Total:$		

LITIGATION SENSITIVE
ATTORNEY WORK PRODUCT
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Proposed 1992 Restoration Workplan

Project)	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan	
ubtidal					
4	Monitoring the Fate and Persistence of Oil in NPS	NPS	165000.	Will increase (Sandy) Yes; modified to ~~reduce~~ expand scope	move to ← Coastal Habitat.
32	~~Injury and~~ Natural Recovery of Deep Benthic Macrofaunal Communities in PWS	~~AK Fish/Game~~ ADF&G	170000.	Yes; modified;reduce scope	mat * R101
51	Natural Restoration of Shallow Subtidal Communities in PWS	ADF&G	270000.	Yes; modified;reduce ~~focus~~ scope	mat * R101
52	Development of a Restoration Plan for Rockfish	ADF&G	225000.	Yes; modified	
55	Spot Shrimp Restoration	ADF&G ~~AK Fish/Game~~	~~60000.~~	~~Yes~~ No	move to deferred mat
74	Recovery Monitoring of Contaminated Resources	NOAA	480000.	Yes	* R101
75	Natural Recovery of Subtidal Species in PWS	NOAA	230000.	Yes; modified;include portion of R77	* R101
77	Monitoring Recovery of Intertidal/Nearshore Subtidal specis in PWS	NOAA	300000.	Yes; combine subtidal components with R75.	* R101
78	Mussel Tissue/Sediment Hydrocarbon Data Synthesis	NOAA	100000.	Yes; modified	withdrawn move to deffered
83	Monitoring Microbial Populations in Marine Sediment as Indicators	ADEC	55000.	Yes; modified to reduce scope	* R101
		Category Total:$			

* - these projects all include same comment about meeting in January.

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Mussel Beds				
76	Recovery Monitoring of Intertidal Oiled Mussel	NOAA	500000.	Yes; modified
81	Hydrocarbon Analyses of Mussels and Substrates/ Sediments Collected from PWS	NOAA	0.	~~Yes; Provide budget~~ No: Report Only (move this to deferred)
		Category Total:$		

Coastal Hab.

delete this one - its a progress report.

Proposed 1992 Restoration Workplan

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Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Boat Survey				
13	Surveys to Monitor Marine Bird and Sea Otter Populations in area of EVOS	USFWS	~~303000.~~ 275,000	Yes
		Category Total:$		

LITIGATION SENSITIVE
ATTORNEY WORK PRODUCT
ATTORNEY-CLIENT PRIVILEGE

Where is Terrestrial Mammal sheet?

roposed 1992 Restoration Workplan

ject	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
taBase Management				
92	GIS Gis Mapping and Analysis	ADNR	~~100000.~~ 50000	Yes
93	GIS Gis Mapping and Analysis	USFWS	200000.	Yes

Category Total:$

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Archeology				
2	Archaeological ~~Cultural~~ Resource Protection	USDI DNR ~~USFS~~ USDA	480000.	Yes; modified;(monitoring components)
		Category Total:$		

* figure will change dramatically - suggest we put in "to be filled in"

RESTORATION

	RECOVERY MONITORING				
R6	Population Monitoring Component-Sea Otter (Combine MM7, MM8, MM9)	USFWS	$606,000		
R11	Monitoring Rate of Recovery/Continuing Changes of Murre Numbers/Productivity	USFWS	590,000		
R13	Boat Surveys to Determine Distribution and Abundance of Migratory Birds	USFWS	275,000		
R90	Anadromous Sport fish Status and Evaluation/ Dolly Varden (Combine R44 & R85)	ADF&G	227,000		
R95	River Otter Restoration Study	ADF&G	65,000		
R101	Subtidal 101 (Combine R32, 51, 74, 75, 77, 83)	ADF&G/ADEC/NOAA	900,000		Maximum
R102	Coastal Habitat 102 (Combine R4, 65, 67, 79, 84)	USFS/EPA/NOAA	700,000		Maximum
R103	?????	???	?		
			Category Subtotal	$3,363,000	
	TECHNICAL SUPPORT				
R92	GIS Mapping & Analysis	USFWS/ADNR	$250,000		
			Category Subtotal	$250,000	
	RESTORATION IMPLEMENTATION				
	Management Actions				
R53	Kenai River Sockeye Salmon Restoration	ADF&G	$590,000		Policy Decision Needed
R58	Herring Restoration & Monitoring	ADF&G	520,000		Synthesis Meeting
R59	Assessment of Genetic Stock Structure of Salmonids	ADF&G	250,000		Policy Decision Needed
R73	Harbor Seal Restoration Study	ADF&G	204,000		
R104	Archaeological Resource Protection	DOI/DOA/ADNR	335,000		
R106	Anadromous Sport Fish Status & Evaluation/ Technical Support Study for the Restoration of Dolly Varden/Cutthroat Trout (Combine R44, 85)	USFS/ADG&G	250,000		Maximum
			Category Subtotal	$2,149,000	
	Manipulation Enhancement				
R105	W. PWS Restoration Survey & Project Planning/ Survey/Evaluation of Instream Habitat & Stock Restoration Techniques (Comine R42 & R86)	USFS/ADG&G	$400,000		Maximun
			Category Subtotal	$400,000	
	Habitat Acquisition/Protection				
			$0		
			Category Subtotal	$0	
	Unclassified				
R12	Aging of Alcid Carcasses from the EVOS: Obtaining Demographic Information	USFWS	$100,000		Policy Decision Needed
R20	Bald Eagle Restoration Project	USFWS	225,000		
R45	Montague Island Chum Salmon Restoration	USFS	26,000		
R47	Stream Habitat Assessment	ADF&G	368,000		
R52	Development of a Restoration Plan for Rockfish	ADF&G	175,000		Policy Decision Needed
R55	Spot Shrimp Restoration	ADF&G	60,000		Policy Decision Needed
R60	Stock Identification/Population Monitoring	ADF&G	180,000		Part C Approved
R63	Evaluation of Wild-Hatchery Salmon Stock	ADF&G	600,000		Forage Fish Workshop
R71	Harlequin Duck Restoration & Monitoring	ADF&G	455,000		
R76	Monitoring of Intertidal Oiled Areas	NOAA	500,000		Incorporate oiled mussel portions of harlequin ducks & sea otters
R96	Identification of Habitats Relevent to Injured Species	MULTI-AGENCY	600,000		
			Category Subtotal	$3,189,000	
			RESTORATION TOTAL	$9,551,000	

? Funding not yet determined

DAMAGE ASSESSMENT

		CONTINUATION			
ST4	Fate and Toxicity of EVOS Oil	NOAA	$160,000		
ST5	Injury to Shrimp	ADF&G	60,000		
ST8	Mussel Tissue and Sediment Hydrocarbon Data Synthesis	NOAA/NMFS	180,000		
			Category Subtotal	$400,000	
TM3	Assessment of the Effects of the EVOS on River Otter and Mink in PWS	ADF&G	$183,700		
			Category Subtotal	$183,700	
FS27	Sockeye Salmon Overescapement	ADF&G	490,000		Policy Decision Needed
FS28	Run Reconstruction	ADF&G	440,000		Policy Decision Needed
FS30	Database Management	ADF&G	178,700		Policy Decision Needed
			Category Subtotal	$1,108,700	
			CONTINUATION TOTAL	$1,692,400	
		CLOSEOUT			
ST1A	Petroleum Hydrocarbon-induced Injury to Subtidal Marine Sediment Resources	NOAA/NMFS	$100,300		
ST1B	Hydrocarbon Mineralization Potentials and Microbial Populations in Sediment	ADEC	16,000		
ST2A	Injury to Shallow Benthic Communities	ADF&G	125,000		
ST2B	Deep Water Benthos		80,000		
ST3A	Bioavailability and Transport of Hydrocarbons in the Near Shore Water Column	NOAA	29,300		
ST3B	Bioavailability and Transport of Hydrocarbons in the Near Shore Water Column	ADEC	46,700		
ST6	Injury to Rockfish	ADF&G	15,000		
ST7	Injury to Demersal fishes	NMFS	66,000		
			Category Subtotal	$478,300	
CH1A	Comprehensive Assessment of Coastal Habitat	USFS	$2,950,000		
CH1B	Pre-spill and Post-spill Concentrations of Hydrocarbons in Mussels in PWS	NOAA	40,000		
			Category Subtotal	$2,990,000	
MM1	Effects of EVOS on Distribution and Abundance of Humpback Whales in PWS	NOAA/NMFS/NMML	$15,000		
MM2	Assessment of Injuries to Killer Whales in PWS, Kodiak Archipeligo, Southeast Alaska	NOAA/NMFS/NMML	35,000		
MM5	Assessment of Injury to Harbor Seals	ADF&G/NOAA	?		
MM6	Assessment of Magnitude/Extent/Duration of Oil Impacts to Sea Otters	USFWS	?		
			Category Subtotal	$50,000	
ARCH1	Archaeological Survey	ADNR/USFS	$47,000		
			Category Subtotal	$47,000	
FS1	Salmon Spawning Area Injury	ADF&G	$50,000		
FS2	Egg/Pre-emergent Fry Sampling	ADF&G	30,000		
FS3	Coded-wire Tag Recovery and Analysis	ADF&G	90,000		
FS4A	Early Marine Salmon Injury	ADF&G	136,400		
FS4B	Effects of Oil Contamination on Juvenile Pink Salmon in PWS	NOAA/NMFS	120,000		
FS5	Dolly Varden Injury	ADF&G	18,000		
FS11	Herring Injury	ADF&G	266,300		
FS13	Clam Injury	ADF&G	77,000		
			Category Subtotal	$787,700	
B2	Boat Surveys to Determine Distribution and Abundance of Migratory Birds	USFWS	$60,000		
			Category Subtotal	$60,000	
			CLOSEOUT TOTAL	$4,413,000	
			DAMAGE ASSESSMENT TOTAL	$6,105,400	

* Requires Policy Statement from Trustee's Council
? Funding not yet determined

Resource Category: Subtidal

Study Number: ST5 **Closeout** _____ **Continuation** __X__

Study Title: Injury to Shrimp

Sponsoring Agency: ADF&G

Consequential Injury? Yes

Continuing? Yes, hydrocarbon contamination at depths of 100m. Gill lesions up to 90% at oiled sites. Slow growth and reduced recruitment (fewer proportion of females, and females with eggs). Relative abundance lower in oiled areas.

Recovery Occurring? Not apparent at oiled sampling stations. Requires analysis of Nov. '91 samples to confirm.

Identifiable restoration endpoint?

(See Agency Recommendations)

Management activities to prohibit harvest of depressed populations or stocking to restore extinct populations.

Recommendation:

Should a final report be prepared?

Yes__X__ ~~After analyses of Nov. '91 samples; if no injury,~~ Due August 1992 if no ~~damage~~ injury shown; February 1993 if injury produce final report

Yes, in modified form_____

Maybe_____

No____

Comments: Request detailed study ~~proposal~~ plan
Gill lesion controls not analyzed yet
Produce final report under NRDA by February 1993.
Would like plankton surveys from FS/19 (not funded)
Continued fall 1992 survey contingent upon finding continued injury in Fall '91 samples.

Budget: $60,000

(if no - - -

Resource Category: Subtidal

Study Number: ST5 closeout ___ continuation ✓

Study Title: Injury to Shrimp

Sponsoring Agency: ADF&G

Consequential Injury? Yes

Continuing? Yes, hydrocarbon contamination at depths of 100m. Gill lesions up to 90% at oiled sites. Slow growth and reduced recruitment (fewer proportion of females, and females with eggs) ~~(JNS)~~. Relative abundance lower in oiled areas.

Recovery Occurring? Not apparent at oiled sampling stations. Requires analysis of Nov. '91 samples to confirm.

Identifiable restoration endpoint?

Management activities to prohibit harvest of depressed populations or stocking to restore extinct populations. (~~JNS~~)

Aug. 1992 if no damage

Recommendation: Final report Yes X due ~~March~~ Feb 1993 ~~[illegible]~~ if injury fund.

Should a detailed study plan be prepared?

Yes__X__ After analyses of Nov '91 samples; if no injury, produce final report

Yes, in modified form_____

Maybe_____

No_____

Comments: Gill lesion controls not analyzed yet
Produce final report under NRDA by February 1993. (~~JNS~~)
Would like plankton surveys from FS/19 (not funded)
Continued fall 1992 survey contingent upon finding continued injury in Fall '91 samples*. (~~JNS~~)

*~~I was mistaken~~ as to when the next survey should ~~logically~~ occur. It should be in ~~Fall 1992, not spring. Nevertheless, a~~ final report ~~should~~ be available by the end of OY4, February 1993. ~~(JNS)~~

If no injury $20,000 for final report.

Budget $0,000

Resource Category: Subtidal

Study Number: ST8 **Closeout** _____ **Continuation** __X___

Study Title: Mussel Tissue and Sediment Hydrocarbon Data Synthesis

Sponsoring Agency: NOAA

Consequential Injury? Yes, HC contamination occurred.

Continuing? Yes.

Recovery Occurring? Yes.

Identifiable restoration endpoint?

(See Agency Recommendations)

Synthesis effort required to consolidate NRDA hydrocarbon data from all projects that collected sediment and mussels.

Recommendation:

Should a final report be prepared?

Yes__X___, date to be determined

Yes, in modified form_____

Maybe_____

No____

Comments: Ultimately will provide a GIS product-showing spatial distribution and persistence_____??? ~~of persistence~~ of hydrocarbon analysis.
Synthesis of hydrocarbon data needed to closeout a variety of projects.
R78 was withdrawn and combined with this.
Detailed study plan requested for 1992.
This project was originally a portion of ST1.

Budget: $180,000

Resource Category: Subtidal

Study Number: ST8 — continuation ✓ ~~Initiation~~

Study Title: Mussel Tissue and Sediment Hydrocarbon Data Synthesis

Sponsoring Agency: NOAA

Consequential Injury? Yes, HC contamination occurred. ~~(BM)~~

Continuing? Yes. ~~(BM)~~

Recovery Occurring? Yes. ~~(BM)~~

Identifiable restoration endpoint?

N/A ~~(BM)~~ Synthesis effort required to consolidate NRDA HC data from all projects that collected sediment and mussels.

Recommendation: Final report

Should a ~~detailed study~~ plan be prepared?

Yes X, date to be determined

Yes, in modified form_____

Maybe_____

No_____

Comments: ~~$90k may not be sufficient.~~ ~~(BM)~~

Synthesis of hydrocar Ultimately will provide a GIS product - Spatial distr & persistence of hydrocarbon analyses.

Synthesis of hydrocarbon data needed to closeout a variety of projects.

R78 was withdrawn and combined with this.

Detailed study plan requested for 1992

This project was originally a portion of ST1.

Budget 180,000

Resource Category: Subtidal

Study Number: ST1A Closeout ✓ continuation ___

Study Title: Injury to Subtidal Marine Sediments

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes, oil found in subtidal sediments down to 20m in most cases, 100m in some areas

Recovery Occurring? Yes, concentrations have diminished in many areas

Identifiable restoration endpoint?

Add to All Forms → (See ~~Nowlin Sheet,~~ Agency recommendation p.2.)

This information will give a point of reference for restoration monitoring of the recovery of subtidal sediments over time in the geographical region affected by the oil spill. ~~(CR)~~

Recommendation:

Should a final report be prepared?

Yes__X__ Due February 1993.

Yes, in modified form_____

Maybe_____

No____

Comments: 1555 samples need analysis
Perhaps 700 could be screened by UVFluorescense

Budget: 100,300.00

Resource Category: Subtidal

Study Number: ST1B closeout ✓ continuation ___

Study Title: Microbial Activity

Sponsoring Agency: ADEC

Consequential Injury? Yes

Continuing? Yes, hydrocarbon oxidizers extend to depths of 100m+ in 1991

Recovery Occurring? Slowly to moderately. Mobilization of HC to deeper sediments has occurred.

Identifiable restoration endpoint?

(See ~~Nowlin sheet, p.1~~ Agency recommendation) ~~(CR)~~

Th~~is~~ese data will ~~be an~~ provide important baseline for comparison for recovery of sediments in restoration monitoring studies. ~~(CR)~~

Recommendation:

Should a final report be prepared?

Yes__X__ Due June 1992.

Yes, in modified form_____

Maybe_____

No____

Comments:

Budget 16,000

Resource Category: Subtidal

Study Number: ST2A closeout ✓ continuation ___

Study Title: Injury to Shallow Subtidal Benthic Communities ~~(MAF)~~

Sponsoring Agency: ADF&G ~~(BM)~~

Consequential Injury?

Continuing? Yes, changes in faunal composition between oiled and control sites, particularly amphipods depressed at oiled sites in both abundance and biomass. Eelgrass flowering inhibited.

Recovery Occurring? Uncertain, 1991 data needs to be analyzed.

Identifiable restoration endpoint?

Monitoring of fate and effects of oil that has been transported into the subtidal zone. ~~(MAF)~~

Determine potential routes of transfer of hydrocarbons within the subtidal system. ~~(MAF)~~

Recommendation:

Should a final report be prepared?

Yes__X__ Due February 1993.

Yes, in modified form_____

Maybe_____

No_____

Comments:

Contracted to UAF

Budget 125,000

Resource Category: Subtidal

Study Number: ST2B closeout ✓ continuation ___

Study Title: Injury to Deep Water Subtidal Benthic Communities ~~(MAF)~~

Sponsoring Agency: ADF&G ~~(BM)~~

Consequential Injury?

Continuing? Yes, significantly higher abundances of opportunistic species at oiled sites in 1990 and 1991.

Recovery Occurring? Yes, at most sites; not at Snug Harbor and Herring Bay.

Identifiable restoration endpoint?

See Agency recommendation

Monitoring of fate and effects of oil that has been transported into the subtidal zone. ~~(MAF)~~

Determine potential routes of transfer of hydrocarbons within the subtidal system. ~~(MAF)~~

Recommendation:

Should a final report be prepared?

Yes__X__ Due February 1993.

Yes, in modified form_____

Maybe_____

No____

Comments: Need to complete analysis of 1991 data

Contracted to UAF

Budget 80,000

Resource Category: Subtidal

Study Number: ST3A closeout ✓ continuation ____

Study Title: Bioavailability and Transport of Hydrocarbons

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? No, in water column except in local areas. Almost no hydrocarbons found in caged mussels in 1990.

Recovery Occurring? Yes, has occurred.

Identifiable restoration endpoint?

~~N/A~~ ~~Byron will provide this~~ Documents recovery of hydrocarbon contamination in water column.

Recommendation:

Should a final report be prepared?

Yes__X__ Due November 1992

Yes, in modified form_____

Maybe_____

No_____

Comments:

Budget 29300

Resource Category: Subtidal

Study Number: ST4 ~~Cont~~ Closeout ___ Continuation ✓

Study Title: Fate and Toxicity of Spilled Oil

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes, toxicity may have shifted from 0m to 6m depths, possibly deeper.

Recovery Occurring? Yes, at most shallower depths; no at deeper levels

Identifiable restoration endpoint?

These data and analysis will provide essential context for the interpretation of initial injury and subsequent recovery from the spill. ~~(CR)~~

Recommendation:

Should a ~~detailed study plan be prepared~~ final report be prepared? ~~(BM)~~

Yes X ~~Interim report due~~ tentative Final report expected in Feb 1993

Yes, in modified form ~~X~~

Maybe_____

No____

Comments: ~~Final year~~
Prepare DSP on bioassay work and mass balance budget for oil
Encourage P.I. to focus on key sites in common with other subtidal studies (coordination required)
Request P.I. coordinate subtidal studies

~~Modified~~ detailed study plan required with modification to coordinate with other studies.

Budget . 160,000

Resource Category: Subtidal

Study Number: ST6 closeout ✓ continuation ___

Study Title: Injury to Rockfish

Sponsoring Agency: ADF&G

Consequential Injury? Yes, liver, spleen and kidney histopathology consistent with exposure to hydrocarbons; mortalities of adults in early oil spill. Increased fishing mortality due to switch from salmon. ~~(JNS)~~

Continuing? Yes, lesions continued in 1990.

Recovery Occurring? Unknown, 1990 bile data not reviewed yet.

Identifiable restoration endpoint? Management harvest restrictions. ~~(JNS)~~

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity. ~~(DWH)~~

Recommendation:

Should a final report be prepared?

Yes__X__ Due June 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: Need MFO analysis
Need hydrocarbon analysis of stomach contents, tissues (?)
Histopath analysis of 1991 fish
Review 1990 bile data ~~for~~.

Budget $15,000

Resource Category: Subtidal

Study Number: ST7 closeout ✓

Study Title: Injury to Demersal Fish

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes, indicators of exposure continued in 1991.

Recovery Occurring? Yes, evidence of exposure has decreased in area and strength.

Identifiable restoration endpoint?

See Agency

Final data analysis critical for determination of rate of natural recovery and whether restoration efforts are necessary. ~~(CR)~~

Recommendation:

Should a final report be prepared?

Yes__X__ Due August 1992.

Yes, in modified form_____

Maybe_____

No____

Comments:

Budget 66,000

Resource Category: Coastal Habitat

Study Number: Coastal Habitat 1 Closeout ✓ Continuation —

Study Title: Comprehensive Assessment of Coastal Habitats

Sponsoring Agency: USFS

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Yes, in lower intertidal; limited recovery in upper intertidal in many areas through 1991 ~~(BM)~~

See Agency

Identifiable restoration endpoint?

Final Report will provide information on injury that is necessary to identify restoration opportunities. Natural recovery monitoring proposed under R65.

(Please add more info)

Recommendation:

Should a final report be prepared?

Yes_____

Yes, in modified form XX Interim Report October 1, 1992 to include data for 1989, 1990R1, 1991, for SR, SE, CTx.*

Maybe_____ Final report June 1993

No____

Comments: Final report June 1993
Require interim report on October 1, 1992
Must include proper statistical analysis
~~Funding through Dec, 1992~~
There is virtually no way of further reducing scope.
~~(BM)~~ No Field work

* SR = Sheltered Rocky
SE = Sheltered Estuarine
CTx = Coarse Textured

~~USFS has reduced this from 3 mil~~

Budget ~~2,473,000~~
Total cost to complete Final rept is 2,950,000

Resource Category: Coastal Habitat

Study Number: Coastal Habitat 1B Closeout ✓

Study Title: Pre-spill and post-spill concentration of hydrocarbons in sediments and mussels in PWS and KP

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Yes, reduction in sediment contamination post-spill in 1990 and 1991

Identifiable restoration endpoint?

~~N/A~~ Monitoring of natural rec.

Recommendation:

Should a final report be prepared?

Yes__X__, February, 1993 ~~(BM)~~

Yes, in modified form_____

Maybe_____

No____

Comments:

Would like the Final report sooner if possible ~~because~~ to assist in planning and

Budget 40,000

Resource Category: Archaeology

Study Number: ARCH1 Closeout ✓

Study Title: Archaeological Survey

Sponsoring Agency: USFS/ADNR

Consequential Injury?

Continuing? Yes

Recovery Occurring? ~~Maybe~~ ~~N/A~~ Unknown

Identifiable restoration endpoint?

Protection and preservation of archaeological resources. (MF)

~~Public education and interpretation of cultural history of Prince William Sound. [Disagree, inappropriate, delete. (CR)]~~

Recommendation:

Should a final report be prepared?

Yes__X___ Due June 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: C14 Contamination study completed. Oil does influence radiocarbon data. Monitoring of injured sites to check heightened levels of spill related injury through time is proposed under NRDA study
~~Final report June '92~~
Propose monitoring effort under Restoration
Budget $47k = $27k - DNR
$20k - USFS

Resource Category: Terrestrial Mammals

Study Number: TM3 **Closeout** _____ **Continuation** __X__

Study Title: Assessment of the effects of the EVOS on river otters in Prince William Sound.

Sponsoring Agency: ADF&G

Consequential Injury? Yes, body weight depressed.

Continuing? Yes, weight depression through 1990, 1991 data not analyzed. Blood chemistry levels elevated in oiled areas. Through 1991, indicates chronic stress or trauma. Diversity of diet reduced in 1990.

Recovery Occurring? Uncertain, chronic effects remaining in 1991. (See comments)

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitor recovery of river otter population, including habitat use and food habits.

Recommendation:

Should a detailed study plan and final report be prepared?

Yes__X__ Final Report in Dec '92

Yes, in modified form_____

Maybe_____

No____

Comments: Species of prey in diet of otters in oiled area greatly reduced.
Significant increase in latrine site abandonments in oiled areas.
Need to analyze 1991 field data.
Size of home range of otters in oiled area twice that of otters in control area.

Budget: $183,700

Resource Category: Terrestrial Mammals

Study Number: TM4

Study Title: Brown Bears

Sponsoring Agency: ADF&G

Consequential Injury? Uncertain, some HC evidence in feces.

Continuing? Uncertain, one dead yearling with HC exposure and high bile doses.

Recovery Occurring? Unknown.

Identifiable restoration endpoint?

N/A

Recommendation:

Should a final report be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No__X__ Final Report is completed

Comments: Were not able to get density estimates.
Survival 93 - 95% among radio collared females.
Hydrocarbon exposure in bile.

Resource Category: Terrestrial Mammals

Study Number: TM3 closeout ___ continuation ✓

Study Title: Assessment of the effects of the EVOS on river otters in Prince William Sound. (MAF)

Sponsoring Agency: ADF&G

Consequential Injury? Yes, body weight depressed.

Continuing? Yes, weight depression through 1990, 1991 data not analyzed. Blood chemistry levels elevated in oiled areas. Through 1991, indicates chronic stress or trauma. Diversity of diet reduced in 1990.

Recovery Occurring? Uncertain, chronic effects remaining in 1991. (See comments)

Identifiable restoration endpoint?

Monitor recovery of river otter population, including habitat use and food habits. ~~Determine whether there has been a loss of genetic diversity within the population of oiled otters. (MAF)~~

Recommendation:

Should a ~~detailed study plan and~~ final report be prepared?

Yes__X___ Final Report in Dec '92

Yes, in modified form_____

Maybe_____

No____

Request a detailed study plan

Comments: Species of prey in diet of otters in oiled area greatly reduced.
Significant increase in latrine site abandonments in oiled areas.
Need to analyze 1991 field data.
Size of home range of otters in oiled area twice that of otters in control area. ~~(MAF)~~

Require → linkage oiled mussels study ~~regarded~~

Budget $183,700.00

Resource Category: Marine Mammal

Study Number: MM1 Closeout ✓

Study Title: Injury to Humpback Whales

Sponsoring Agency: NOAA

Consequential Injury? No

Continuing? No

Recovery Occurring? N/A

Identifiable restoration endpoint?

~~None identified. (CR)~~

Documentation of recovery

Recommendation:

Should a final report be prepared?

Yes__X___ Due June 1992.

Yes, in modified form_____

Maybe_____

No____

Comments:

Bu ooo

Resource Category: Marine Mammals

Study Number: MM2

Study Title: Injury to Killer Whales

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

~~None identified. (CR)~~ Minimize human disturbance, Identification of critical habitat

~~Documentation of recovery~~

Recommendation:

Should a final report be prepared?

Yes__X___ May 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: Social structure of AB is breaking down.
Over 3 years, encounters with KW have noticeably decreased (may be associated with prey)
Look at Photo id's for chronology of bullet wounds
Examine cost, reduce

Budget 35,000

Resource Category: Marine Mammals

Study Number: MM5 close out ✓

Study Title: Assessment of Injury to Harbor Seals

Sponsoring Agency: ADFG/NOAA

Consequential Injury? Yes, acute mortality after spill due to exposure to volatile fractures.

Continuing? Low level exposure.

Recovery Occurring? Yes, exposure levels have been significantly reduced in post-spill years. No continued sign of external oiling. Molting haulout usage improving.

Identifiable restoration endpoint?

Habitat protection, resource protection and management. Monitoring of natural recovery. ~~(MAF)~~

Recommendation:

Should a final report be prepared?

Yes__X___ February 1992.

Yes, in modified form_____

Maybe_____

No____

Comments:

Budget

Resource Category: Fish/Shellfish

Study Number: FS1 closeout ✓

Study Title: Injury to Salmon Spawning in PWS and Adult Escapement Enumeration

Sponsoring Agency: ADF&G

Consequential Injury? Yes, egg mortalities are higher and increasing in oiled areas (40-50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects; juveniles reduced growth. 1991 egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams. Sterility in unoiled streams would be considerably less but difficult to determine without the DNA breakage study because of normal background egg mortality. ~~(JRS)~~

Continuing? Yes, greater egg mortality in oiled streams continued in 1991

Recovery Occurring? No, 1991 egg mortality is of a magnitude usually accompanied by high fry mortalities in hatcheries. This is higher than in 1989 or 1990.

Identifiable restoration endpoint?

Monitor recovery, including results of restoration actions. ~~(KWR)~~

Recommendation:

Should a final report be prepared?

Yes__X___ June 1992

Yes, in modified form_____

Maybe_____

No____

Comments: Additional work may continue under R60(A) ~~(PTS)~~

Budget 50,000

Resource Category: Fish/Shellfish

Study Number: FS2 closeout ✓

Study Title: Injury to Salmon Eggs and Pre-emergent Fry in PWS

Sponsoring Agency: ADF&G

Consequential Injury? Yes, egg mortalities are higher and increasing in oiled areas (40-50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects juvenile reduced growth. 1991 egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams. Sterility in unoiled streams would be consdierable less but difficult to determine without the DNA breakage study because of normal background egg mortality. ~~(JRS)~~

Continuing? Yes, greater egg mortality in oiled streams continued in 1991

Recovery Occurring? No, 1991 egg mortality is of a magnitude usually accompanied by high fry mortalities in hatcheries. This is higher than in 1989 or 1990. ~~Fry dig in 1992 is critical.~~

Identifiable restoration endpoint?
(See Agency recommendation)
Monitor recovery, including results of restoration action. ~~(DWH)~~

Recommendation:

Should a final report be prepared?

Yes__X___ November 1992

Yes, in modified form_____

Maybe_____

No____

Comments:

Budget 30,000

Resource Category: Fish/Shellfish

Study Number: FS4A closeout ✓

Study Title: Early Marine Salmon Injury

Sponsoring Agency: ADF&G

Consequential Injury? This study demonstrates that smaller (slower growing) fry have poorer fry to adult survival. Egg mortalities are higher and increasing in oiled areas (40-50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects; juvenile reduced growth. 1991 egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams. ~~Sterility in unoiled streams would be considerably less but difficult to determine without the DNA breakage study because of normal background egg mortality. (JRS)~~

Continuing?

Recovery Occurring?

Identifiable restoration endpoint?

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity. ~~(DWH)~~

Monitor recovery, including results of restoration actions. ~~(DWH)~~

Recommendation:

Should a final report be prepared?

Yes ___X___ March 1993

Yes, in modified form_____

Maybe_____

No____

Comments: Growth rates in heavily oiled areas significantly less than in lightly oiled.
Needs to complete a number of analyses in 1992.

Budget 136,400

Resource Category: Fish/Shellfish

Study Number: FS4B

Study Title: Effects of Oil Contamination on Juvenile Pink Salmon in PWS

Sponsoring Agency: NOAA

Consequential Injury? Yes, reduced growth in oiled areas. (BM)

Continuing? 1990 level of contamination/exposure greatly reduced (based on beach sediment data)

Recovery Occurring? N/A

Identifiable restoration endpoint?

Monitor recovery. (DWH)

Recommendation:

Should a ~~detailed study plan~~ Final report **be prepared?**

Yes X November 1992

Yes, in modified form ~~X~~

Maybe_____

No____

Comments: ~~Laboratory study to verify 1989 and 1990 results~~
Complete Final Report of 89-91 work
DSP should address reviewers concerns of being able to link laboratory exposure levels to those encountered or expected infield in 1989 or 1990
Final Report due by end of OY4 (Nov. 1992)

Proposed Laboratory study may be considered in 1993

Budget 120,000

Resource Category: Fish/Shellfish

Study Number: FS5 closeout ✓

Study Title: Dolly Varden and Cutthroat Trout

Sponsoring Agency: ADFG

Consequential Injury?

	Mortality	Growth
Cutthroat	65% greater in oiled	71% slower in oiled
Dolly Varden	12% greater in oiled	

Continuing? Yes, continued differences in survival (DV and CT) and growth (CT - up to 68% slower)

Recovery Occurring? Yes, no effect on DV growth in 1990-91

Identifiable restoration endpoint?

Redirect sport harvest to alternative streams ~~(DWH)~~

Monitor recovery ~~(DWH)~~

Recommendation:

Should a final report be prepared?

Yes__X___ November, 1992

Yes, in modified form_____

Maybe_____

No____

Comments: Need to provide NRDA proposal for Final Report and new proposal for Restoration

Budget 18,000

Resource Category: Fish/Shellfish

Study Number: F/S11 closeout ✓ ~~continuation~~

Study Title: Injury to Prince William Sound Herring

Sponsoring Agency: ADF&G

Consequential Injury? Very high (GT 50%) chromosomal abnormalities in 1989, higher incidence of tumors and other teratogen effects. Higher egg and fry mortalities. Population level impacts will not be observed before 1992.

In 1989, adult herring which spawned in oiled and unoiled areas had to enter and leave through oil. Thus effects seen in eggs and larvae could have been due to oil impacting adults prior to spawning or direct effects of oil on the eggs and larvae. Thus mortalities, abnormalities etc. were greater in oiled areas in 1989 and 1990, but declined between 1989 and 1990 in both oiled and unoiled areas. In 1992, the 1989 year class will first enter the fishery and population level effects will not be determinable until then.

Continuing? Yes, sublethal impacts having effects on egg production, embryonic development, hatchery success, larvae inability, larvae growth.

Recovery Occurring? Yes, lethal effects over. Sterilizing effects seen in salmon may also occur in 1992 in herring from BY 89, but this is only speculation at this point.

Identifiable restoration endpoint?

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity. ~~(DWH)~~

Monitor recovery, including results of restoration actions ~~(DWH)~~

Recommendation:

Should a ~~detailed study plan~~ final report be prepared?

Yes__X___ February, 1993

Yes, in modified form_____

Maybe_____

No____

(Budget $54,000) ~~Other comments~~

Comments: Detailed study plan requested
~~Final report February 1993.~~
Some overlap with restoration proposal; needs to be corrected (duplicate costs need to be identified).
Address status and prognosis of modeling effort ~~in DSP~~
Wrap up sub lethal

Budget: 266,300 ~~566,000~~

Request modified detailed study plan to cover:
Wrap up sub lethal work
continue spawn migration
Monitor adults

Comments: Wrap-up sub lethal work

Budget: 266,300

Resource Category: Fish/Shellfish

Study Number: F/S 13 closeout ✓

Study Title: Clam Injury

Sponsoring Agency: ADF&G

Consequential Injury? Yes, this study documents reduced growth. Many populations were destroyed by cleanup techniques. (~~CORD~~)

Continuing? Unknown, possibly manifested in reduced growth rates

Recovery Occurring? Unknown, possibly.

Identifiable restoration endpoint?

Monitor recovery. (~~DWH~~)

~~Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity. (DWH)~~

Recommendation:

Should a final report be prepared?

Yes__X___ December, 1992

Yes, in modified form_____

Maybe_____

No____

Comments: Some effort suitable to check/determine growth rates of clams from oiled areas vs. unoiled areas -
Suggestion made previously to assess recruitment impacts
Require interim report in Sept '92 which will be distributed to peer reviewers. (~~CORD~~)

Budget: 77,000

Resource Category: Fish/Shellfish

Study Number: FS16

Study Title: Injury to Oysters

Sponsoring Agency: NOAA/ADF&G

Consequential Injury? Yes

Continuing? Uncertain

Recovery Occurring? Uncertain

Identifiable restoration endpoint?

Monitor recovery. (DWH)

Recommendation:

Should a final report be prepared?

Yes____ Pending legal advice. (BM)

Yes, in modified form_____

Maybe_____ (BM)

No X

Comments: ~~Need legal advice on Final~~ Report

Withdrawn

Resource Category: Fish/Shellfish

Study Number: F/S27 continuation ✓

Study Title: Sockeye Salmon Overescapement

Sponsoring Agency: ADF&G

Consequential Injury?

Yes, less than minimal number of smolts escaped to meet adult spawning escapement goal later. In order to protect spawning escapement and assist recovery of these stocks, complete closure of the commercial and sport fisheries will be necessary in 1994, will probably be necessary in 1993, and may be necessary in 1995 (the 1992 field season would help determine this). Each year that this happens, loss to the fisheries could minimally exceed $200 million.

Continuing?

Yes, smolt production drastically reduced. Will not support historical returns of adult spawners.

Recovery Occurring? No.

Identifiable restoration endpoint?

Continued damage assessment in OY4.

Monitor recovery, including results of restoration actions ~~(DWH)~~

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity ~~(DWH)~~

Recommendation:

Should a ~~detailed~~ ~~study plan~~ Final Report **be prepared?**

Yes____

Yes, in modified form___✓___

Maybe_____

No____

Comments: ~~Investigate expanding~~ Request detailed study plan, modified to include other Cook Inlet streams.
Policy question

Budget 470,000

Resource Category: Fish/Shellfish

Study Number: F/S28 continuation ✓

Study Title: Run Reconstruction

Sponsoring Agency: ADF&G

Consequential Injury?

Injury to eggs, fry and juvenile has been documented. This study combine these and requires information on fishing mortality and adult movements to complete determination of injuries to pink and other salmon.

Continuing? Supports injury determination.

Recovery Occurring? ~~N/A~~ unknown

Identifiable restoration endpoint?

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity.

Recommendation:

Should a ~~detailed study plan~~ Final report **be prepared?**

Yes____

Yes, in modified form_____

Maybe_____

No____

Comments: ~~Consider~~ Prepare a modified detailed study plan Delay ~~of~~ modeling until adult movements between districts is estimated. Discuss in detailed study plan. Should include test fishing for adult fish; this will require budget increase.

Policy question

Budget 440,000

Resource Category: Fish/Shellfish

Study Number: F/S30

continuation ✓

Study Title: Database Management

Sponsoring Agency: ADF&G

Consequential Injury? N/A

Continuing? Supports injury determination studies for fish studies.

Recovery Occurring? N/A

Identifiable restoration endpoint?

Study will also support restoration program.

Recommendation:

Should a ~~detailed study pl~~an be prepared? Final Report

Yes ✓

Yes, in modified form_____

Maybe_____

No____

Comments: Prepare detailed study plan for 1992
Determine proportion of effort supports projects other than oil spill.

Cost out accordingly.
Coordinate with R40 (KWR)

Budget 178,700

Resource Category: Terrestrial Mammals

Study Number: TM3 **Closeout** _____ **Continuation** __X___

Study Title: Assessment of the effects of the EVOS on river otters in Prince William Sound.

Sponsoring Agency: ADF&G

Consequential Injury? Yes, body weight depressed.

Continuing? Yes, weight depression through 1990, 1991 data not analyzed. Blood chemistry levels elevated in oiled areas. Through 1991, indicates chronic stress or trauma. Diversity of diet reduced in 1990.

Recovery Occurring? Uncertain, chronic effects remaining in 1991. (See comments)

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitor recovery of river otter population, including habitat use and food habits.

Recommendation:

Should a final report be prepared?

Yes__X___ Final Report in Dec '92

Yes, in modified form_____

Maybe_____

No____

Comments: Request a detailed study plan.
Species of prey in diet of otters in oiled area greatly reduced.
Significant increase in latrine site abandonments in oiled areas.
Need to analyze 1991 field data.
Size of home range of otters in oiled area twice that of otters in control area.
Require linkage to oiled mussels study.

Budget: $183,700

Resource Category: Subtidal

Study Number: ST5 **Closeout** _____ **Continuation** __X__

Study Title: Injury to Shrimp

Sponsoring Agency: ADF&G

Consequential Injury? Yes

Continuing? Yes, hydrocarbon contamination at depths of 100m. Gill lesions up to 90% at oiled sites. Slow growth and reduced recruitment (fewer proportion of females, and females with eggs). Relative abundance lower in oiled areas.

Recovery Occurring? Not apparent at oiled sampling stations. Requires analysis of Nov. '91 samples to confirm.

Identifiable restoration endpoint?

(See Agency Recommendations)

Management activities to prohibit harvest of depressed populations or stocking to restore extinct populations.

Recommendation:

Should a final report be prepared?

Yes__X__ Due August 1992 if no injury shown; February 1993 if injury.

Yes, in modified form_____

Maybe_____

No____

Comments: Request detailed study plan.
Gill lesion controls not analyzed yet
Produce final report under NRDA by February 1993.
Would like plankton surveys from FS/19 (not funded)
Continued fall 1992 survey contingent upon finding continued injury in Fall '91 samples.

Budget: $60,000
(If no injury $20,000 for final report)

Resource Category: Subtidal

Study Number: ST8 **Closeout** _____ **Continuation** __X__

Study Title: Mussel Tissue and Sediment Hydrocarbon Data Synthesis

Sponsoring Agency: NOAA

Consequential Injury? Yes, HC contamination occurred.

Continuing? Yes.

Recovery Occurring? Yes.

Identifiable restoration endpoint?

(See Agency Recommendations)

Synthesis effort required to consolidate NRDA hydrocarbon data from all projects that collected sediment and mussels.

Recommendation:

Should a final report be prepared?

Yes__X__, date to be determined

Yes, in modified form_____

Maybe_____

No_____

Comments: Ultimately will provide a GIS product showing spatial distribution of persistence of hydrocarbon analyses.
Synthesis of hydrocarbon data needed to closeout a variety of projects.
R78 was withdrawn and combined with this.
Detailed study plan requested for 1992.
This project was originally a portion of ST1.

Budget: $180,000

Resource Category: Subtidal

Study Number: ST1A **Closeout** __X__ **Continuation** _____

Study Title: Injury to Subtidal Marine Sediments

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes, oil found in subtidal sediments down to 20m in most cases, 100m in some areas

Recovery Occurring? Yes, concentrations have diminished in many areas

Identifiable restoration endpoint?

(See Agency Recommendations)

This information will give a point of reference for restoration monitoring of the recovery of subtidal sediments over time in the geographical region affected by the oil spill.

Recommendation:

Should a final report be prepared?

Yes__X__ Due February 1993.

Yes, in modified form_____

Maybe_____

No____

Comments: 1555 samples need analysis
Perhaps 700 could be screened by UVFluorescense

Budget: $100,300

Resource Category: Subtidal

Study Number: ST1B **Closeout** __X__ Continuation _____

Study Title: Microbial Activity

Sponsoring Agency: ADEC

Consequential Injury? Yes

Continuing? Yes, hydrocarbon oxidizers extend to depths of 100m+ in 1991

Recovery Occurring? Slowly to moderately. Mobilization of HC to deeper sediments has occurred.

Identifiable restoration endpoint?

(See Agency Recommendations)

These data will provide important baseline for comparison for recovery of sediments in restoration monitoring studies.

Recommendation:

Should a final report be prepared?

Yes__X__ Due June 1992.

Yes, in modified form_____

Maybe_____

No____

Comments:

Budget: $16,000

Resource Category: Subtidal

Study Number: ST2A **Closeout** ___X___ **Continuation** _____

Study Title: Injury to Shallow Subtidal Benthic Communities (MAF)

Sponsoring Agency: ADF&G

Consequential Injury?

Continuing? Yes, changes in faunal composition between oiled and control sites, particularly amphipods depressed at oiled sites in both abundance and biomass. Eelgrass flowering inhibited.

Recovery Occurring? Uncertain, 1991 data needs to be analyzed.

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitoring of fate and effects of oil that has been transported into the subtidal zone.

Determine potential routes of transfer of hydrocarbons within the subtidal system.

Recommendation:

Should a final report be prepared?

Yes__X__ Due February 1993.

Yes, in modified form_____

Maybe_____

No____

Comments:

Contracted to UAF.

Budget: $125,000

Resource Category: Subtidal

Study Number: ST2B **Closeout** __X__ **Continuation** _____

Study Title: Injury to Deep Water Subtidal Benthic Communities

Sponsoring Agency: ADF&G

Consequential Injury?

Continuing? Yes, significantly higher abundances of opportunistic species at oiled sites in 1990 and 1991.

Recovery Occurring? Yes, at most sites; not at Snug Harbor and Herring Bay.

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitoring of fate and effects of oil that has been transported into the subtidal zone.

Determine potential routes of transfer of hydrocarbons within the subtidal system.

Recommendation:

Should a final report be prepared?

Yes__X__ Due February 1993.

Yes, in modified form_____

Maybe_____

No____

Comments: Need to complete analysis of 1991 data.
Contracted to UAF

Budget: $80,000

Resource Category: Subtidal

Study Number: ST3A **Closeout** __X__ **Continuation** _____

Study Title: Bioavailability and Transport of Hydrocarbons

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? No, in water column except in local areas. Almost no hydrocarbons found in caged mussels in 1990.

Recovery Occurring? Yes, has occurred.

Identifiable restoration endpoint?

(See Agency Recommendations)

Documents recovery of hydrocarbon contamination in water column.

Recommendation:

Should a final report be prepared?

Yes__X__ Due November 1992

Yes, in modified form_____

Maybe_____

No_____

Comments:

Budget: $29,300

Resource Category: Subtidal

Study Number: ST3B **Closeout** __X__ **Continuation** _____

Study Title: Transport of Hydrocarbons/Sediment Traps

Sponsoring Agency: ADEC

Consequential Injury? Yes

Continuing? Yes, sediment traps collected oiled sediments through the winter of 1990-1991 adjacent to oiled beaches.

Recovery Occurring? Yes, weathering of hydrocarbon compounds occurring.

Identifiable restoration endpoint?

(See Agency Recommendations)

Recommendation:

Should a final report be prepared?

Yes__X__ Due November 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: Final trap retrieval will occur in March 1992.

Budget: $46,700

Resource Category: Subtidal

Study Number: ST4 **Closeout** _____ **Continuation** __X__

Study Title: Fate and Toxicity of Spilled Oil

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes, toxicity may have shifted from 0m to 6m depths, possibly deeper.

Recovery Occurring? Yes, at most shallower depths; no at deeper levels

Identifiable restoration endpoint?

(See Agency Recommendations)

These data and analysis will provide essential context for the interpretation of initial injury and subsequent recovery from the spill.

Recommendation:

Should a final report be prepared?

Yes_X___ Tentative final report expected in February 1993.

Yes, in modified form_____

Maybe_____

No____

Comments: Prepare DSP on bioassay work and mass balance budget for oil
Encourage P.I. to focus on key sites in common with other subtidal studies (coordination required)
Request P.I. coordinate subtidal studies
Detailed study plan required with modification to coordinate with other studies.

Budget: $160,000

Resource Category: Subtidal

Study Number: ST6 **Closeout** __X__ **Continuation** _____

Study Title: Injury to Rockfish

Sponsoring Agency: ADF&G

Consequential Injury? Yes, liver, spleen and kidney histopathology consistent with exposure to hydrocarbons; mortalities of adults in early oil spill. Increased fishing mortality due to switch from salmon.

Continuing? Yes, lesions continued in 1990.

Recovery Occurring? Unknown.

Identifiable restoration endpoint?

(See Agency Recommendations)

Management harvest restrictions.

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity.

Recommendation:

Should a final report be prepared?

Yes__X__ Due June 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: Need MFO analysis
Need hydrocarbon analysis of stomach contents, tissues (?)
Histopath analysis of 1991 fish
Review 1990 bile data

Budget: $15,000

Resource Category: Subtidal

Study Number: ST7 **Closeout** __X__ **Continuation** _____

Study Title: Injury to Demersal Fish

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes, indicators of exposure continued in 1991.

Recovery Occurring? Yes, evidence of exposure has decreased in area and strength.

Identifiable restoration endpoint?

(See Agency Recommendations)

Final data analysis critical for determination of rate of natural recovery and whether restoration efforts are necessary.

Recommendation:

Should a final report be prepared?

Yes__X__ Due August 1992.

Yes, in modified form_____

Maybe_____

No____

Comments:

Budget: $66,000

Resource Category: Coastal Habitat

Study Number: Coastal Habitat 1 **Closeout** __X_ **Continuation** ____

Study Title: Comprehensive Assessment of Coastal Habitats

Sponsoring Agency: USFS

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Yes, in lower intertidal; limited recovery in upper intertidal in many areas through 1991.

Identifiable restoration endpoint?

(See Agency Recommendations)

Final Report will provide information on injury that is necessary to identify restoration opportunities. Natural recovery monitoring proposed under R65.

Recommendation:

Should a final report be prepared?

Yes_____

Yes, in modified form_XX__ Interim Report October 1, 1992 to include data for 1989, 1990R1, 1991, for SR, SE, CTx.* Final report June 1993.

Maybe_____

No____

Comments: Final report June 1993
Require interim report on October 1, 1992
Must include proper statistical analysis
There is virtually no way of further reducing scope.
No field work.

* SR = Sheltered Rocky
SE = Sheltered Estuarine
CTx = Coarse Textured

Budget: Total cost to complete final report is $2,950,000.

Resource Category: Coastal Habitat

Study Number: Coastal Habitat 1B **Closeout** __X__ **Continuation** _

Study Title: Pre-spill and post-spill concentration of hydrocarbons in sediments and mussels in PWS and KP

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Yes, reduction in sediment contamination post-spill in 1990 and 1991

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitoring of natural recovery.

Recommendation:

Should a final report be prepared?

Yes__X___, February, 1993

Yes, in modified form_____

Maybe_____

No____

Comments: Would like the final report sooner if possible to assist in planning.

Budget: $40,000

Resource Category: Archaeology

Study Number: ARCH1 **Closeout** __X__ **Continuation** _____

Study Title: Archaeological Survey

Sponsoring Agency: USFS/ADNR

Consequential Injury?

Continuing? Yes

Recovery Occurring? Unknown

Identifiable restoration endpoint?

(See Agency Recommendations)

Protection and preservation of archaeological resources.

Recommendation:

Should a final report be prepared?

Yes__X__ Due June 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: C14 Contamination study completed. Oil does influence radiocarbon data. Monitoring of injured sites to check heightened levels of spill related injury through time is proposed under NRDA study
Propose monitoring effort under Restoration

Budget: $47k = $27k - DNR
$20k - USFS

Resource Category: Terrestrial Mammals

Study Number: TM4 **Closeout** _____ **Continuation** _____

Study Title: Brown Bears

Sponsoring Agency: ADF&G

Consequential Injury? Uncertain, some HC evidence in feces.

Continuing? Uncertain, one dead yearling with HC exposure and high bile doses.

Recovery Occurring? Unknown.

Identifiable restoration endpoint?

(See Agency Recommendations)

N/A

Recommendation:

Should a final report be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No__X__ Final Report is completed

Comments: Were not able to get density estimates.
Survival 93 - 95% among radio collared females.
Hydrocarbon exposure in bile.

Budget:

Resource Category: Marine Mammal

Study Number: MM1 **Closeout** __X__ **Continuation** _____

Study Title: Injury to Humpback Whales

Sponsoring Agency: NOAA

Consequential Injury? No

Continuing? No

Recovery Occurring? N/A

Identifiable restoration endpoint?

(See Agency Recommendations)

Documentation of recovery.

Recommendation:

Should a final report be prepared?

Yes__X___ Due June 1992.

Yes, in modified form_____

Maybe_____

No____

Comments:

Budget: $15,000

Resource Category: Marine Mammals

Study Number: MM2 **Closeout** _____ **Continuation** _____

Study Title: Injury to Killer Whales

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

(See Agency Recommendations)

Minimize human disturbance, identification of critical habitat.

Recommendation:

Should a final report be prepared?

Yes__X___ May 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: Social structure of AB is breaking down.
Over 3 years, encounters with KW have noticeably decreased (may be associated with prey)
Look at Photo id's for chronology of bullet wounds
Examine cost, reduce

Budget: $35,000

Resource Category: Marine Mammals

Study Number: MM5 **Closeout** __X__ **Continuation** _____

Study Title: Assessment of Injury to Harbor Seals

Sponsoring Agency: ADFG/NOAA

Consequential Injury? Yes, acute mortality after spill due to exposure to volatile fractures.

Continuing? Low level exposure.

Recovery Occurring? Yes, exposure levels have been significantly reduced in post-spill years. No continued sign of external oiling. Molting haulout usage improving.

Identifiable restoration endpoint?

(See Agency Recommendations)

Habitat protection, resource protection and management. Monitoring of natural recovery.

Recommendation:

Should a final report be prepared?

Yes__X___ February 1992.

Yes, in modified form_____

Maybe_____

No____

Comments:

Budget:

Resource Category: Fish/Shellfish

Study Number: FS1 **Closeout** __X__ **Continuation** _____

Study Title: Injury to Salmon Spawning in PWS and Adult Escapement Enumeration

Sponsoring Agency: ADF&G

Consequential Injury? Yes, egg mortalities are higher and increasing in oiled areas (40-50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects; juveniles reduced growth. 1991 egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams.

Continuing? Yes, greater egg mortality in oiled streams continued in 1991.

Recovery Occurring? No, 1991 egg mortality is of a magnitude usually accompanied by high fry mortalities in hatcheries. this is higher than in 1989 or 1990.

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitor recovery, including results of restoration actions.

Recommendation:

Should a final report be prepared?

Yes__X___ June 1992

Yes, in modified form_____

Maybe_____

No____

Comments: Additional work may continue under R60(A).

Budget: $50,000

Resource Category: Fish/Shellfish

Study Number: FS2 **Closeout** __X__ **Continuation** _____

Study Title: Injury to Salmon Eggs and Pre-emergent Fry in PWS

Sponsoring Agency: ADF&G

Consequential Injury? Yes, egg mortalities are higher and increasing in oiled areas (40-50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects juvenile reduced growth. 1991 egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams.

Continuing? Yes, greater egg mortality in oiled streams continued in 1991

Recovery Occurring? No, 1991 egg mortality is of a magnitude usually accompanied by high fry mortalities in hatcheries. This is higher than in 1989 or 1990.

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitor recovery, including results of restoration action.

Recommendation:

Should a final report be prepared?

Yes__X___ November 1992

Yes, in modified form_____

Maybe_____

No____

Comments:

Budget: $30,000

Resource Category: Fish/Shellfish

Study Number: FS4A **Closeout** __X__ **Continuation** _____

Study Title: Early Marine Salmon Injury

Sponsoring Agency: ADF&G

Consequential Injury? This study demonstrates that smaller (slower growing) fry have poorer fry to adult survival. Egg mortalities are higher and increasing in oiled areas (40-50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects; juvenile reduced growth. 1991 egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams.

Continuing?

Recovery Occurring?

Identifiable restoration endpoint?

(See Agency Recommendations)

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity.

Monitor recovery, including results of restoration actions.

Recommendation:

Should a final report be prepared?

Yes ___X____ March 1993

Yes, in modified form_____

Maybe_____

No____

Comments: Growth rates in heavily oiled areas significantly less than in lightly oiled.
Needs to complete a number of analyses in 1992.

Budget: $136,400

Resource Category: Fish/Shellfish

Study Number: FS4B **Closeout** _____ **Continuation** _____

Study Title: Effects of Oil Contamination on Juvenile Pink Salmon in PWS

Sponsoring Agency: NOAA

Consequential Injury? Yes, reduced growth in oiled areas.

Continuing? 1990 level of contamination/exposure greatly reduced (based on beach sediment data)

Recovery Occurring? N/A

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitor recovery.

Recommendation:

Should a final report be prepared?

Yes_X___, November 1992

Yes, in modified form_____

Maybe_____

No____

Comments: Proposed laboratory study may be considered in 1993.

Budget: $120,000

Resource Category: Fish/Shellfish

Study Number: FS5 **Closeout** __X__ **Continuation** _____

Study Title: Dolly Varden and Cutthroat Trout

Sponsoring Agency: ADF&G

Consequential Injury?

	Mortality	Growth
Cutthroat	65% greater in oiled	71% slower in oiled
Dolly Varden	12% greater in oiled	

Continuing? Yes, continued differences in survival (DV and CT) and growth (CT - up to 68% slower)

Recovery Occurring? Yes, no effect on DV growth in 1990-91

Identifiable restoration endpoint?

(See Agency Recommendations)

Redirect sport harvest to alternative streams

Monitor recovery

Recommendation:

Should a final report be prepared?

Yes__X___ November, 1992

Yes, in modified form_____

Maybe_____

No____

Comments: Need to provide NRDA proposal for Final Report and new proposal for Restoration

Budget: $18,000

Resource Category: Fish/Shellfish

Study Number: F/S11 **Closeout** __X__ **Continuation** _____

Study Title: Injury to Prince William Sound Herring

Sponsoring Agency: ADF&G

Consequential Injury? Very high (GT 50%) chromosomal abnormalities in 1989, higher incidence of tumors and other teratogen effects. Higher egg and fry mortalities. Population level impacts will not be observed before 1992.

In 1989, adult herring which spawned in oiled and unoiled areas had to enter and leave through oil. Thus effects seen in eggs and larvae could have been due to oil impacting adults prior to spawning or direct effects of oil on the eggs and larvae. Thus mortalities, abnormalities etc. were greater in oiled areas in 1989 and 1990, but declined between 1989 and 1990 in both oiled and unoiled areas. In 1992, the 1989 year class will first enter the fishery and population level effects will not be determinable until then.

Continuing? Yes, sublethal impacts having effects on egg production, embryonic development, hatchery success, larvae inability, larvae growth.

Recovery Occurring? Yes, lethal effects over. Sterilizing effects seen in salmon may also occur in 1992 in herring from BY 89, but this is only speculation at this point.

Identifiable restoration endpoint?

(See Agency Recommendations)

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity.

Monitor recovery, including results of restoration actions

Recommendation:

Should a final report be prepared?

Yes__X___ February, 1993

Yes, in modified form_____

Maybe_____

No____

Comments: Wrap-up sublethal work

Budget: $266,300

Resource Category: Fish/Shellfish

Study Number: F/S13 **Closeout** __X__ **Continuation** _____

Study Title: Clam Injury

Sponsoring Agency: ADF&G

Consequential Injury? Yes, this study documents reduced growth. Many populations were destroyed by cleanup techniques.

Continuing? Unknown, possibly manifested in reduced growth rates

Recovery Occurring? Unknown, possibly.

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitor recovery.

Recommendation:

Should a final report be prepared?

Yes__X___ December, 1992

Yes, in modified form_____

Maybe_____

No____

Comments: Some effort suitable to check/determine growth rates of clams from oiled areas vs. unoiled areas
Suggestion made previously to assess recruitment impacts
Require interim report in September 1992 which will be distributed to peer reviewers.

Budget: $77,000

Resource Category: Fish/Shellfish

Study Number: F/S16 **Closeout** _____ **Continuation** _____

Study Title: Injury to Oysters

Sponsoring Agency: NOAA/ADF&G

Consequential Injury? Yes

Continuing? Uncertain

Recovery Occurring? Uncertain

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitor recovery.

Recommendation:

Should a final report be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No__X__

Comments: Withdrawn

Budget:

Resource Category: Fish/Shellfish

Study Number: F/S27 **Closeout** _____ **Continuation** __X__

Study Title: Sockeye Salmon Overescapement

Sponsoring Agency: ADF&G

Consequential Injury?

Yes, less than minimal number of smolts escaped to meet adult spawning escapement goal later. In order to protect spawning escapement and assist recovery of these stocks, complete closure of the commercial and sport fisheries will be necessary in 1994, will probably be necessary in 1993, and may be necessary in 1995 (the 1992 field season would help determine this). Each year that this happens, loss to the fisheries could minimally exceed $200 million.

Continuing?

Yes, smolt production drastically reduced. Will not support historical returns of adult spawners.

Recovery Occurring? No.

Identifiable restoration endpoint?

(See Agency Recommendations)

Continued damage assessment in OY4.

Monitor recovery, including results of restoration actions

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity.

Recommendation:

Should a final report be prepared?

Yes____

Yes, in modified form_____

Maybe_____

No____

Comments: Request detailed study plan, modified to include other Cook Inlet streams.
Policy question.

Budget: $490,000

Resource Category: Fish/Shellfish

Study Number: F/S28 **Closeout** _____ **Continuation** __X__

Study Title: Run Reconstruction

Sponsoring Agency: ADF&G

Consequential Injury?

Injury to eggs, fry and juvenile has been documented. This study combine these and requires information on fishing mortality and adult movements to complete determination of injuries to pink and other salmon.

Continuing? Supports injury determination.

Recovery Occurring? Unknown

Identifiable restoration endpoint?

(See Agency Recommendations)

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity.

Recommendation:

Should a final report be prepared?

Yes____

Yes, in modified form_____

Maybe_____

No____

Comments: Prepare a modified detailed study plan. Delay modeling until adult movements between districts is estimated. Discuss in detailed study plan.
Should include test fishing for adult fish; this will require budget increase.
Policy question.

Budget: $440,000

Resource Category: Fish/Shellfish

Study Number: F/S30 **Closeout** _____ **Continuation** __X__

Study Title: Database Management

Sponsoring Agency: ADF&G

Consequential Injury? N/A

Continuing? Supports injury determination studies for fish studies.

Recovery Occurring? N/A

Identifiable restoration endpoint?

(See Agency Recommendations)

Study will also support restoration program.

Recommendation:

Should a final report be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No____

Comments: Prepare detailed study plan for 1992. Determine proportion of effort supports projects other than oil spill.

Cost out accordingly.
Coordinate with R40

Budget: $178,700

Resource Category: Birds (BOAT SURVEYS)

Study Number: Bird Study 2 closeout ✓

Study Title: Surveys to monitor marine bird and sea otter populations in EVOS area

Sponsoring Agency: USFWS

Consequential Injury? Bird populations in PWS declined since pre-spill surveys for 16 species or species groups (grebes, cormorants, northern pintail, harlequin duck, oldsquaw, scoters, goldeneyes, bufflehead, black oystercatcher, Bonaparte's gull, black-legged kittiwake, arctic tern, pigeon guillemot, Branchyramphus (PEG) [marbled and Kittlitz] murrelets, and northwest crow). Statistical tests comparing pre- and post-spill populations detected declines in oiled area for eight species or species groups (cormorants, harlequin ducks, black oystercatcher, arctic tern, pigeon guillemot, tufted puffin, murres, and northwest crow).

Continuing? To a number of species

Recovery Occurring? Current data do not indicate recovery is occurring. Further surveys are needed to determine whether recovery is underway or injury is continuing.

Identifiable restoration endpoint?

The restoration endpoint of this project is monitoring. The preparation of final reports will be essential for understanding the injuries the spill caused to sea otters and birds. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. ~~(JP)~~

Recommendation:

Should a final report be prepared?

Yes_XX_ (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: This project should continue under R 13.

~~Close out~~ Budget: $60K

Resource Category: Birds (MURRES)

Study Number: Bird Study 3 closeout ✓

Study Title: Murres: Population surveys of seabird nesting colonies in PWS, Kenai, Barren Islands and other nearby colonies with emphasis on changes in numbers and reproduction of murres

Sponsoring Agency: USFWS

Consequential Injury? As the oil exited PWS and moved through the Gulf of Alaska, it collided with large rafts of breeding age murres congregating around major colonies. The resulting mortality included an estimated 198,000 adult breeding birds, representing 60 to 70 percent of the total breeding population of certain major colonies. Extrapolating to include mortality of non-breeders, mortality is estimated to be as high as 300,000 birds. This loss resulted in a major disruption of breeding behavior and phenology resulting in reproductive failure for the past three years.

Continuing? Yes

Recovery Occurring? No, although there are some very initial indications some colonies or portions of colonies are returning to more normal phenology, continued monitoring is needed to determine if these changes will continue and result in improved reproductive success.

Identifiable restoration endpoint?

Restoration endpoints include: monitoring and enhancing recovery by (a) reducing disturbance and (b) enhancing social synchrony. The preparation of final reports will be essential for understanding the injuries the spill caused murres. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (Completion date September 1992)

Yes, in modified form____

Maybe____

No____

Comments: The following objective from the NRDA study should be incorporated in Restoration Study 11:

-Document rate of recovery of murres in terms of numbers of breeding adults and their reproductive success and chronology at colonies in and near the oil spill area;

~~Close-out~~ Budget: $125,000

Resource Category: Birds (BALD EAGLES)

Study Number: Bird Study 4 closeout ✓

Study Title: Assessing the effects of EVOS on bald eagles

Sponsoring Agency: USFWS

Consequential Injury? There were 153 bald eagles recovered dead from the beaches in the oil spill area, representing an estimated total kill of between 500 and 1,000 eagles, 70 to 80 percent of these birds were adults and the remainder were (PEG) sexually immature. The population in the eastern oil spill area has been static since the spill with reproduction severely depressed in 1989 and certain continuing effects observed in 1990. In 1989, 85 percent of eagle nests in oiled areas failed. Fledgling success was 1 chick per successful nest as compared to 1.2 chicks for unoiled areas. Evidence of hydrocarbon contamination found in food items, egg contents, shells and shell fragments, and blood serum.

Continuing? Not certain

Recovery Occurring? Probably, but no change in eagle numbers observed since the spill. Reproduction in 1990 was significantly better than in 1989. No data are available for 1991, although anecdotal information suggests 1991 was a poor year for eagle reproduction in Prince William Sound.

Identifiable restoration endpoint?

The restoration endpoint of this study is monitoring recovery. The preparation of final reports will be essential for understanding the injuries the spill caused to bald eagles. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out budget - $75K~~

Budget $75,000

Resource Category: Birds (MARBLED MURRELETS)

Study Number: Bird Study 6 closeout ✓

Study Title: Assessment of the abundance of marbled murrelets at sites along the Kenai Peninsula and PWS

Sponsoring Agency: USFWS

Consequential Injury? Proportionally more marbled murrelets were killed during the oil spill relative to their numbers at risk. There were 612 dead marbled murrelets collected into the morgue. Marbled murrelet numbers have declined significantly in PWS, from approximately 300,000 in 1972 to 100,000 in 1989-1991. The contribution of the oil spill to that decline has not been fully determined. Petroleum hydrocarbon contamination was found in tissue of unoiled murrelets collected in oiled areas in 1989. These birds also had low body weights. Birds collected in unoiled areas did not have petroleum hydrocarbon contamination in tissue.

Continuing? Yes

Recovery Occurring? Probably not, but it is difficult to separate spill-related injuries from long-term declines. There is no indication of recovery in murrelet numbers in the spill affected areas of PWS or Kodiak (areas with more than one post-oil spill survey). However, control of human disturbance at one study site resulted in some increase in numbers in 1989. The increase did not continue into 1991.

Identifiable restoration endpoint?

The restoration endpoint of this study is monitoring and habitat protection. The preparation of final reports will be essential for understanding the injuries the spill caused to marbled murrelets. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out~~ Budget - $18,000

Resource Category: Birds (Storm Petrel)

Study Number: Bird Study 7 closeout ✓

Study Title: Assessment of the effects of EVOS on fork-tailed storm petrel

Sponsoring Agency: USFWS

Consequential Injury? Study was discontinued after 1989.

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

This project will result in the preparation of the final NRDA report. The preparation of final reports will be essential for understanding the injuries the spill caused to various bird species. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out~~ Budget - $5K

Resource Category: Birds (Black-legged Kittiwakes)

Study Number: Bird Study 8 Closeout

Study Title: Assessment of injuries to reproductive success of black-legged kittiwakes in PWS

Sponsoring Agency: USFWS

Consequential Injury? Studied discontinued after 1989

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

This project will result in the preparation of the final NRDA report. The preparation of final reports will be essential for understanding the injuries the spill caused to various bird species. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Closeout~~ Budget - ~~$5K~~ 5,000

Resource Category: Birds (Pigeon Guillemot)

Study Number: Bird Study 9 closeout

Study Title: Assessment of injury to pigeon guillemot population and breeding success

Sponsoring Agency: USFWS

Consequential Injury? This study was discontinued after 1989

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

The preparation of final reports will be essential for understanding the injuries the spill caused to pigeon guillemots. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: Close-out budget - $18K

Resource Category: Birds (HARLEQUIN DUCKS)

Study Number: Bird Study 11 closeout

Study Title: Injury Assessment of Hydrocarbon Uptake by Sea Ducks in PWS and Kodiak

Sponsoring Agency: ADF&G/USFWS

Consequential Injury? Harlequin ducks, resident intertidal feeders breeding in PWS, experienced reproductive failure in 1990 and 1991 (no surveys were completed in 1989). No broods were reported in the oil spill areas in 1990. Only one very late brood was recorded in a previously heavily oiled area in late 1991. The State of Alaska closed harlequin duck hunting in 1991 in PWS for the month of September in order to reduce further loss to the remaining resident population. Harlequin ducks were subject to considerable direct mortality resulting from the spill. Ingestion of petroleum hydrocarbons by six species of sea ducks, including harlequins, might have resulted (PEG) in poor physiological condition in 1989.

Continuing? Yes

Recovery Occurring? No indication of recovery.

Identifiable restoration endpoint?

- -Monitoring
- -Habitat Protection
- -Clean-up of Mussel beds
- -Additional harvest restrictions

Recommendation:

Should a final report be prepared?

Yes_XX_ November 1992.

Yes, in modified form____

Maybe____

No____

Comments: None

~~Close-out~~ Budget - $50,000

Resource Category: Birds (BOAT SURVEYS)

Study Number: Bird Study 2 closeout ✓

Study Title: Surveys to monitor marine bird and sea otter populations in EVOS area

Sponsoring Agency: USFWS

Consequential Injury? Bird populations in PWS declined since pre-spill surveys for 16 species or species groups (grebes, cormorants, northern pintail, harlequin duck, oldsquaw, scoters, goldeneyes, bufflehead, black oystercatcher, Bonaparte's gull, black-legged kittiwake, arctic tern, pigeon guillemot, Branchyramphus (PEG) [marbled and Kittlitz] murrelets, and northwest crow). Statistical tests comparing pre- and post-spill populations detected declines in oiled area for eight species or species groups (cormorants, harlequin ducks, black oystercatcher, arctic tern, pigeon guillemot, tufted puffin, murres, and northwest crow).

Continuing? To a number of species

Recovery Occurring? Current data do not indicate recovery is occurring. Further surveys are needed to determine whether recovery is underway or injury is continuing.

Identifiable restoration endpoint?

The restoration endpoint of this project is monitoring. The preparation of final reports will be essential for understanding the injuries the spill caused to sea otters and birds. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. ~~(JR)~~

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: This project should continue under R 13.

~~Close out~~ Budget: $60K

Resource Category: Birds (MURRES)

Study Number: Bird Study 3 closeout ✓

Study Title: Murres: Population surveys of seabird nesting colonies in PWS, Kenai, Barren Islands and other nearby colonies with emphasis on changes in numbers and reproduction of murres

Sponsoring Agency: USFWS

Consequential Injury? As the oil exited PWS and moved through the Gulf of Alaska, it collided with large rafts of breeding age murres congregating around major colonies. The resulting mortality included an estimated 198,000 adult breeding birds, representing 60 to 70 percent of the total breeding population of certain major colonies. Extrapolating to include mortality of non-breeders, mortality is estimated to be as high as 300,000 birds. This loss resulted in a major disruption of breeding behavior and phenology resulting in reproductive failure for the past three years.

Continuing? Yes

Recovery Occurring? No, although there are some very initial indications some colonies or portions of colonies are returning to more normal phenology, continued monitoring is needed to determine if these changes will continue and result in improved reproductive success.

Identifiable restoration endpoint?

Restoration endpoints include: monitoring and enhancing recovery by (a) reducing disturbance and (b) enhancing social synchrony. The preparation of final reports will be essential for understanding the injuries the spill caused murres. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (Completion date September 1992)

Yes, in modified form____

Maybe____

No____

Comments: The following objective from the NRDA study should be incorporated in Restoration Study 11:

-Document rate of recovery of murres in terms of numbers of breeding adults and their reproductive success and chronology at colonies in and near the oil spill area;

~~Close-out~~ Budget: $125,000

Resource Category: Birds (BALD EAGLES)

Study Number: Bird Study 4 closeout ✓

Study Title: Assessing the effects of EVOS on bald eagles

Sponsoring Agency: USFWS

Consequential Injury? There were 153 bald eagles recovered dead from the beaches in the oil spill area, representing an estimated total kill of between 500 and 1,000 eagles, 70 to 80 percent of these birds were adults and the remainder were (PEG) sexually immature. The population in the eastern oil spill area has been static since the spill with reproduction severely depressed in 1989 and certain continuing effects observed in 1990. In 1989, 85 percent of eagle nests in oiled areas failed. Fledgling success was 1 chick per successful nest as compared to 1.2 chicks for unoiled areas. Evidence of hydrocarbon contamination found in food items, egg contents, shells and shell fragments, and blood serum.

Continuing? Not certain

Recovery Occurring? Probably, but no change in eagle numbers observed since the spill. Reproduction in 1990 was significantly better than in 1989. No data are available for 1991, although anecdotal information suggests 1991 was a poor year for eagle reproduction in Prince William Sound.

Identifiable restoration endpoint?

The restoration endpoint of this study is monitoring recovery. The preparation of final reports will be essential for understanding the injuries the spill caused to bald eagles. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out budget - $75K~~

Budget $75,000

Resource Category: Birds (MARBLED MURRELETS)

Study Number: Bird Study 6 closeout ✓

Study Title: Assessment of the abundance of marbled murrelets at sites along the Kenai Peninsula and PWS

Sponsoring Agency: USFWS

Consequential Injury? Proportionally more marbled murrelets were killed during the oil spill relative to their numbers at risk. There were 612 dead marbled murrelets collected into the morgue. Marbled murrelet numbers have declined significantly in PWS, from approximately 300,000 in 1972 to 100,000 in 1989-1991. The contribution of the oil spill to that decline has not been fully determined. Petroleum hydrocarbon contamination was found in tissue of unoiled murrelets collected in oiled areas in 1989. These birds also had low body weights. Birds collected in unoiled areas did not have petroleum hydrocarbon contamination in tissue.

Continuing? Yes

Recovery Occurring? Probably not, but it is difficult to separate spill-related injuries from long-term declines. There is no indication of recovery in murrelet numbers in the spill affected areas of PWS or Kodiak (areas with more than one post-oil spill survey). However, control of human disturbance at one study site resulted in some increase in numbers in 1989. The increase did not continue into 1991.

Identifiable restoration endpoint?

The restoration endpoint of this study is monitoring and habitat protection. The preparation of final reports will be essential for understanding the injuries the spill caused to marbled murrelets. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out~~ Budget - $18,000

Resource Category: Birds (Storm Petrel)

Study Number: Bird Study 7 closeout ✓

Study Title: Assessment of the effects of EVOS on fork-tailed storm petrel

Sponsoring Agency: USFWS

Consequential Injury? Study was discontinued after 1989.

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

This project will result in the preparation of the final NRDA report. The preparation of final reports will be essential for understanding the injuries the spill caused to various bird species. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out~~ Budget - $5K

Resource Category: Birds (Black-legged Kittiwakes)

Study Number: Bird Study 8 Closeout

Study Title: Assessment of injuries to reproductive success of black-legged kittiwakes in PWS

Sponsoring Agency: USFWS

Consequential Injury? Studied discontinued after 1989

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

This project will result in the preparation of the final NRDA report. The preparation of final reports will be essential for understanding the injuries the spill caused to various bird species. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Closeout~~ Budget - $5K 5,000

Resource Category: Birds (Pigeon Guillemot)

Study Number: Bird Study 9 closeout

Study Title: Assessment of injury to pigeon guillemot population and breeding success

Sponsoring Agency: USFWS

Consequential Injury? This study was discontinued after 1989

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

The preparation of final reports will be essential for understanding the injuries the spill caused to pigeon guillemots. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: Close-out budget - $18K

Resource Category: Birds (HARLEQUIN DUCKS)

Study Number: Bird Study 11 closeout

Study Title: Injury Assessment of Hydrocarbon Uptake by Sea Ducks in PWS and Kodiak

Sponsoring Agency: ADF&G/USFWS

Consequential Injury? Harlequin ducks, resident intertidal feeders breeding in PWS, experienced reproductive failure in 1990 and 1991 (no surveys were completed in 1989). No broods were reported in the oil spill areas in 1990. Only one very late brood was recorded in a previously heavily oiled area in late 1991. The State of Alaska closed harlequin duck hunting in 1991 in PWS for the month of September in order to reduce further loss to the remaining resident population. Harlequin ducks were subject to considerable direct mortality resulting from the spill. Ingestion of petroleum hydrocarbons by six species of sea ducks, including harlequins, might have resulted (PEG) in poor physiological condition in 1989.

Continuing? Yes

Recovery Occurring? No indication of recovery.

Identifiable restoration endpoint?

- -Monitoring
- -Habitat Protection
- -Clean-up of Mussel beds
- -Additional harvest restrictions

Recommendation:

Should a final report be prepared?

Yes_XX_ November 1992.

Yes, in modified form____

Maybe____

No____

Comments: None

~~Close-out~~ Budget - $50,000

Proposed 1992 Restoration Workplan

Project #	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan	
Subtidal					
Move 4	Monitoring the Fate and Persistence of Oil in NPS	NPS	~~185000.~~ 0	~~Yes; modified to reduce scope~~ Will increase (Study) expand combined w/ R102	Move to Coastal Habitat
32	~~Injury and~~ Natural Recovery of Deep Benthic Macrofaunal Communities in PWS	~~AK Fish/Game~~ ADF&G	170000.	Yes; modified;reduce scope	Mat
51	Natural Restoration of Shallow Subtidal Communities in PWS	ADF&G	270000.	Yes; modified;reduce ~~focus~~ scope	Mat
52	Development of a Restoration Plan for Rockfish	ADF&G	~~225000.~~ 175000	~~Yes; modified~~	Deferred list
55	Spot Shrimp Restoration	~~AK Fish/Game~~ ADF&G	60000.	~~Yes~~	Deferred ~~Mat~~
74	Recovery Monitoring of Contaminated Resources	NOAA	480000.	Yes	
75	Natural Recovery of Subtidal Species in PWS	NOAA	230000.	Yes; modified;include portion of R77	
77	Monitoring Recovery of Intertidal/Nearshore Subtidal specis in PWS	NOAA	300000.	Yes; combine subtidal components with R75.	
~~78~~	Mussel Tissue/Sediment Hydrocarbon Data Synthesis	NOAA	100000.	~~Yes~~; modified	~~Mat~~ ~~Withdrawn~~ Deferred list
83	Monitoring Microbial Populations in Marine Sediment as Indicators	ADEC	55000.	Yes; modified to reduce scope	
		Category Total:$			

~~32, 51, 74, 75, 77, 83 combine~~

101 Recovery monitoring of subtidal communities interagency 900000 Yes combined R32, 51, 74, 75, 77, 83

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Mussel Beds				
103 ~~76~~	~~Recovery Monitoring of Intertidal Oiled Mussel~~ Oiled Mussel Bed study	NOAA	750000 ~~500000~~.	Yes; modified to include multi-species concerns
81	Hydrocarbon Analyses of Mussels and Substrates/ Sediments Collected from PWS	NOAA	0.	~~Yes; Provide budget~~ No: Report only (move this to deferred) ~~Report Only Rec~~ Deferred
		Category Total:$		

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
~~Killer Whales~~				
82	Killer Whale Monitoring and Habitat Studies	NOAA	195000 ~~219500.~~ ~~Yes~~	Deferred list

Category Total:$

~~Combine under Marine Mammals~~

Proposed 1992 Restoration Workplan

DRAFT

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Boat Survey				
13	Surveys to Monitor Marine Bird and Sea Otter Populations in area of EVOS	USFWS	~~303000~~ 275000	Yes

Category Total:$

LITIGATION SENSITIVE
ATTORNEY WORK PRODUCT
ATTORNEY-CLIENT PRIVILEGE

Where is Terrestrial Mammal sheet?

Proposed 1992 Restoration Workplan

roject)	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
erring/Dolly Varde				
44	Anadromous Sport Fish Status and Evaluation	USFS	~~12000.~~ 0	~~Yes; supports R85 and coordinate with R39 and 88~~ combined into R106 combined list
58	Herring Restoration and Monitoring	~~AK Fish/Game~~ ADF&G	~~725000.~~ 520000	Yes; modified;reduce scope
85	Technical Support Study for the Restoration of Dolly Varden/Cutthroat Trout	~~AK Fish/Game~~ ADF&G	~~260000.~~ 0	~~Yes~~ combined into R106 combined list
90	Dolly Varden	ADFG	227000.	Yes
		Category Total:$		

R106 Restoration of Dolly Varden and Cutthroat Trout in PWS — ADF&G, USFS — 250,000 — Yes, Combined from R44, R85

New R102

Resource Category: ~~Subtidal~~ Coastal Hab

Study Number: R4

Study Title: Monitoring the Fate and Persistence of Oil in National Parks Affected by EVOS

Sponsoring Agency: NPS

Consequential Injury? Yes

Continuing? Yes, oil persists along NPS shorelines, contamination continues as fresh-looking mousse and sheens observed in many locations. (SR)

Recovery Occurring? Yes, through weathering of oil.

Identifiable restoration endpoint?

Natural recovery monitoring.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X__

Maybe_____

No_____

Comments: We agree there is a need to monitor the time course of the fate and persistence of oil in intertidal and want ~~NPS to expand to the subtidal at these sites.~~ Integrate results with contaminated mussel bed project and sediment sampling program. ~~NPS is not convinced that this project fits in the subtidal category. Believe it is more logical to put in "Coastal Habitat"~~ category. (SR)

Budget 165

Combine with R4 05, R65, R67, R79, R84

New 102 est budget $100,000

Projects Recommended for Detailed Study Plan in 1992

TECHNICAL SUPPORT

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
DataBase Management				
92	Gis Mapping AND ANALYSIS	ADNR, USFWS ~~USFWS~~	250000 ~~100000.~~ ~~200000.~~	Yes Yes
		Category Total:$	0.	

HABITAT ACQUISITION/PROTECTION

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
BIRDS				
15	Surveys to Identify Upland Use by Murrelets in the EVOS Zone	USFWS	300000.	Yes; modify to include R15, vegetation mapping (R33)
71	Harlequin Duck Restoration Study	ADF&G	455000.	Yes; modified to include R89; oiled mussels.
Habitat				
47	Stream Habitat Assessment	ADF&G	368000.	Yes
96	Identification of Habitats Relevent to Injured Species	TBN	600000.	Yes; modified form, provide budget
		Category Total:$		

Projects Recommended for Detailed Study Plan in 1992

MANIPULATION/ENHANCEMENT

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
FISH/SHELLFISH				
45	Montague Island Chum Salmon Restoration	USFS	26000.	Yes
105	Habitat Survey and Evaluation, Project Planning, for Salmonids in Prince William Sound	ADF&G USFS	400000.	Yes, combined proposal from R42, R86

MANAGEMENT ACTIONS

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Marine Mammals				
73	Harbor Seal Restoration Study	ADF&G	204000.	Yes
Archeology				
104	Archaeological Resource Protection	DOA, DOI, DNR	335000.	Yes, combined proposal for all agencies.
FISH/SHELLFISH				
58	Herring Restoration and Monitoring	ADF&G	520000.	Yes; modified;reduce scope
53	Kenai River Sockeye Salmon Restoration	ADF&G	590000.	Yes; modified;perhaps include Kodiak
59	Assessment of Genetic Stock Structure of Salmonids	ADF&G	250000.	Yes
106	Restoration of Dolly Varden and Cutthroat Trout in Prince William Sound	ADF&G USFS	250000.	Yes, combined from R44, R85

Resource Category: Coastal Habitat

Study Number: R102

Study Title: Coastal Habitat Monitoring

Sponsoring Agency: Interagency

Consequential Injury? Yes, oil persists along parts of the coastline, substantial reductions of marine invertebrates and fucus species have occurred.

Continuing? Yes,

Recovery Occurring? Limited.

Identifiable restoration endpoint?

Monitoring rates of natural recovery.

Recommendation:

Should a detailed study plan be prepared?

Yes__X___

Yes, in modified form_____

Maybe_____

No____

Comments: This proposal will be developed in January. It will be a combination of earlier proposals (R4, R5, R65, R67, R79, R84). A subcommittee of the RRCG and Restoration Subgroup will formulate the objectives for the study which will coordinate with response work already scheduled. Budget estimate represents a maximum figure.

Budget Estimate: $~~750,~~000 100,000

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Salmon				
40	PWS Wild Fish Stock Information Assessment	USFS	50000.	~~Yes; modified~~;coordinate with f/s 30
42	W. PWS Restoration Survey and Project Planning	US ~~Forest Serv~~. FS	~~92000.~~ 0	~~Yes;~~ combine with R86; ~~coord. w/ R39 & R88~~
45	Montague Island Chum Salmon Restoration	US ~~Forest Serv~~. FS	26000.	Yes
53	Kenai River Sockeye Salmon Restoration	ADF&G	590000.	Yes; modified;perhaps include Kodiak
59	Assessment of Genetic Stock Structure of Salmonids	ADF&G	250000.	Yes
60	Stock Identification/Population Monitoring	ADF&G	~~2920000.~~ 180000	Yes; modified;~~2.100K(stockID)bal. for samp/mortalit~~ egg and Fry monitoring
63	Evaluation of Wild-Hatchery Salmon Stock	ADF&G	~~600000.~~ 60000 0	~~Yes;~~ in modified form from forage fish workshop Deferred
86	Survey/Evaluation of Instream Habitat and Stock Restoration Techniques	ADF&G	~~352000.~~ 0	~~Yes;~~ combine w/ R42; ~~coord. w/ 89 & 88~~
		Category Total:$		
105	Habitat survey and evaluation, Project planning, for salmonids in PWS	ADF&G USFS	400000	Yes Combined proposal from R42, R86

DRAFT

LITIGATION SENSITIVE
ATTORNEY WORK PRODUCT
ATTORNEY-CLIENT PRIVILEGE

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Archeology				
2	Cultural Resource Protection	USDI DNR ~~UCFS~~ USDA	480000.	Yes; modified;(monitoring components)
		Category Total:$		

\# figure will change drastically - suggest we put in "to be filled in"

R104 Archaeological Resource Protection ~~PCFS~~ DOA, DOI, DNR 335,000 Yes Combined proposal for all agencies.

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Harbor Seals				
73	Harbor Seal ~~Progress Report~~ Restoration Study	ADF&G	204000.	Yes
		Category Total:$		

Move to marine mammals

Proposed 1992 Restoration Workplan

ATTORNEY-CLIENT PRIVILEGE

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
~~Sea Otters~~ Marine Mammals				
6	Population Monitoring Component - Sea Otter	USFWS	~~934000~~ 606000.	Yes; modified to include components of R7-9
7	Habitat Utilization by Sea Otters	USFWS	0 ~~160000~~.	~~Yes;~~ Include in R6 — Combined
8	Sea Otter Recovery Model Validation Component	USFWS	0 ~~138000~~.	~~Yes;~~ Include in R6 — combined
9	Pathology and Toxicology Monitoring Component	USFWS	0 ~~64000~~.	~~Yes;~~ Include in R6 — Combined
73 → 82 →				
95	River Otter Restoration	ADF&G	65000.	Yes; must include oiled mussel link

Category Total:$

(~~combine killer whales~~ & Harbor seals here)

Proposed 1992 Restoration Workplan

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ATTORNEY WORK PRODUCT
~~ATTORNEY-CLIENT PRIVILEGE~~

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Habitat				
33	Injured Species Habitat Identification	FS ~~US Forest Serv.~~	0 ~~1000000.~~	~~Yes; in modified form; coordinates with R15~~ Combined with R15
39	Fish Habitat Limiting Factors Analysis	USFS	125000.	~~Yes~~; mod to combine w [redacted]:coord plan w/ R42, 86,44,85
47	Stream Habitat Assessment	ADF&G	368000 ~~485000.~~	Yes
[redacted]	Stream Carrying Capacity for Evaluating Restoration in PWS	NOAA ~~NMFS~~	175000.	~~Yes~~; combine with R39,[redacted]d. plan w/ 42, 86, 44 & 85
96	Identification of Habitats Relevent to Injured Species	TBN	600000.	Yes; modified form, provide budget

Category Total:$

roposed 1992 Restoration Workplan

ject	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
taBase Management				
92	GIS Gis Mapping and Analysis	ADNR	50000 ~~100000.~~	Yes Mat
92	GIS Gis Mapping and Analysis	USFWS	200000.	~~Yes~~ Mat
		Category Total:$		

combine into one space

LITIGATION SENSITIVE
ATTORNEY WORK PRODUCT
ATTORNEY-CLIENT PRIVILEGE

Proposed 1992 Restoration Workplan

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Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
Birds				
11	Monitoring Rate of Recovery/Continuing Changes of Murre Numbers/Productivity	USFWS	~~700000.~~ 590000	Yes; modified to include R19 and 30
12	Aging of Alcid Carcasses from the EVOS: Obtaining Demographic Information	USFWS	100000.	Yes; modified;reduce scope and budget — Deferred
15	Surveys to Identify Upland Use by Murrelets in the EVOS Zone	USFWs	300000.	Yes; modify to include R15, veg. mapping (R33)
16	Identification of Nesting Habitat Criteria and Reproductive Success	USFWS	0.	Yes;combine with R15 — combined list
17	~~Feeding Ecology and Reproductive~~ Success of Black Oystercatchers in PWS	USFWS	200000.	~~Yes~~ One component added to oiled mussel study. — Move to deferred list
18	Murre Recovery Modeling	USFWS	0.	~~Yes; combine with R11~~
19	Control/Eliminate Human Disturbance near Murre Colonies	USFWS	0.	Yes; combine with R11 — combine list
20	Identification and Protection of Important Bald Eagle Habitats	USFWS	~~350000.~~ 225000	Yes; modified to include R21 and R22
21	Develop Bald Eagle Population Model and Understanding of Survival Rates	USFWS	0.	Yes; modified;combine elements of 21 and 22 — Combine list
22	Monitor Productivity of Bald Eagles within the EVOS area	USFWS	0.	Yes; combine with R20 — combine list

Proposed 1992 Restoration Workplan

Project ID	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan
71	~~Preliminary Progress Report of~~ Harlequin Duck Restoration Study	ADF&G	455000.	Yes; modified to include R89, oiled mussels
89	~~Monitoring recovery of~~ Harlequin Ducks Restoration Study	ADF&G	0.	Yes;combined with R71 ~~delete this~~ combine list

Category Total:$

'roposed 1992 Restoration Workplan

oject	Title	Sponsor	OY4 Cost	Recommendation for detailed study plan	
astal Habitat				← Add R-5 → Study	
65	Coastal Habitat Comprehensive Intertidal Program	USFS ~~et al~~	900000.	~~Yes; modified to reduce focus and budget~~ combine in R102	Combined list
67	High Intertidal Fucus Recovery and Restoration	~~2~~ EPA	59175.	~~Yes; for objectives 1 and 2~~ combine in R102	"
79	Recovery Monitoring of Intertidal/Nearshore Subtidal Communities Impacted	NOAA	850000.	~~Yes; modify site locations~~. ~~Do not do intertidal species~~ combine in R102	"
84	Herring Bay Experimental and Monitoring Studies	~~UAF~~ USFS	270000.	~~Yes; modified incorporate into #65~~ combine in R102	"

Category Total:$

102 Coastal Habitat Monitoring interagency 750,000 Yes (combined proposal of R4 R5, R65, R67, R79, R84)

Resource Category: Birds (Harlequin Duck)

Study Number: R 71

Study Title: Harlequin Duck Monitoring and Restoration

Sponsoring Agency: ADF&G/USFWS

Consequential Injury? Harlequin ducks, resident intertidal feeders breeding in PWS, experienced reproductive failure in 1990 and 1991 (no surveys were completed in 1989). No broods were reported in the oil spill areas in 1990. Only one very late brood was recorded in a previously heavily oiled area in late 1991. The State of Alaska closed harlequin duck hunting in 1991 in PWS for the month of September in order to reduce further loss to the remaining resident population. Harlequin ducks were subject to considerable direct mortality resulting from the spill. Ingestion of petroleum hydrocarbons by six species of sea ducks, including harlequins, might have resulted in poor physiological condition in 1989.

Continuing? Yes

Recovery Occurring? No indication of recovery.

Identifiable restoration endpoint?
- -Monitoring
- -Habitat Protection
- -Clean-up of Mussel beds
- -Additional harvest restrictions

Recommendation:

Should a detailed study plan be prepared?

Yes XX

Yes, in modified form____

Maybe____

No____

Comments: Combine R 89 and R 71. Will include an additional study component that addresses harlequin duck/oiled mussel problem; PI should cooperate with NOAA et al. to accomplish. Need to incorporate GIS into analysis as appropriate.

Data on nest locations should be compatible with ~~R33.~~ R96

Budget Estimate: $455,000

Resource Category: Birds (Murrelets)

Study Number: R 15

Study Title: Marbled Murrelet Restoration Study

Sponsoring Agency: USFWS

Consequential Injury? Proportionally more marbled murrelets were killed during the oil spill relative to their numbers at risk. There were 612 dead marbled murrelets collected into the morgue. Marbled murrelet numbers have declined significantly in PWS, from approximately 300,000 in 1972 to 100,000 in 1989-1991. The contribution of the oil spill to that decline has not been fully determined. Petroleum hydrocarbon contamination was found in tissue of unoiled murrelets collected in oiled areas in 1989.

Continuing? Yes

Recovery Occurring? Probably not, but recovery from spill-related injuries may be difficult to separate from long-term declines. There is no indication of recovery in murrelet numbers in the spill affected areas of PWS or Kodiak. However, control of human disturbance at one study site resulted in some increase in numbers in 1989. The increase did not continue into 1991.

Identifiable restoration endpoint?
Monitoring and Habitat Protection

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form_XX_

Maybe____

No____

Comments: The marbled murrelet studies, R 15 and R 16, should be combined. The following objectives should be addressed in 1992:

-Provide a complete analysis and synthesis of all murrelet data available for the EVOS zone;
-Determine marbled murrelet nest habitat requirements within forested portions of the EVOS zone;
-Survey upland areas (dawn watch method) throughout the spill zone to investigate upland murrelet use in the full spectrum of available habitat either with or without the USFS, as appropriate depending upon the USFS 1992 restoration program.

The vegetation mapping portion of R33 that supports this project needs to be incorporated and reflect methods, budget, etc.

Budget Estimate: ~~$300,000~~
$360,000

Resource Category: Habitat

Study Number: R33

Study Title: Injured Species Habitat Identification

Sponsoring Agency: USFS

Consequential Injury? Yes, this study addresses habitat for injured bird species, harlequin ducks, marbled murrelets, black oystercatchers and bald eagle, and fish species dolly varden and cutthroat trout.

Continuing? Yes, for harlequin ducks and possibly other species.

Recovery Occurring? Yes, for some species. No, for harlequin ducks and other species.

Identifiable restoration endpoint?

This study would provide vegetation maps identifying habitat for harlequin ducks and marbled murrelets. It would assist identification of habitat for other species.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_X___

Maybe_____

No____

Comments: In 1992 target murrelet habitat on private land. Coordinate efforts with the dawn watch portion of R15. Combine with marbled murrelet study add budget.

Budget Estimate: _____

Combined with R15

Resource Category: Salmon

Study Number: R105

Study Title: Habitat survey and evaluation, and project planning for salmonids in Prince William Sound.

Sponsoring Agency: ADF&G, USFS

Consequential Injury?

Continuing?

Recovery Occurring?

Identifiable restoration endpoint?

more from either R86 or R42

Recommendation:

Should a detailed study plan be prepared?

Yes X

Yes, in modified form_____

Maybe_____

No____

Comments: Combined proposal from R42 and R86
Provides feasibility level analysis to a subset of streams examined for habitat evaluation.

Budget Estimate: 400,000

Resource Category: Technical Services (GIS)

Study Number: R 92

Study Title: GIS mapping and analysis (MAF)

Sponsoring Agency: USFWS and ADNR

Consequential Injury? Not applicable

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint? Not applicable

Recommendation:

Should a detailed study plan be prepared?

Yes XX

Yes, in modified form____

Maybe____

No____

Comments: This study provides integral support to a variety of restoration proposals.

Budget estimate - ADNR ~~$100K~~ 50K
USFWS $200K

A GIS oversight group has been formed and will make decisions on GIS products. Budgets will be tightly controlled.

Resource Category: Habitat

Study Number: R47

Study Title: Stream Habitat Assessment

Sponsoring Agency: ADF&G

Consequential Injury?

F/S5 determined injury to dolly varden and cutthroat trout.

Mortality	Growth
Cutthroat 65% greater in oiled	71% slower in oiled
Dolly Varden 12% greater in oiled	

Continuing? Yes

Yes, to salmonids, Dolly Varden and cutthroat trout, bald eagle, and harlequin ducks.

Recovery Occurring? Yes, for some species; no for others.

Identifiable restoration endpoint?

Determine importance of selected lands in EVOS area for restoration of injured species, such as the harlequin duck and cutthroat trout. ~~(SES)~~

Recommendation:

Should a detailed study plan be prepared?

Yes__X___

Yes, in modified form_____

Maybe_____

No____

Comments: Data collection should be compatible with R39 - R88. Stream characteristic information should collected using procedures which will allow incorporation of channel typing and other data into R39 -R88. ~~(KWR)~~

Budget Estimate: 368,000

Resource Category: Birds ~~(BM)~~ (murrelets)

Study Number: R 15

Study Title: ~~Surveys to identify habitat use by murrelets~~ Marbled murrelet restoration study

Sponsoring Agency: USFWS

Consequential Injury? Proportionally more marbled murrelets were killed during the oil spill relative to their numbers at risk. There were 612 dead marbled murrelets collected into the morgue. Marbled murrelet numbers have declined significantly in PWS, from approximately 300,000 in 1972 to 100,000 in 1989-1991. The contribution of the oil spill to that decline has not been fully determined. Petroleum hydrocarbon contamination was found in tissue of unoiled murrelets collected in oiled areas in 1989.

Continuing? Yes

Recovery Occurring? Probably not, but ~~it is difficult to~~ may be difficult to separate ~~spill-related injuries~~ recovery from spill-related injuries from long-term declines. There is no indication of recovery in murrelet numbers in the spill affected areas of PWS or Kodiak. However, control of human disturbance at one study site resulted in some increase in numbers in 1989. The increase did not continue into 1991.

Identifiable restoration endpoint?
Monitoring and Habitat Protection

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form XX

Maybe____

No____

Comments: The marbled murrelet studies, R 15 and R 16, should be combined. The following objectives should be addressed in 1992:

-Provide a complete analysis and synthesis of all murrelet data available for the EVOS zone;
-Determine marbled murrelet nest habitat requirements within forested portions of the EVOS zone;
-Survey upland areas (dawn watch method) throughout the spill zone to investigate upland murrelet use in the full spectrum of available habitat either with or without the USFS, as appropriate depending upon the USFS 1992 restoration program.

~~The budget has been reduced by $10K to reflect GIS costs that have been incorporated into Restoration Technical Services 3 for FWS.~~

~~Preliminary budget estimate based on modified proposal: $300K. Budgets will be further developed in detailed study plan.~~

Budget: $300,000

The vegetation mapping portion of R33 that supports this project needs to be incorporated and reflect methods, budget, etc. (KWR)

Resource Category: Birds (~~BM~~) (Harlequin Duck)

Study Number: R 71

Study Title: Harlequin Duck Monitoring and Restoration

Sponsoring Agency: ADF&G/USFWS

Consequential Injury? Harlequin ducks, resident intertidal feeders breeding in PWS, experienced reproductive failure in 1990 and 1991 (no surveys were completed in 1989). No broods were reported in the oil spill areas in 1990. Only one very late brood was recorded in a previously heavily oiled area in late 1991. The State of Alaska closed harlequin duck hunting in 1991 in PWS for the month of September in order to reduce further loss to the remaining resident population. Harlequin ducks were subject to considerable direct mortality resulting from the spill. Ingestion of petroleum hydrocarbons by six species of sea ducks, including harlequins, might have resulted in poor physiological condition in 1989. ~~(PEG)~~

Continuing? Yes

Recovery Occurring? No indication of recovery.

Identifiable restoration endpoint?
- -Monitoring
- -Habitat Protection
- -Clean-up of Mussel beds
- -Additional harvest restrictions

Recommendation:

Should a detailed study plan be prepared?

Yes XX

Yes, in modified form____

Maybe____

No____

Comments: Combine R 89 and R 71. ~~Need to develop~~ Will include an additional study component that addresses harlequin duck/oiled mussel problem; PI should cooperate with NOAA et al. to accomplish. Need to incorporate GIS into analysis as appropriate.

Data on nest locations should be compatible with R33. (~~KWR~~)

~~Preliminary budget estimate: $455K~~

Budget Estimate: $455,000

Resource Category: Salmon

Study Number: R45

Study Title: Montague Island Chum Salmon Restoration and Re-introduction.

Systems proposed for this study project were not.

Sponsoring Agency: USFS

Consequential Injury? While chums in PWS were injured. This proposal seeks to replace ~~an~~ injured ~~stock~~ species in ~~the same stream~~ other systems.

Continuing? Little data on chum salmon

Recovery Occurring? Yes

Identifiable restoration endpoint?

Population enhancement.
Habitat enhancement

Recommendation:

Should a detailed study plan be prepared?

Yes X

Yes, in modified form_____

Maybe_____

No_____

Comments: Conducted last year under Technical Support category - identified 6 possible restoration sites
Will look at 25 more this year that show potential for improvement. ~~(KWR)~~
This study will enhance existing stocks ~~(KWR)~~
Do not do any introductions this year
(May need to postpone due to consistency issue)

Budget: 26,000

Resource Category: Salmon

Study Number: ~~R42~~ 105

Study Title: Western Prince William Sound Restoration Survey and Project Planning

Sponsoring Agency: USFS

Consequential Injury? Increased egg mortality, fry histopathology and MFO induction*, decreased growth/early marine survival. Probable population level impacts.

Continuing? 1991 mortalities suggest a continuing problem.

Recovery Occurring? Improved management derived from FS1-4 is helping to mitigate these losses.

Identifiable restoration endpoint?

Identify specific enhancement techniques recommended for each impacted streams.

Enhance productivity and access to new habitats through stream improvements. (KWR)

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_X___

Maybe_____

No____

Comments: Combine with ADF&G proposal R86 into a single joint proposal. Efforts from this joint proposal to be coordinated with combined proposal R39-R88 so that the same streams will be targeted by R42 - R86 and R39 - R88 and duplication of effort will not occur.
R42 provides feasibility level analysis to a subset of R86 streams (KWR)

Budget 400,000 for joint propals with R86

* Fry histopathology and MFO induction were described in an ADF&G Habitat Division Response report (Wiedmer, 1991) and some F/S4 samples. Most NRDA samples have not yet been completely processed.

~~Budget: 92,000~~

Resource Category: Archaeology

Study Number: R104

Study Title: Archaeological Resource Protection

Sponsoring Agency: DOI, DOA, DNR

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Unknown

Identifiable restoration endpoint?

Monitoring and protection of Archaeological Resources

(see Agency recommendation)

Recommendation:

Should a detailed study plan be prepared?

Yes X

Yes, in modified form_____

Maybe_____

No_____

Comments:

Detailed study plan must be consistent with the interagency proposal submitted December 1991.

Budget: 335,000

Resource Category: Dolly Varden

Study Number: R106

Study Title: Restoration of Dolly Varden and Cutthroat Trout in PWS

Sponsoring Agency: ADF&G USFS

Consequential Injury?

Continuing?

Recovery Occurring?

} copy from R44

Identifiable restoration endpoint?

~ R44

Recommendation:

Should a detailed study plan be prepared?

Yes X

Yes, in modified form_____

Maybe_____

No____

Comments: Combined proposal from R44 and R85. Continuation of Restoration Science study in 1991

Budget Estimate 250,000

Resource Category: Dolly Varden

Study Number: R106

Study Title: Restoration of Dolly Varden and Cutthroat Trust in PWS

Sponsoring Agency: ADF&G USFS

Consequential Injury?

F/S5 determined injury to Dolly Varden and cutthroat trout.

	Annual Mortality	Annual Growth Rate
Cutthroat	65% greater in oiled	71% slower in oiled
Dolly Varden	12% greater in oiled	

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Management plan

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity

Enhance productivity and access to new habitats through stream improvements (e.g., egg boxes, spawning channels, passes)

Recommendation:

Should a detailed study plan be prepared?

Yes__X___

Yes, in modified form_____

Maybe_____

No____

Comments: Combined proposal from R44 and R85.
Continuation of restoration science study in 1991

Budget Estimate: $250,000

Resource Category: Dolly Varden

Study Number: R106

Study Title: Technical support study for restoration of Dolly Varden and cutthroat trout populations in Prince William Sound.

Sponsoring Agency: ADF&G

Consequential Injury?

F/S5 determined injury to Dolly Varden and cutthroat trout.

Mortality	Growth
Cutthroat 65% greater in oiled Dolly Varden 12% greater in oiled	71% slower in oiled

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Management Plan

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No__X___

Comments: Becomes R85 in OY4.
Continuation of Restoration Science (RS) study in 1991.

Budget Estimate: $250,000 when combined with R44

Resource Category: ~~Herring~~ Dolly Varden

Study Number: ~~RS7~~ ~~(R85)~~ 106

Study Title: Technical support study for restoration of Dolly Varden and cutthroat trout populations in Prince William Sound.

Sponsoring Agency: ADF&G

Consequential Injury?

F/S5 determined injury to Dolly Varden and cutthroat trout.

Mortality	Growth
Cutthroat 65% greater in oiled Dolly Varden 12% greater in oiled	71% slower in oiled

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Management Plan

Recommendation:

Should a detailed study plan be prepared?

Yes X

Yes, in modified form_____

Maybe_____

No X

Comments: Becomes R85 in OY4. ~~(JRS)~~
Continuation of Restoration Science (RS) study in 1991.

can't leave this

Budget 250,000 ch

K44

Resource Category: ~~Herring~~/Dolly Varden

Study Number: ~~R44~~ 106

Study Title: Anadromous Sport Fish Status and Evaluation

Sponsoring Agency: USFS

Consequential Injury?

F/S5 determined injury to Dolly Varden and cutthroat trout.

	Annual Mortality	Annual Growth Rate
Cutthroat	65% greater in oiled	71% slower in oiled
Dolly Varden	12% greater in oiled	

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Management plan

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity ~~(KWR)~~

Enhance productivity and access to new habitats through stream improvements (e.g., egg boxes, spawning channels, passes) ~~(KWR)~~

Recommendation:

Should a detailed study plan be prepared?

Yes__X__

Yes, in modified form_____

Maybe_____

No__X__

Comments: This study directly supports ADF&G study R85. This study and R85 should coordinate with combined R39 - R88 which may provide support.

Budget: ~~12,000~~ 250,000 combined w/ R85

Resource Category: Salmon

Study Number: R53

Study Title: Kenai River Sockeye Salmon Restoration

Sponsoring Agency: ADF&G

Consequential Injury? Sockeye salmon returns less than escapement goals for at least one year and possibly 3.

Continuing? Yes

Recovery Occurring? ~~Yes~~ Unknown

Identifiable restoration endpoint?

Restore stocks through improved stock assessment capability more accurate regulation of spawning levels, and modification of human use.

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity. (~~KWR~~)

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form___X___

Maybe_____

No____

Comments: Question of precision in monitoring stocks is important for management decisions.
Present sonar system geared for king salmon. Better system needed for sockeye.
Proposal should consider Kodiak systems.
Policy question

Budget 590,000

Resource Category: ~~Herring/Dolly Varden~~ Herring

Study Number: R58

Study Title: Herring Restoration and Monitoring

Sponsoring Agency: ADF&G

Consequential Injury? Yes. "Oiled" and "Unoiled" fish both may have been affected by oil. % of chromosomal abnormalities greater than 50% in 1989. Declining thereafter, but larger in oiled areas. % egg and larval survival and larvae abnormalities greater in oiled areas, but declining yearly. Population level effect will not be observable until 1992.

Continuing? Yes

Recovery Occurring? ~~Yes~~ unknown.

Identifiable restoration endpoint?

Accurate fisheries management, modification of human use.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X_____ Reduce proposal to essential components needed now to anticipate management actions that would need to be taken if injury to adult resource is determined in 1992 or 1993.

Maybe_____

No____

Full Fen.

Comments: Overlaps F11.
Goals are questions of:
Do herring home?
What is larvae distribution?
Are there different genetic stocks and what is their distribution?
Can larvae fish study element be postponed?

Drop otolyth analyses
Drop growth development analyses
cut sampling effort in 1/2

Synthesis meeting in February will help resolve questions on elements and budget

Budget: 520,000

Resource Category: Birds ~~(BM)~~ (murrelet)

Study Number: R 16

Study Title: Identification of nesting habitat criteria and reproductive success for the marbled murrelet

Sponsoring Agency: USFWS

Consequential Injury? Proportionally more marbled murrelets were killed during the oil spill relative to their numbers at risk. There were 612 dead marbled murrelets collected into the morgue. Marbled murrelet numbers have declined significantly in PWS, from approximately 300,000 in 1972 to 100,000 in 1989-1991. The contribution of the oil spill to that decline has not been fully determined. Petroleum hydrocarbon contamination was found in tissue of unoiled murrelets collected in oiled areas in 1989. These birds also had low body weights. Birds collected in unoiled areas did not have petroleum hydrocarbon contamination in tissue.

Continuing? Yes

Recovery Occurring? Probably not, but it is difficult to separate spill-related injuries from long-term declines. There is no indication of recovery in murrelet numbers in the spill affected areas of PWS or Kodiak (areas with more than one post-oil spill survey). However, control of human disturbance at one study site resulted in some increase in numbers in 1989. The increase did not continue into 1991.

Identifiable restoration endpoint?
Monitoring and Habitat Protection

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX_

Comments: ~~This study should be~~ Combined with R 15.

Resource Category: Birds (murres)

Study Number: R 18

Study Title: Murres: Murre Recovery Modeling

Sponsoring Agency: USFWS

Consequential Injury? As the oil exited PWS and moved through the Gulf of Alaska, it collided with large rafts of breeding age murres congregating around major colonies. The resulting mortality included an estimated 198,000 adult breeding birds, representing 60 to 70 percent of the total breeding population of certain major colonies. Extrapolating to include mortality of non-breeders, mortality is estimated to be as high as 300,000 birds. This loss resulted in a major disruption of breeding behavior and phenology resulting in reproductive failure for the past three years.

Continuing? Yes

Recovery Occurring? No, although there are some very initial indications some colonies or portions of colonies are returning to more normal phenology, continued monitoring is needed to determine if these changes will continue and result in improved reproductive success.

Identifiable restoration endpoint?

-Monitoring

-Speed recovery by (a) reducing disturbance and (b) enhancing social synchrony

Recommendation:

Should a final report be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX__

Comments: This work will be completed under the direction of the Chief Scientist synthesis process.

Combined with R11

Resource Category: Birds ~~(BM)~~ (murres)

Study Number: R 19

Study Title: Murres: Control or eliminate human disturbance near murre colonies showing injury

Sponsoring Agency: USFWS

Consequential Injury? As the oil exited PWS and moved through the Gulf of Alaska, it collided with large rafts of breeding age murres congregating around major colonies. The resulting mortality included an estimated 198,000 adult breeding birds, representing 60 to 70 percent of the total breeding population of certain major colonies. Extrapolating to include mortality of non-breeders, mortality is estimated to be as high as 300,000 birds. This loss resulted in a major disruption of breeding behavior and phenology resulting in reproductive failure for the past three years.

Continuing? Yes

Recovery Occurring? No, although there are some very initial indications some colonies or portions of colonies are returning to more normal phenology, continued monitoring is needed to determine if these changes will continue and result in improved reproductive success.

Identifiable restoration endpoint?

-Monitoring

-Speed recovery by (a) reducing disturbance and (b) enhancing social synchrony

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX_

Comments: Combined with R11

The following objectives should be considered under R 11:

-Fund more regular visits and presence of Service personnel to affected colony sites to minimize disturbance effects of human activities ~~(PEG)~~ near murre colonies; and

-Gather information to identify buffer zones for recommendation to commercial fisherman or increase enforcement around sensitive colonies.

~~The following objective should be integrated into a public education study:~~

~~-Educate tour operations, charter boats, and commercial fishing industry in seabird conservation, protection, and viewing etiquette.~~

Resource Category: Birds ~~(BM)~~ (Bald eagles)

Study Number: R 21

Study Title: Develop bald eagle population model and understanding of age-specific survival rates

Sponsoring Agency: USFWS

Consequential Injury? There were 153 bald eagles recovered dead from the beaches in the oil spill area, representing an estimated total kill of between 500 and 1,000 eagles, 70 to 80 percent of these birds were adults and the remainder were ~~(PEG)~~ sexually immature. The population in the eastern oil spill area has been static since the spill with reproduction severely depressed in 1989 and certain continuing effects observed in 1990. In 1989, 85 percent of eagle nests in oiled areas failed. Fledgling success was 1 chick per successful nest as compared to 1.2 chicks for unoiled areas. Evidence of hydrocarbon contamination found in food items, egg contents, shells and shell fragments, and blood serum.

Continuing? Not certain

Recovery Occurring? Probably, but no change in eagle numbers observed since the spill. Reproduction in 1990 was significantly better than in 1989. No data are available for 1991, although anecdotal information suggests 1991 was a poor year for eagle reproduction in Prince William Sound.

Identifiable restoration endpoint? Monitoring recovery

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX_

Comments: Elements of this study should be combined with R 20.

Combined with R 20

Resource Category: Birds (~~BM~~) (Bald eagles)

Study Number: R 22

Study Title: Monitor productivity of bald eagles within EVOS area

Sponsoring Agency: USFWS

Consequential Injury? There were 153 bald eagles recovered dead from the beaches in the oil spill area, representing an estimated total kill of between 500 and 1,000 eagles, 70 to 80 percent of these birds were adults and the remainder were ~~(PEG)~~ sexually immature. The population in the eastern oil spill area has been static since the spill with reproduction severely depressed in 1989 and certain continuing effects observed in 1990. In 1989, 85 percent of eagle nests in oiled areas failed. Fledgling success was 1 chick per successful nest as compared to 1.2 chicks for unoiled areas. Evidence of hydrocarbon contamination found in food items, egg contents, shells and shell fragments, and blood serum.

Continuing? Not certain

Recovery Occurring? Probably, but no change in eagle numbers observed since the spill. Reproduction in 1990 was significantly better than in 1989. No data are available for 1991, although anecdotal information suggests 1991 was a poor year for eagle reproduction in Prince William Sound.

Identifiable restoration endpoint? Monitoring recovery

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No XX

Comments: The following objectives should be combined with R 20:
-Document recovery (Two helicopter surveys of 300 nests);
-Determine the number of bald eagles throughout the EVOS area (population survey in PWS, Kenai, Kodiak/Afognak, Alaska Peninsula).

Combined with R20

Resource Category: Birds (BM) (Harlequin duck)

Study Number: R 89

Study Title: Harlequin Duck Restoration Study (MAF)

Sponsoring Agency: ADF&G/USFWS

Consequential Injury? Harlequin ducks, resident intertidal feeders breeding in PWS, experienced reproductive failure in 1990 and 1991 (no surveys were completed in 1989). No broods were reported in the oil spill areas in 1990. Only one very late brood was recorded in a previously heavily oiled area in late 1991. The State of Alaska closed harlequin duck hunting in 1991 in PWS for the month of September in order to reduce further loss to the remaining resident population. Harlequin ducks were subject to considerable direct mortality resulting from the spill. Ingestion of petroleum hydrocarbons by six species of sea ducks, including harlequins, might have resulted (PEG) in poor physiological condition in 1989.

Continuing? Yes

Recovery Occurring? No indication of recovery.

Identifiable restoration endpoint?
- -Monitoring
- -Habitat Protection
- -Clean-up of Mussel beds
- -Additional harvest restrictions

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No XX

Comments: Combine with R 71

Resource Category: Marine Mammals (BM)

Study Number: R 7

Study Title: Habitat Utilization by Sea Otters

Sponsoring Agency: USFWS

Consequential Injury? 1,011 dead sea otters were recovered from the spill zone. It is estimated that between 3,500 and 5,500 sea otters were killed in the entire spill zone. Continuing injury is indicated by significantly higher numbers of prime age sea otter carcasses being recovered post-spill (1989 to 1991) than pre-spill (1974 to 1984) in western PWS. Post-weaning pup mortality in the winter 1990/1991 was significantly higher in western PWS than eastern PWS. Significant differences in blood parameters detected for adult males between eastern and western PWS; results suggest systemic hypersensitivity reactions in western males. Average survival rate of radio-collared sea otters released from the rehabilitation center is approximately 32 percent.

Continuing? Yes

Recovery Occurring? Injury information suggests sea otters are not recovering rapidly in PWS and data indicated ongoing injury. Other studies report elevated hydrocarbon contamination in bivalve mollusks, a dominant sea otter prey in western PWS. Pupping rates and pup survivorship to weaning was similar in eastern and western Prince William Sound in 1990 and 1991.

Identifiable restoration endpoint?

- -Monitoring
- -Habitat Protection
- -Clean-up of Mussel beds
- -Minimize human disturbance
- -Protect/acquire marine and coastal habitats (e.g., sheltered coves, rich feeding areas) (KWR)

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX_

Comments: Combine with R 6

Resource Category: Marine Mammals (BM)

Study Number: R 8

Study Title: Sea Otter Recovery Model Validation Component

Sponsoring Agency: USFWS

Consequential Injury? 1,011 dead sea otters were recovered from the spill zone. It is estimated that between 3,500 and 5,500 sea otters were killed in the entire spill zone. Continuing injury is indicated by significantly higher numbers of prime age sea otter carcasses being recovered post-spill (1989 to 1991) than pre-spill (1974 to 1984) in western PWS. Post-weaning pup mortality in the winter 1990/1991 was significantly higher in western PWS than eastern PWS. Significant differences in blood parameters detected for adult males between eastern and western PWS; results suggest systemic hypersensitivity reactions in western males. Average survival rate of radio-collared sea otters released from the rehabilitation center is approximately 32 percent.

Continuing? Yes

Recovery Occurring? Injury information suggests sea otters are not recovering rapidly in PWS and data indicated ongoing injury. Other studies report elevated hydrocarbon contamination in bivalve mollusks, a dominant sea otter prey in western PWS. Pupping rates and pup survivorship to weaning was similar in eastern and western Prince William Sound in 1990 and 1991.

Identifiable restoration endpoint?

-Monitoring
-Habitat Protection
-Clean-up of Mussel beds
-Conduct research on population status/limiting factors (e.g., contamination of prey) and develop restoration measures accordingly (KWR)

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX_

Comments: Combine with R 6

Resource Category: Marine Mammals (BM)

Study Number: R 9

Study Title: Pathology and Toxicological Monitoring Component

Sponsoring Agency: USFWS

Consequential Injury? 1,011 dead sea otters were recovered from the spill zone. It is estimated that between 3,500 and 5,500 sea otters were killed in the entire spill zone. Continuing injury is indicated by significantly higher numbers of prime age sea otter carcasses being recovered post-spill (1989 to 1991) than pre-spill (1974 to 1984) in western PWS. Post-weaning pup mortality in the winter 1990/1991 was significantly higher in western PWS than eastern PWS. Significant differences in blood parameters detected for adult males between eastern and western PWS; results suggest systemic hypersensitivity reactions in western males. Average survival rate of radio-collared sea otters released from the rehabilitation center is approximately 32 percent.

Continuing? Yes

Recovery Occurring? Injury information suggests sea otters are not recovering rapidly in PWS and data indicated ongoing injury. Other studies report elevated hydrocarbon contamination in bivalve mollusks, a dominant sea otter prey in western PWS. Pupping rates and pup survivorship to weaning was similar in eastern and western Prince William Sound in 1990 and 1991.

Identifiable restoration endpoint?

-Monitoring
-Habitat Protection
-Clean-up of Mussel beds

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX_

Comments: Combine with R 6

Resource Category: Birds (BM) (Pigeon Guillemot)

Study Number: R 14

Study Title: Pigeon Guillemot Recovery Enhancement and Monitoring

Sponsoring Agency: USFWS

Consequential Injury? There were 669 dead pigeon guillemots collected into the morgue. It is estimated that 3,000 pigeon guillemots, a number equivalent to half of the estimated Prince William Sound (PWS) pigeon guillemot population, were killed in the oil spill. Overall numbers in the Sound have declined significantly since pre-spill surveys, with a significantly greater decline in oiled areas. Reproductive success has declined significantly compared to five pre-spill years. Petroleum hydrocarbon contamination was found in adult tissue and eggs in both 1989 and 1990. Decreased chick growth and fledgling weights were observed in 1990.

Continuing? Yes

Recovery Occurring? Probably not, but it is difficult to separate spill-related injuries from long-term declines. The estimated population in PWS increased slightly in 1991, but it is still less than half of the 1973 population level. No studies are available for 1991 to assess ~~(PEG)~~ recovery of reproductive success or continued contamination of eggs.

Identifiable restoration endpoint? Monitoring

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No XX

Comments: Forage fish aspects need to be integrated into comprehensive forage fish project.

Monitoring of population to be accomplished through boat surveys.

~~Management Team may reconsider this proposal.~~

The final budget has been reduced by $10K to reflect GIS costs that have been incorporated into Restoration Technical Services 3 for FWS.

Budget estimate: 243,000

Resource Category: Birds ~~(BM)~~ (Black oystercatcher)

Study Number: R 17

Study Title: Feeding Ecology and Reproductive Success of Black Oystercatchers in Prince William Sound

Sponsoring Agency: USFWS

Consequential Injury? Nine (9) dead black oystercatchers were recovered and placed in the morgue. Black oystercatcher productivity was less in oiled versus unoiled habitats in PWS in 1989. Chick growth rate was significantly lower in impacted areas compared to unimpacted areas. Direct disturbance by beach cleaning operations significantly reduced oystercatcher productivity on Green Island in 1990. Oystercatcher populations showed oil spill declines impacts between pre- and post-spill periods.

Continuing? Probably beginning to recover.

Recovery Occurring? The number of breeding oystercatchers increased by 50% on Green Island between 1989 and 1991 but no recovery is evident on Montague Island. Other biological indicators suggest that oiled sites are continuing to be less productive than unoiled sites in PWS.

Identifiable restoration endpoint?

-Monitoring

-Contributing to understanding linkage to oiled mussels and overall recovery of intertidal habitats.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form____

Maybe____

No_X_

Comments: ~~The final budget has been reduced by $10K to reflect GIS costs that have been incorporated into Restoration Technical Services 3 for FWS.~~

~~Budget estimate - $200K~~

The oiled mussel component of this should be addressed under the mussel bed study.

Budget Estimate 200,000

Resource Category: Birds ~~(BM)~~ (Bald eagle)

Study Number: R 23

Study Title: Monitor hydrocarbon contamination in bald eagle blood

Sponsoring Agency: USFWS

Consequential Injury? There were 153 bald eagles recovered dead from the beaches in the oil spill area, representing an estimated total kill of between 500 and 1,000 eagles, 70 to 80 percent of these birds were adults and the remainder were sexually immature. ~~(PEG)~~ The population in the eastern oil spill area has been static since the spill with reproduction severely depressed in 1989 and certain continuing effects observed in 1990. In 1989, 85 percent of eagle nests in oiled areas failed. Fledgling success was 1 chick per successful nest as compared to 1.2 chicks for unoiled areas. Evidence of hydrocarbon contamination found in food items, egg contents, shells and shell fragments, and blood serum.

Continuing? Not certain

Recovery Occurring? Probably, but no change in eagle numbers observed since the spill. Reproduction in 1990 was significantly better than in 1989. No data are available for 1991, although anecdotal information suggests 1991 was a poor year for eagle reproduction in Prince William Sound.

Identifiable restoration endpoint? Monitoring recovery

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No XX

Comments: None

Budget 128000

Resource Category: Birds (~~BM~~) (Bald eagle)

Study Number: R 24

Study Title: Monitor hydrocarbon contamination in bald eagle eggs

Sponsoring Agency: USFWS

Consequential Injury? There were 153 bald eagles recovered dead from the beaches in the oil spill area, representing an estimated total kill of between 500 and 1,000 eagles, 70 to 80 percent of these birds were adults and the remainder were ~~(PEG)~~ sexually immature. The population in the eastern oil spill area has been static since the spill with reproduction severely depressed in 1989 and certain continuing effects observed in 1990. In 1989, 85 percent of eagle nests in oiled areas failed. Fledgling success was 1 chick per successful nest as compared to 1.2 chicks for unoiled areas. Evidence of hydrocarbon contamination found in food items, egg contents, shells and shell fragments, and blood serum.

Continuing? Not certain

Recovery Occurring? Probably, but no change in eagle numbers observed since the spill. Reproduction in 1990 was significantly better than in 1989. No data are available for 1991, although anecdotal information suggests 1991 was a poor year for eagle reproduction in Prince William Sound.

Identifiable restoration endpoint? Monitoring recovery

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX_

Comments: None.

Budget Estimate 128000

Resource Category: Birds (~~BM~~) (Bald eagles)

Study Number: R 25

Study Title: Determine food habits for adult and subadult bald eagles

Sponsoring Agency: USFWS

Consequential Injury? There were 153 bald eagles recovered dead from the beaches in the oil spill area, representing an estimated total kill of between 500 and 1,000 eagles, 70 to 80 percent of these birds were adults and the remainder were sexually immature. (PEG) The population in the eastern oil spill area has been static since the spill with reproduction severely depressed in 1989 and certain continuing effects observed in 1990. In 1989, 85 percent of eagle nests in oiled areas failed. Fledgling success was 1 chick per successful nest as compared to 1.2 chicks for unoiled areas. Evidence of hydrocarbon contamination found in food items, egg contents, shells and shell fragments, and blood serum.

Continuing? Not certain

Recovery Occurring? Probably, but no change in eagle numbers observed since the spill. Reproduction in 1990 was significantly better than in 1989. No data are available for 1991, although anecdotal information suggests 1991 was a poor year for eagle reproduction in Prince William Sound.

Identifiable restoration endpoint? Monitoring recovery

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX_

Comments: None

Resource Category: Birds (BM) (murrelet)

Study Number: R 26

Study Title: Assessment of the marbled murrelet foraging habitat requirements during the breeding season

Sponsoring Agency: USFWS

Consequential Injury? Proportionally more marbled murrelets were killed during the oil spill relative to their numbers at risk. There were 612 dead marbled murrelets collected into the morgue. Marbled murrelet numbers have declined significantly in PWS, from approximately 300,000 in 1972 to 100,000 in 1989-1991. The contribution of the oil spill to that decline has not been fully determined. Petroleum hydrocarbon contamination was found in tissue of unoiled murrelets collected in oiled areas in 1989. These birds also had low body weights. Birds collected in unoiled areas did not have petroleum hydrocarbon contamination in tissue.

Continuing? Yes

Recovery Occurring? Probably not, but it is difficult to separate spill-related injuries from long-term declines. There is no indication of recovery in murrelet numbers in the spill affected areas of PWS or Kodiak (areas with more than one post-oil spill survey). However, control of human disturbance at one study site resulted in some increase in numbers in 1989. The increase did not continue into 1991.

Identifiable restoration endpoint?
Monitoring and Habitat Protection

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No XX

Comments: This proposal should not be further developed for 1992 except as it relates to an overall foraging study being considered by ADF&G.

Resource Category: Birds ~~(BM)~~ (murres)

Study Number: R 30

Study Title: Murres: Test feasibility of tape recordings, decoys, habitat modification, and other methods to facilitate breeding synchrony and higher reproductive success for murres

Sponsoring Agency: USFWS

Consequential Injury? As the oil exited PWS and moved through the Gulf of Alaska, it collided with large rafts of breeding age murres congregating around major colonies. The resulting mortality included an estimated 198,000 adult breeding birds, representing 60 to 70 percent of the total breeding population of certain major colonies. Extrapolating to include mortality of non-breeders, mortality is estimated to be as high as 300,000 birds. This loss resulted in a major disruption of breeding behavior and phenology resulting in reproductive failure for the past three years.

Continuing? Yes

Recovery Occurring? No, although there are some very initial indications some colonies or portions of colonies are returning to more normal phenology, continued monitoring is needed to determine if these changes will continue and result in improved reproductive success.

Identifiable restoration endpoint?

-Monitoring

-Speed recovery by (a) reducing disturbance and (b) enhancing social synchrony

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No_XX_

Comments:

The following objective should be incorporated into R 11:

-Try different applications of decoys, vocalizations and habitat modifications to determine feasibility and refine understanding of how a murre colony reestablishes itself.

Resource Category: Birds ~~(BM)~~ (murres)

Study Number: R 31

Study Title: Murres: Identify post-breeding concentrations of murre chicks with accompanying males and winter concentrations and evaluate winter distribution and intermixing of murre populations

Sponsoring Agency: USFWS

Consequential Injury? As the oil exited PWS and moved through the Gulf of Alaska, it collided with large rafts of breeding age murres congregating around major colonies. The resulting mortality included an estimated 198,000 adult breeding birds, representing 60 to 70 percent of the total breeding population of certain major colonies. Extrapolating to include mortality of non-breeders, mortality is estimated to be as high as 300,000 birds. This loss resulted in a major disruption of breeding behavior and phenology resulting in reproductive failure for the past three years.

Continuing? Yes

Recovery Occurring? No, although there are some very initial indications some colonies or portions of colonies are returning to more normal phenology, continued monitoring is needed to determine if these changes will continue and result in improved reproductive success.

Identifiable restoration endpoint?

-Monitoring

-Speed recovery by (a) reducing disturbance and (b) enhancing social synchrony

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form____

Maybe____

No XX

Comments: This study should not be considered further for 1992.

Deferred (Habitat)

Resource Category: Habitat

Study Number: ~~R39 107~~ R39

Study Title: Fish Habitat Limiting Factors Analysis ~~(JRS)~~

Sponsoring Agency: USFS

Consequential Injury? Salmon increased egg mortality, fry histopathology and MFO induction*, decreased growth/early marine survival. Probable population level impacts. Dolly Varden reduced survival. Cutthroat reduced growth and survival.

Continuing? Salmon - yes. Dolly Varden and cutthroat require examination in 1992 to assess continuing injury.

Recovery Occurring? 1991 egg mortalities suggest a continuing problem for salmon, however, improved management derived from FS1-4 is helping to mitigate this loss.

Identifiable restoration endpoint?

Identification of probable fish-bearing streams and the factors that limit their productivity. ~~(SES)~~

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity ~~(KWR)~~

Enhance productivity and access to new habitats through stream improvements (e.g., egg boxes, spawning channels, passes) ~~(KWR)~~

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_X_____

Maybe_____

No_____

Comments: Combine with NMFS proposal R88 into a single joint proposal. Coordinate efforts from this joint proposal with R44-R85 such that the same streams will be studied in R39 - R88 and R44 - R85 and duplication of effort will not occur.

Budget Estimate: 125000

Resource Category: Marine Mammals

Study Number: R82

Study Title: Killer Whale Monitoring and Habitat Studies

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Monitoring of natural recovery, habitat protection or management

Recommendation:

Should a detailed study plan be prepared?

Yes_X_

Yes, in modified form_____

Maybe_____

No_X_

Comments: PI has paved way for approval of tagging permit.
No more than 3 whales would be tagged.
Procedures for tagging, permits in 1992, tagging effort in '93.
Reduce budget.

Budget ~~219,500~~ → 195,00

Deferred (Hab ?)

Resource Category: Habitat

Study Number: ~~R88~~ ~~107~~ R88

Study Title: Stream Carrying Capacity for Evaluating Restoration in Prince William Sound

Sponsoring Agency: NOAA

Consequential Injury? Salmon increased egg mortality, fry histopathology and MFO induction*, decreased growth/early marine survival. Probable population level impacts. Dolly Varden reduced survival. Cutthroat reduced growth and survival.

Continuing? Salmon - yes. Dolly Varden and cutthroat require examination in 1992 to assess continuing injury.

Recovery Occurring? 1991 egg mortalities suggest continuing problem for salmon; however, improved management derived from FS1-4 is helping to mitigate this loss.

Identifiable restoration endpoint?

Determine fish abundance in and carrying capacity of streams in oiled and unoiled areas.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form___X___

Maybe_____

No___X___

Comments:

Combine with USFS proposal R39 into a single joint proposal. Coordinate efforts from this joint proposal with combined proposal R42-R86 and R44-R85 so that the same streams will be targeted by R42 - R86 and R39 - R88 and duplication of effort will not occur.

* Fry histopathology and MFO induction were described in an ADF&G Habitat Division Response report (Wiedmer, 1991) and some F/S4 samples. Most NRDA samples have not yet been completely processed.

Budget Estimate 175000

Resource Category: Subtidal

Study Number: R78 Withdrawn

Study Title: Mussel Tissue and Sediment Hydrocarbon Data Synthesis

Sponsoring Agency: NOAA (BM)

Consequential Injury? Yes

Continuing? Approach to synthesize hydrocarbon data using principal components analyses

Recovery Occurring? Yes

Identifiable restoration endpoint?

This is a cost savings approach to rapidly identify the presence of oil in sediments, perhaps mussel tissue. Also serves to assess consistency/reasonableness of data, project by project. Could be done with clam tissue, as well.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_X_

Maybe_____

No_X_

Comments: Extra detailed study plan to include other molluscs

Withdrawn - ST8 will encompass original objectives.

Budget 100,000

Resource Category: Subtidal

Study Number: R50

Study Title: Tanner Crab Population Monitoring and Restoration

Sponsoring Agency: ADF&G

Consequential Injury?

Continuing? Inferred from injury to spot shrimp

Recovery Occurring? Unknown

Identifiable restoration endpoint?

Regulation of human use.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No_X___

Comments: Fishery has been closed since 1988.
Unlikely to detect damage at this late date.
Need to review spot shrimp injury before approving this work.

Budget 80000

Resource Category: Salmon

Study Number: R40

Study Title: Prince William Sound Wild Fish Stock Information Assessment.

Sponsoring Agency: USFS

Consequential Injury? Yes, increased egg mortality, decreased fry growth and decreased adult returns in salmon. Increased annual mortality in Dolly Varden and Cutthroat, decreased growth in Cutthroat.

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Evaluate and prioritize fish stocks for management.

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity (KWR)

Enhance productivity and access to new habitats through stream improvemetns (e.g., egg boxes, spawning channels, passes) (KWR)

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form X - integrate with FS30

Maybe_____

No X

Comments: Integrate with F/S30, and coordinate with ADF&G to develop formats.
Combine network with ADF&G

Budget 50,000

Resource Category: Salmon

Study Number: R46

Study Title: Identification of Suitable Early-run Pink Salmon Stocks for Development as Brood Stock at Prince William Sound Hatcheries

Sponsoring Agency: ADF&G

Consequential Injury? Yes, egg mortalities are higher and increasing in oiled areas (40 -50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects. Juvenile reduced growth.

Continuing? Yes

Recovery Occurring? Don't know

Identifiable restoration endpoint?

Enhance recovery of wild stocks

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No_X___

Comments: Will probably happen without EVOS funding.

Budget 80000

Resource Category: Salmon

Study Number: R63

Study Title: Evaluation of Carrying Capacity and Effects of Hatchery Salmon on other Juvenile Fishes in Prince William Sound Note: this proposal had a different project name previously

Sponsoring Agency: ADF&G

Consequential Injury? Yes, injury to wild salmon is well established due to oil. Hatchery fish compete with them and other species which may have been impacted but were not studied. Herring injuries to egg, larvae.

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Identify interactions limiting natural recovery.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form___X___ after workshop.

Maybe_____

No_X_

Comments: Natural cycles may reduce carrying capacity, i.e. SW temperature
Needs to be integrated with R60 and R88.
Workshop needs to be conducted to coordinate forage fish needs. Will reconsider modified proposal after workshop.

Workshop will be held in 1992 to develop proposal that addresses multispecies concerns.

Budget 600,000

Resource Category: Salmon

Study Number: R61

Study Title: Monitoring DNA Breakages of Fish and Shellfish Populations in Prince William Sound

Sponsoring Agency: ADF&G

Consequential Injury? 1991 salmon egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams.

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Monitor the genetic effects of chromosome breakages on animal populations inhabiting PWS (pink, herring, DV, cutthroat trout and spotshrimp) - Could also be applied to birds and mammals.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No__X__

Comments: Seems like DA study
Approximately 1000 samples x 7 species
Effects often last after 1-2 cell divisions after exposure.*
Salmonids are tetraploid. May exist in non-dividing germ plasma and red blood cells.
Study is too speculative, needs to be further developed.

* Fry histopathology and MFO induction were described in an ADF&G Habitat Division Response report (Wiedman, 1991) and some F/S4 samples. Most NRDA samples have not yet been completely sampled.

Budget $150000

ignore Split so 54 is in deferred category

Resource Category: Subtidal

Study Number: ~~R54 and~~ R55

Study Title: ~~Juvenile Spot Shrimp Habitat (R54) and~~ Spot Shrimp Restoration (R55)

Sponsoring Agency: ADF&G

Consequential Injury? Yes, link to oil problematic. Evidence of near commercial extinction in at least one oiled location. Problem with % of females. 1992 effort (BM) needed to see potential recruitment of BY89.

Continuing? Yes, lack of growth of age classes, mortality of populations indicated.

Recovery Occurring? No.

Identifiable restoration endpoint?

Fishery management alternatives.
Artificial enhancement technique.

Recommendation:

Should a detailed study plan be prepared?

Yes__X__ (on R55, ~~with condition that Fall '91 and Spring '92 show injury~~)

Yes, in modified form_____

Maybe_____

No__X__ (~~on R54~~)

Comments: 1. Postpone analysis of plankton samples from F19 for decapod larvae.
2. Postpone aquaculture element in R55 and reduce budget accordingly.
3. Focus genetic separation on PWS only, or defend in DSP why need to study other stocks/areas.

Policy – how much money are we expected to ca[illegible] to [illegible] [illegible]?

Budget 60,000

Resource Category: Subtidal

Study Number: R54

Study Title: Juvenile Spot Shrimp habitat

Sponsoring Agency: ADF&G

Consequential Injury? Yes, link to oil problematic. Evidence of near commercial extraction in at least one oiled location. Problem with % females. 1992 effort needed to see potential recruitment of BY89.

Continuing? Yes

Recovery Occurring? No

Identifiable restoration endpoint?

Fishery management alternatives

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No_X_

Comments: Policy question

Budget estimate 650,000

Resource Category: Coastal Habitat

Study Number: R70

Study Title: Stable Carbon Isotopic Analyses of EVOS Carbon

Sponsoring Agency: USFS

Consequential Injury?

Continuing? N/A

Recovery Occurring? N/A

Identifiable restoration endpoint?

None

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No_X___

Comments: The purpose of this study has no relevance to restoration objectives. Decline. (BM)

Budget 48600

Resource Category: Coastal Habitat

Study Number: R65

Study Title: Coastal Habitat Comprehensive Intertidal Program

Sponsoring Agency: USFS

Consequential Injury? Yes

Continuing? Yes, substantial reductions in abundances of many common marine invertebrates in upper meter of sheltered rocky intertidal. These reductions constituted almost complete removal of Fucus and over 50% reductions of limpets and barnacles.

Recovery Occurring? No, through 1991 or limited evidence of recovery through 1991.

Identifiable restoration endpoint?

Monitoring of natural recovery

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X__ (see comments)

Maybe_____

No_X___

Comments: Fucus, Sheltered Rocky 1MVD in PWS, Herring Bay
experimental only for continuation
Need itemized budget

No statistical consulting contract is needed for this reduced design. Costs should be cut greatly.

COMBINED INTO R102

Resource Category: Coastal Habitat

Study Number: R102

Study Title: Coastal Habitat Monitoring

Sponsoring Agency: Interagency

Consequential Injury? Yes, oil persists along parts of the coastline, substantial reductions of marine invertebrates and fucus species have occurred.

Continuing? Yes,

Recovery Occurring? Limited.

Identifiable restoration endpoint?

Monitoring rates of natural recovery.

Recommendation:

Should a detailed study plan be prepared?

Yes__X___

Yes, in modified form__X__ Limit to objs 1 and 2

Maybe_____

No____

Comments: This proposal will be developed in January. It will be a combination of earlier proposals (R4, R5, R65, R67, R79, R84). A subcommittee of the RRCG and Restoration Subgroup will formulate the objectives for the study which will coordinate with response work already scheduled. Budget estimate represents a maximum figure.

Budget Estimate: $750,000

R 86

Name_ns

commentin' combined link

RDS

Resource Category: Salmon

Study Number: R86

Study Title: Survey and Evaluation of Instream Habitat and Stock Restoration Techniques for Wild Pink and Chum Salmon

Sponsoring Agency: ADF&G

Consequential Injury? Increased egg mortality, fry histopathology and MFO induction*, decreased growth/early marine survival. Probable population level impacts.

Continuing? 1991 mortalities suggest a continuing problem.

Recovery Occurring? Improved management derived from FS1-4 is helping to mitigate these losses.

Identifiable restoration endpoint?

Identify specific enhancement techniques recommended for each impacted streams.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_X___

Maybe_____

No____

Combined with R42 - now 105

Comments: ~~Combine with USFS proposal R42 into a single joint proposal.~~ Efforts from this joint proposal to be coordinated with combined proposal R39-R88 so that the same streams will be targeted by R42 - R86 and R39 - R88 and duplication of effort will not occur.

* Fry histopathology and MFO induction were described in an ADF&G Habitat Division Response report (Wiedmer, 1991) and some F/S4 samples. Most NRDA samples have not yet been completely processed.

Budget: $400,000 for combined proposal with R42

Resource Category: Salmon

Study Number: ~~R105~~ R42

Study Title: Western Prince William Sound Restoration Survey and Project Planning

Sponsoring Agency: USFS

Consequential Injury? Increased egg mortality, fry histopathology and MFO induction*, decreased growth/early marine survival. Probable population level impacts.

Continuing? 1991 mortalities suggest a continuing problem.

Recovery Occurring? Improved management derived from FS1-4 is helping to mitigate these losses.

Identifiable restoration endpoint?

Identify specific enhancement techniques recommended for each impacted streams.

Enhance productivity and access to new habitats through stream improvements.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form X

Maybe_____

No X

Combined into R105

Comments: ~~Combine with ADF&G proposal R86 into a single joint proposal.~~ Efforts from this joint proposal to be coordinated with combined proposal R39-R88 so that the same streams will be targeted by R42 - R86 and R39 - R88 and duplication of effort will not occur.
R42 provides feasibility level analysis to a subset of R86 streams

* Fry histopathology and MFO induction were described in an ADF&G Habitat Division Response report (Wiedmer, 1991) and some F/S4 samples. Most NRDA samples have not yet been completely processed.

Budget Estimate: $400,000 for joint proposals with R86

Resource Category: Salmon

Study Number: ~~R86~~ ~~105~~ R86

Study Title: Survey and Evaluation of Instream Habitat and Stock Restoration Techniques for Wild Pink and Chum Salmon

Sponsoring Agency: ADF&G

Consequential Injury? Increased egg mortality, fry histopathology and MFO induction*, decreased growth/early marine survival. Probable population level impacts.

Continuing? 1991 mortalities suggest a continuing problem.

Recovery Occurring? Improved management derived from FS1-4 is helping to mitigate these losses.

Identifiable restoration endpoint?

Identify specific enhancement techniques recommended for each impacted streams.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_X___

Maybe_____

No____

Comments: Combine with USFS proposal R42 into a single joint proposal. Efforts from this joint proposal to be coordinated with combined proposal R39-R88 so that the same streams will be targeted by R42 - R86 and R39 - R88 and duplication of effort will not occur.

* Fry histopathology and MFO induction were described in an ADF&G Habitat Division Response report (Wiedmer, 1991) and some F/S4 samples. Most NRDA samples have not yet been completely processed.

Budget 400,000 for combined proposal with R42

Resource Category: Salmon

Study Number: R60

Study Title: A) Stock Identification - Population Monitoring of Wild Pink Salmon B) Pink Salmon Escapement Enumeration C) Monitoring Recovery of Pink Salmon Egg and Pre-emergent Fry

Sponsoring Agency: ADF&G

Consequential Injury? Yes, egg mortalities are higher and increasing in oiled areas (40-50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects juvenile reduced growth. 1991 egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams.

consolidate so we can get on one page

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

1) Identify restoration methods
2) Fishery Management
3) Monitor natural recovery

Monitor recovery, including results of restoration actions

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity

Enhance productivity and access to new habitats through stream improvements (e.g., egg boxes, spawning channels, passes)

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X___

Maybe_____

No____

Comments: Only part C approved for 1992

Budget Estimate - -

~~3 proposals in one package~~
Need to resolve cause of continuing egg/fry mortality in wild streams. ~~This research should continue under recovery monitoring. This is part of overall pink salmon package that includes FS1 & 2, and R60.~~

Budget Estimate: $180,000

Resource Category: ~~Herring~~/Dolly Varden

Study Number: R90

Study Title: Dolly Varden/Cutthroat Trout Monitoring

Sponsoring Agency: ~~ADFG~~ ADF&G

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? No

Identifiable restoration endpoint?

Natural recovery monitoring

Recommendation:

Should a detailed study plan be prepared?

Yes__X__

Yes, in modified form_____

Maybe_____

No____

Comments: 1991 lost weirs at 2 of 3 oiled streams
Will repeat in 1992 to get 2 yr mortality rate to estimate recovery

Budget 227,000

Resource Category: Marine Mammals (BM)

Study Number: R 6

Sea Otter Restoration

Study Title: Population Monitoring of Sea Otter Population Abundance, Distribution, Reproduction and Mortality in areas affected by the EVOS

Sponsoring Agency: USFWS

Consequential Injury? 1,011 dead sea otters were recovered from the spill zone. It is estimated that between 3,500 and 5,500 sea otters were killed in the entire spill zone. Continuing injury is indicated by significantly higher numbers of prime age sea otter carcasses being recovered post-spill (1989 to 1991) than pre-spill (1974 to 1984) in western PWS. Post-weaning pup mortality in the winter 1990/1991 was significantly higher in western PWS than eastern PWS. Significant differences in blood parameters detected for adult males between eastern and western PWS; results suggest systemic hypersensitivity reactions in western males. Average survival rate of radio-collared sea otters released from the rehabilitation center is approximately 32 percent.

Continuing? Yes

Recovery Occurring? No. Injury information suggests sea otters are not recovering rapidly in PWS and data indicated ongoing injury. Other studies report elevated hydrocarbon contamination in bivalve mollusks, a dominant sea otter prey in western PWS. Pupping rates and pup survivorship to weaning was similar in eastern and western Prince William Sound in 1990 and 1991.

Identifiable restoration endpoint?

-Monitoring
-Habitat Protection
-Clean-up of Mussel beds
-Conduct research on population status/limiting factors (e.g., competition for forage fish) and develop restoration measures accordingly
-Monitor recovery, including results of restoration actions (KWR)

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form XX

Maybe____

No____

Comments: The following study elements should be carried out in 1992: (1) continue development of aerial survey monitoring program

in PWS only, (2) boat surveys in conjunction with seabird surveys, (3) where possible, calibrate boat and aerial surveys, (4) ~~reproductive surveys inside and outside PWS~~, (5) mortality assessments, ~~(6) radio track existing instrumented otters~~, (7) synthesize existing habitat data, ~~(8) conduct surveys to assess seasonal distribution outside PWS~~, (9) provide support to oiled mussel effort, and (10) implement a pup study looking at weanling survival.

The final budget should be reduced by $35K to reflect GIS costs that have been incorporated into Restoration Technical Services 3.

~~Preliminary budget estimate based on modified proposal: $934K. Budgets will be further developed in detailed study plan.~~

Elements to be included in the detailed study plan:

1, 2, 3, 5, 7, 9, 10

Budget Estimate: 606,000

Resource Category: Salmon

Study Number: R60

Study Title: A) Stock Identification - Population Monitoring of Wild Pink Salmon B) Pink Salmon Escapement Enumeration C) Monitoring Recovery of Pink Salmon Egg and Pre-emergent Fry

Sponsoring Agency: ADF&G

Consequential Injury? Yes, egg mortalities are higher and increasing in oiled areas (40-50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects juvenile reduced growth. 1991 egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams.

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

1) Identify restoration methods
2) Fishery Management
3) Monitor natural recovery

Monitor recovery, including results of restoration actions ~~(KWR)~~

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity ~~(KWR)~~

Enhance productivity and access to new habitats through stream improvements (e.g., egg boxes, spawning channels, passes) ~~(KWR)~~

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X___

Maybe_____

No_____

Only Part C approved for 1992

Comments: 3 proposals in one package
Need to resolve cause of continuing egg/fry mortality in wild streams. This research should continue under recovery monitoring. This is part of overall pink salmon package that includes FS1 & 2, and R60.

Budget 2,920,000
390
2,530,000

2 100 000
640,
C 18,

ignore all of this Susan.

Dave will complete.

The 1989 change to terminal fishery sites caused quality problems which prompted the creation of a task force. In 1990 the Fisher

Only part C approved.

Budget Estimate $180,000

Resource Category: Salmon

Study Number: R59

Study Title: Assessment of Genetic Stock Structure of Salmonids for Restoration Planning and Monitoring

Sponsoring Agency: ADFG

Consequential Injury? Salmon - poorer egg survival, fry histopathology, MFO induction, growth/survival in early marine phase; adult returns. Dolly Varden - decreased annual survival. Cutthroat - decreased annual survival and growth.

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Provide for management with population genetic information for ~~5 species of salmonids~~ Sockeye salmon

~~Identify different stock of pink and chum salmons~~

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity. ~~(KWR)~~

Recommendation:

Should a detailed study plan be prepared?

Yes__X___

Yes, in modified form_____

Maybe_____

No____

Comments: In PWS, this need is for oil impact mitigation. Need to address in DSP why genetic stock identification in UCI is preferred to scale pattern analysis.

Policy decision needed

Budget 250,000

Resource Category: Terrestrial Mammals

Study Number: R 95

Study Title: River Otter Restoration Study

Sponsoring Agency: ADF&G

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Unknown

Identifiable restoration endpoint?

Replacement, natural recovery, habitat protection. Monitor food habits, body size/body weight ratios, and home range size, determine genetic diversity. (MAF)

Recommendation:

Should a detailed study plan be prepared?

Yes X

Yes, in modified form_____

Maybe_____

No____

Comments: Will continue to monitor body size/body weight ratios between oiled and unoiled areas.

(which were sig ly diff ent)

~~Do we nee~~ May wish o

el n nate from detailed udy plan

Must link to oiled mussel bed study (103)

Budget 65,000

Resource Category: Subtidal

Study Number: R101

Study Title: Recovery monitoring of subtidal communities.

Sponsoring Agency: Interagency

Consequential Injury? Yes, significant decreases in diversity, abundance of infaunal invertebrates. Continued evidence of HC persistence in sediments

Continuing? Yes, exposure still evident

Recovery Occurring? Yes

Identifiable restoration endpoint?

Monitoring Natural Recovery

Monitoring fate and persistence of oil in subtidal zone

Recommendation:

Should a detailed study plan be prepared?

Yes ✓

Yes, in modified form_____

Maybe_____

No_____

Comments: Combined proposal from R32, R51, R74, R75, R77, R83. A synthesis meeting will be held in January to produce focused proposal. Only those elements which must be done in 1992 will be included. Consider focusing on specific environments to condense sampling locations. Inclusive budget should show reduction from current 1.5 million to less than 900K.

Budget Estimate: 900,000.

Resource Category: Subtidal

Study Number: R32

Study Title: Natural Recovery of Deep Benthic Macrofaunal Communities in PWS (MAF)

Sponsoring Agency: ADF&G

Consequential Injury?

Continuing? Yes, continuing changes to deep benthos at oiled sites

Recovery Occurring? Yes, in some locations. No, in some others (still dominated by opportunistic species)

Identifiable restoration endpoint?

Monitoring natural recovery.

Monitoring of fate and effects of oil that has been transported into the subtidal zone. (MAF)

Determine potential routes of transfer of hydrocarbons within the subtidal system. (MAF)

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form___X___ (pending '91 results)

Maybe_____

No_____

Comments: Reduce budget to reflect sampling only at 40m and 100m at selected sites.
Study should be limited to a reduced number of sites.
Need to budget proportionately.
Schedule '92 sampling, but evaluate the need to sample in '92 based on completion of '91 analyses.

bdd ~ Combined into R101

Budget ~~900,000 maximum~~

Resource Category: Subtidal

Study Number: R51 R101 R51

Study Title: Natural restoration of Shallow Subtidal Communities in PWS (MAF)

Sponsoring Agency: ADF&G (MAF)

Consequential Injury? Yes

Continuing? Yes, significant decreases in diversity, abundance, and biomass of infaunal invertebrates in soft bottoms near and in eelgrass beds.

Recovery Occurring? Yes, some populations may have recovered (eg. helmet crab), but others have not, and "may not do so for years".

Identifiable restoration endpoint?

Monitoring of natural recovery.

Monitoring of fate and effects of oil that has been transported into the subtidal zone. (MAF)

Determine potential routes of transfer of hydrocarbons within the subtidal system. (MAF)

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X__

Maybe_____

No__X__

Comments: Focus on eelgrass beds and 6 and 20m depths (BM)
Study Telmessus food habits
Reduce the number of sites and budget proportionately
Incorporate manipulative component to test hypothesis about predator/prey interactions

bold
Combined into R101

Resource Category: Subtidal

Study Number: ~~R74~~ 101 R74

Study Title: Recovery Monitoring of Hydrocarbon Contaminated Subtidal

Sponsoring Agency: NOAA (BM)

Consequential Injury? Yes

Continuing? Yes, evidence of HC persistence in sediments.

Recovery Occurring? Yes, PAHs, THCs are declining with time

Identifiable restoration endpoint?

Monitoring natural recovery of subtidal sediments at multiple depths.

Recommendation:

Should a detailed study plan be prepared?

Yes__X__

Yes, in modified form_____

Maybe_____

No__X__

Comments: Needs to be a comprehensive/integrated plan to follow the fate of oil in the spill area
There are at least six restoration proposals that should be tied together

bold

Combined into R101

Resource Category: Subtidal

Study Number: ~~R75~~ 401 R75

Study Title: Natural Recovery of Subtidal Species in PWS

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes, continued exposure to hydrocarbons exists.

Recovery Occurring? Yes, levels of exposure reduced from previous years.

Identifiable restoration endpoint?

Natural recovery monitoring

Recommendation:

Should a detailed study plan report be prepared?

Yes_____

Yes, in modified form_X_

Maybe_____

No_X_

Comments: Combine subtidal elements of R77 here
Focus sample sites to those coordinated among other subtidal projects
See R77 comments for other notifications

bdb

Combined into R101

Resource Category: Subtidal

Study Number: ~~R77~~ 101 R77

Study Title: Monitoring Recovery of Intertidal and Nearshore Subtidal Species in PWS

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes, exposure still evident.

Recovery Occurring? Yes, lessening in most areas.

Identifiable restoration endpoint?

Natural recovery monitoring

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No__X__ Combine with R75

Comments: Drop intertidal
Combine subtidal components into R75
Analyses of metabolites and cytochrome P450 seems a little late since three years have passed since spill.
Address in DSP for R75

bold

Combined into R101

Resource Category: Subtidal

Study Number: ~~R83~~ ~~101~~ R83

Study Title: Monitoring Microbial Populations in Marine Sediment as Indicators of Environmental Disturbance/Restoration

Sponsoring Agency: ADEC

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

Natural recovery monitoring

Recommendation:

Should a detailed study plan report be prepared?

Yes_____

Yes, in modified form_X_

Maybe_____

No_X_

Comments: Reduce effort to a few key sampling areas and consider integration with other studies that are designed to monitor fate of oil in subtidal habitats

bold

Combined into R101

Resource Category: Coastal Habitat

Study Number: 102

Study Title: Coastal Habitat Monitoring

Sponsoring Agency: Interagency

Consequential Injury? Yes, oil persists along parts of the coastline, substantial reductions of marine invertebrates ~~have occur~~ and Fucus sp. have occurred.

Continuing? Yes

Recovery Occurring? Limited

Identifiable restoration endpoint?
Monitoring rates of natural recovery

Recommendation:

Should a detailed study plan be prepared?

Yes X

Yes, in modified form_____

Maybe_____

No_____

Comments: This proposal will be developed in January. It will be a combination of earlier proposals (R4, R5, R65, R67, R79, R84). A subcommittee of the RRCG ~~with~~ and Restoration Subgroup will formulate the objectives for the study which will coordinate with Response work already scheduled. Budget estimate represents a maximum figure.

Budget Estimate: ~~$750,000~~ 700,000

Resource Category: ~~Subtidal~~ Coastal Habitat

Study Number: R4

Study Title: Monitoring the Fate and Persistence of Oil in National Parks Affected by EVOS

Sponsoring Agency: NPS

Consequential Injury? Yes

Continuing? Yes, oil persists along NPS shorelines, contamination continues as fresh-looking mousse and sheens observed in many locations. ~~(SR)~~

Recovery Occurring? Yes, through weathering of oil.

Identifiable restoration endpoint?

Natural recovery monitoring.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X__

Maybe_____

No_X_

Comments: We agree there is a need to monitor the time course of the fate and persistence of oil in intertidal and want ~~NPS to expand to the subtidal at these sites~~.
Integrate results with contaminated mussel bed project and sediment sampling program.
~~NPS is not convinced that this project fits in the subtidal category. Believe it is more logical to put in "Coastal Habitat" category. (SR)~~

Bold

Combined into Proposal R102

Resource Category: Coastal Habitat

Study Number: ~~R65 102~~ R65

Study Title: Coastal Habitat Comprehensive Intertidal Program

Sponsoring Agency: USFS

Consequential Injury? Yes

Continuing? Yes, substantial reductions in abundances of many common marine invertebrates in upper meter of sheltered rocky intertidal. These reductions constituted almost complete removal of Fucus and over 50% reductions of limpets and barnacles.

Recovery Occurring? No, through 1991 or limited evidence of recovery through 1991.

Identifiable restoration endpoint?

Monitoring of natural recovery

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X__ (see comments)

Maybe_____

No_X_

Comments: Fucus, Sheltered Rocky 1MVD in PWS, Herring Bay
experimental only for continuation
Need itemized budget

No statistical consulting contract is needed for this reduced design. Costs should be cut greatly. ((BM)

bdd

Combined into R102

Resource Category: Coastal Habitat

Study Number: ~~R67~~ ~~102~~ R67

Study Title: High Intertidal Fucus Recovery and Restoration

Sponsoring Agency: EPA

Consequential Injury? Yes

Continuing? Yes, Fucus in high sheltered rocky intertidal demonstratively reduced; reproduction not occurring

Recovery Occurring? Very slow and limited to lower intertidal areas

Identifiable restoration endpoint?

Feasibility study

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X__ Limit to objs 1 and 2

Maybe_____

No_____

Comments: Eliminate item 3
Coordinate item 4 with Coastal Habitat R65 (BM)
Concern that transplantation on cobble assemblages may not be feasible (address in detailed study plan) (BM)
The fucus damage, its failure to recover in 3 years, and its importance as a habitat provider imply that feasibility tests of restoration procedures should be considered. The rope addition seems most feasible. Some monitoring of previously installed experiments also seems justifiable. Costs seem reasonable. (BM)

bold

Combined into R102

Resource Category: Coastal Habitat

Study Number: ~~R79~~ 102 R79

Study Title: Recovery Monitoring of Intertidal/Nearshore Subtidal Species in PWS

Sponsoring Agency: NOAA

Consequential Injury?

Continuing? Yes

Recovery Occurring? Limited

Identifiable restoration endpoint?

Monitoring rates of natural recovery. (KWR)

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_~~X~~_

No_X_

Comments: Needs to be revisited with P.I.
Do not do intertidal species. (KWR)

Recommend against support at this time and reconsider next year. Not enough information is provided to convince a reviewer that existing damages to clam beds and eel grass are present. Thus the justification for these parts of study is lacking. The remaining third (rocky shores) may be appropriate but the expanded study would need to demonstrate feasibility and a viable methodology. CH1 study showed continuing damages only in the upper elevations, so how can sampling below be justified? (BM)

bold

Combined into R102

Resource Category: Coastal Habitat

Study Number: ~~R84~~ ~~102~~ R84

Study Title: Herring Bay Experimental and Monitoring Studies

Sponsoring Agency: USFS

Consequential Injury? Yes

Continuing?

Recovery Occurring?

Identifiable restoration endpoint?

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_~~X~~_

Maybe_____

No_X_

Comments: Don't do CA
Dave Gibbons will complete

This is the restoration work (not R65) that make most sense to continue. However, there needs to be no statistical consulting to achieve this. ~~(BM)~~

bdd

Combined into R102

Resource Category: Coastal Habitat

Study Number: R5

Study Title: Trophic Investigation of Intertidal Use by Birds and Mammals

Sponsoring Agency: NPS

Consequential Injury?

Continuing? Documented injury to first meter drop of intertidal. Inferred injury to a number of species based on PWS NRDA studies. Anecdotal information for many species and data for bears suggests exposure to hydrocarbons. Indications of injury to brown bears. ~~(SR)~~

Recovery Occurring? First meter drop - no. Other - unknown. ~~(SR)~~

Identifiable restoration endpoint?

Natural recovery monitoring. ~~(SR)~~

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No__X__

Comments: Obj. 1 will be considered by Subtidal workgroup.

The proposed activities do not lead to any obvious restoration endpoints. The goals of the project are unfocused. For year 4 it is not appropriate for such "restoration" studies to go forward in the absence of good basis of demonstrated injury. ~~(BM)~~

~~Brown bear effort (Obj. 2) needs detailed study plan and reduced budget. (BM)~~

Budget 685000

Resource Category: Habitat

Study Number: R33

Study Title: Injured Species Habitat Identification

Sponsoring Agency: USFS

Consequential Injury? Yes, this study addresses habitat for injured bird species, harlequin ducks, marbled murrelets, black oystercatchers and bald eagle, and fish species dolly varden and cutthroat trout.

Continuing? Yes, for harlequin ducks and possibly other species.

Recovery Occurring? Yes, for some species. No, for harlequin ducks and other species.

Identifiable restoration endpoint?

This study would provide vegetation maps identifying habitat for harlequin ducks and marbled murrelets. It would assist identification of habitat for other species.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form_X___

Maybe_____

No____

Comments: In 1992 target murrelet habitat on private land. Coordinate efforts with the dawn watch portion of R15.

Combine with Marbled Murrelet study
add budget.

Budget Estimate ____

Resource Category: Birds ~~(BM)~~ (Bald eagles)

Study Number: R 20

Study Title: Bald eagle restoration project ~~Identification and Protection of Bald Eagle Habitats~~

Sponsoring Agency: USFWS

Consequential Injury? There were 153 bald eagles recovered dead from the beaches in the oil spill area, representing an estimated total kill of 500 to 1,000 eagles, 70 to 80 percent of these birds were ~~(PEG)~~ adults and the remainder were sexually immature. The population in the oil spill area has been static since the spill with reproduction severely depressed in 1989 and certain continuing effects observed in 1990. In 1989, 85 percent of eagle nests in oiled areas failed; Fledgling success was 1 chick per successful nest as compared to 1.2 chicks for unoiled areas. Evidence of hydrocarbon contamination found in food items, egg contents, shells, and blood serum.

Continuing? Not certain

Recovery Occurring? Probably, but no change in numbers observed since the spill. Reproduction in 1990 was better than in 1989. No data are available for 1991, although anecdotal information suggests poor reproduction in 1991.

Identifiable restoration endpoint? Monitoring recovery

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form_xx_

Maybe____

No____

Comments: Elements from R 20, R 21 and R 22 should be combined into one study. The following objectives should be addressed in 1992:

-Document recovery (Two helicopter surveys of 300 nests);
~~-Determine the number of bald eagles throughout the EVOS area (population survey in PWS, Kenai, Kodiak/Afognak, Alaska Peninsula);~~
-Monitor existing radio-tagged bald eagles to gain a better understanding of shoreline use for feeding and nesting and to improve management guidelines;
-No new radios should be considered for 1992.

The final budget has been reduced by $60K to reflect GIS costs that have been incorporated into Restoration Technical Services 3.

~~Preliminary budget estimate based on modified proposal: $350K.~~
Budget: 225,000

Resource Category: Birds ~~(BM)~~ (murres)

Study Number: R 11

Study Title: Murres: Monitoring rate of recovery or continuing changes of murre numbers and productivity in seabird colonies in or downstream from the EVOS

Sponsoring Agency: USFWS

Consequential Injury? As the oil exited PWS and moved through the Gulf of Alaska, it collided with large rafts of breeding age murres congregating around major colonies. The resulting mortality included an estimated 198,000 adult breeding birds, representing 60 to 70 percent of the total breeding population of certain major colonies. Extrapolating to include mortality of non-breeders, mortality is estimated to be as high as 300,000 birds. This loss resulted in a major disruption of breeding behavior and phenology resulting in reproductive failure for the past three years.

Continuing? Yes

Recovery Occurring? No, although there are some very initial indications some colonies or portions of colonies are returning to more normal phenology, continued monitoring is needed to determine if these changes will continue and result in improved reproductive success.

Identifiable restoration endpoint?

-Monitoring
-Speed recovery by (a) reducing disturbance and (b) enhancing social synchrony
-Enhance productivity through manipulations at breeding colonies where murres still nest or attempt to nest. ~~(KR)~~
-Monitor recovery, including results of restoration actions.
-Minimize human disturbance at breeding colonies. ~~(KR)~~

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form XX

Maybe____

No____

Comments: Detailed study plans should be developed that address the following objectives in 1992:

-Document rate of recovery of murres in terms of numbers of breeding adults and their reproductive success and chronology at colonies in and near the oil spill area;
-Improve methods of documenting/censusing murre colonies where boat-based censusing is the only option;
~~-Try different applications of decoys, vocalizations and~~

~~habitat modifications to determine feasibility and refine understanding of how a murre colony reestablishes itself;~~
-Expand monitoring of murre colonies to other areas in the spill zone where murre declines may have occurred;
-Fund more regular visits and presence of Service personnel to affected colony sites to minimize disturbance effects of human activities ~~(PEG)~~ near murre colonies; and
-Gather information to identify buffer zones for recommendation to commercial fisherman or increase enforcement around sensitive colonies.

The final budget has been reduced by $10K to reflect GIS costs that have been incorporated into Restoration Technical Services 3 for FWS.

Budget: ~~$700K~~ 590,000

Resource Category: Birds (BM)

Study Number: R 12

Study Title: Aging of alcid carcasses from the EVOS; obtaining demographic information

Sponsoring Agency: USFWS

Consequential Injury? Seabirds suffered the greatest mortality from the EVOS. Over 36,000 bird carcasses are currently being stored in freezer vans. This project would support restoration efforts by providing information to estimate recovery time for each species, identify age groups impacted and determine which age groups were most at risk during the spill.

Continuing? Not applicable.

Recovery Occurring? Not applicable.

Identifiable restoration endpoint?
-Insights gained may assist various restoration objectives.

Recommendation:

Should a detailed study plan be prepared?

Yes____

Yes, in modified form_X_

Maybe____

No_X_

Comments:

Activities in 1992 will be restricted to pulling all useful samples from the freezers and storing them for future use. Analysis of samples (bone sectioning, DNA analysis, etc.) will be deferred until 1993. A proposal for final disposal of remaining carcasses will be prepared. ~~(PEG)~~

Add the following objective: Develop plan and budget for disposal of remaining bird and mammal ~~(PEG)~~ carcasses.

Preliminary budget estimate based on modified proposal: $100K. Budgets will be further developed in detailed study plan.

$70,000 per annum is being spent to maintain the freezer trailer.

Policy question on disposal

Budget: 100,000

USFWS will draft a proposal to discuss options for disposal and/or distribution to scientific community.

Resource Category: Birds ~~(BM)~~ (Boat surveys)

Study Number: R 13

Study Title: Surveys to monitor marine bird and sea otter populations in EVOS area

Sponsoring Agency: USFWS

Consequential Injury? Bird populations in PWS declined since pre-spill surveys for 16 species or species groups (grebes, cormorants, northern pintail, harlequin duck, oldsquaw, scoters, goldeneyes, bufflehead, black oystercatcher, Bonaparte's gull, black-legged kittiwake, arctic tern, pigeon guillemot, Branchyramphus ~~(PEG)~~ [marbled and Kittlitz] murrelets, and northwest crow). Statistical tests comparing pre- and post-spill populations detected declines in oiled area for eight species or species groups (cormorants, harlequin ducks, black oystercatcher, arctic tern, pigeon guillemot, tufted puffin, murres, and northwest crow).

Continuing? To a number of species

Recovery Occurring? Current data do not indicate recovery is occurring. Further surveys are needed to determine whether recovery is underway or injury is continuing.

Identifiable restoration endpoint?
-Monitoring

Recommendation:

Should a detailed study plan be prepared?

Yes XX

Yes, in modified form____

Maybe____

No____

Comments: Need to continue at least one year more before considering reducing to periodic basis.

~~Preliminary budget estimate: $275K.~~

Budgets will be further developed in detailed study plan.

Budget Estimate: 275000

incorporate ignore oiled mussel, trans harlequin duck and " " (not id'd)

Resource Category: ~~Subtidal~~ Mussel Beds

Study Number: ~~R76~~ 103

Study Title: Oiled Mussel Beds

Sponsoring Agency: NOAA

Consequential Injury? Yes, lately documented.

Continuing? Yes, mussel beds contain oil in sediments underneath their canopy. Oil remains unweathered. Mussels contain high oil concentrations.

Recovery Occurring? No, oil remains unweathered.

Identifiable restoration endpoint?

Natural recovery or replacement.

Recommendation:

Should a detailed study plan be prepared?

Yes_____

Yes, in modified form__X___ Revise according to results of "mussel" work-group deliberations

Maybe_____

No____

Comments: Are there oiled areas outside PWS? Need survey of sites (costly)
Exposure assessments needed
State will do Spring 1992 shoreline survey (65 sites now on list; add mussel sites to it?) Needs interagency coordination and an integrated proposal.
Predator relationships need defined objectives.
Charge work group to coordinate multiple objectives in revised DSP.

~~Max 750,000 for combined study on BLOY, HD & SO.~~

Budget Estimate: 750,000 max. with combined elements from black oystercatcher, Harlequin duck and Sea otter studies.

~~Budget 500,000 + (for survey & analysis)~~
~~need cost for~~

Resource Category: Technical Services (GIS)

Study Number: Technical Services 3 Continuation

Study Title: GIS mapping and analysis of NRDA data

Sponsoring Agency: USFWS and ADNR

Consequential Injury? Not applicable

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

This project will provide necessary support to the preparation of final NRDA reports. These reports will be essential for understanding the injuries the spill caused to various injured resources. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a ~~detailed study plan~~ Final Report be prepared?

Yes ~~XX~~

Yes, in modified form____

Maybe____

No X

Comments: This study provides integral support to the final data analysis and report preparation for a variety of NRDA studies.

Budget Estimate - ADNR ~~$300K~~ 250
USFWS $100K

Request detailed study plan.

A GIS oversight group has been formed and will make decisions on GIS products. Budget will be tightly controlled.

Does this get put in? Yes!

Resource Category: Subtidal

Study Number: ST3B clreat

Study Title: Transport of Hydrocarbons/Sediment Traps

Sponsoring Agency: ADEC

Consequential Injury? Yes

Continuing? Yes, sediment traps are continuing to ~~collected~~ collect oiled sediments ~~through the winter of 1990-1991~~ adjacent to oiled beaches.

Recovery Occurring? Yes, weathering and microbial degradation of hydrocarbon compounds occurring.

Identifiable restoration endpoint?

Sediment traps will provide information on the reduction in resuspension of hydrocarbons over time which will assist in determining probable rates of recovery.

Recommendat

Should a final report be prepared?

Yes X Due November 1992.

Yes, in modified form_____

Maybe_____

No_____

Comments: Completion date is ~~unrealistic~~ based on retrieval of last trap samples in March 1992. ~~(chemistry analysis will delay)~~

FAX TRANSMITTAL MEMO

TO: Karen Klinge

DEPT: _____ FAX #: 276-7178

FROM: Mark Bridgers PHONE: 465-5323

CO: _____ FAX #: _____

NO. OF PAGES 1

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Resource Category: Subtidal

Study Number: ST3B **Closeout** __X__ **Continuation** _____

Study Title: Transport of Hydrocarbons/Sediment Traps

Sponsoring Agency: ADEC

Consequential Injury? Yes

Continuing? Yes, sediment traps collected oiled sediments through the winter of 1990-1991 adjacent to oiled beaches.

Recovery Occurring? Yes, weathering of hydrocarbon compounds occurring.

Identifiable restoration endpoint?

(See Agency Recommendations)

Recommendation:

Should a final report be prepared?

Yes__X__ Due November 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: Final trap retrieval will occur in March 1992.

Budget: $46,700

Resource Category: Technical Services (GIS)

Study Number: Technical Services 3 **Continuation** __X__

Study Title: GIS mapping and analysis of NRDA data

Sponsoring Agency: USFWS and ADNR

Consequential Injury? Not applicable

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

(See Agency Recommendations)

This project will provide necessary support to the preparation of final NRDA reports. These reports will be essential for understanding the injuries the spill caused to various injured resources. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource.

Recommendation:

Should a final report be prepared?

Yes_____

Yes, in modified form____

Maybe____

No_X___

Comments: Request detailed study plan. This study provides integral support to the final data analysis and report preparation for a variety of NRDA studies.

Budget Estimate: ADNR $250,000
USFWS $100,000

Go the with modify

Resource Category: Marine Mammals (Sea Otters) (JP)

Study Number: Marine Mammal Study 6 close

Study Title: Assessment of the magnitude, extent, and duration of oil spill impacts on sea otter populations in Alaska.

Sponsoring Agency: USFWS

Consequential Injury? 1,011 dead sea otters were recovered from the spill zone. It is estimated that between 3,500 and 5,500 sea otters were killed in the entire spill zone. Continuing injury is indicated by significantly higher numbers of prime age sea otter carcasses being recovered post-spill (1989 to 1991) than pre-spill (1974 to 1984) in western PWS. Post-weaning pup mortality in the winter 1990/1991 was significantly higher in western PWS than eastern PWS. Significant differences in blood parameters detected for adult males between eastern and western PWS; results suggest systemic hypersensitivity reactions in western males. ~~Average survival rate of radio-collared sea otters released from the rehabilitation center is approximately 32 percent.~~

Continuing? Yes

Recovery Occurring? Injury information suggests sea otters are not recovering rapidly in PWS and data ~~indicated~~ that suggests ongoing. ~~injury.~~ Other studies report elevated hydrocarbon contamination in bivalve mollusks, a dominant sea otter prey in western PWS. Pupping rates and pup survivorship to weaning was similar in eastern and western Prince William Sound in 1990 and 1991.

Identifiable restoration endpoint?

Restoration endpoints include: monitoring, habitat protection, clean-up of mussel beds. This project will result in the preparation of the final NRDA reports. The preparation of final reports will be essential for understanding the injuries the spill caused to sea otters. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource.

Comments

Recommendation:

Should a ~~detailed study plan~~ Final Report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Move to Comments

Comments: ~~Close-out budget - $200K~~

Extensive data analysis. Includes [illegible] (1) compounds

Budget $200,000

Paul,

I'll need to have a modified version of this Monday morning.

FAX it?

Resource Category: Technical Services (Hydrocarbon)

Study Number: Technical Services 1

Study Title: Hydrocarbon Analysis - NRDA close-out ~~support~~ Continuation

leave in CACI!

Sponsoring Agency: USFWS and NOAA

Consequential Injury? Not applicable

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

This project will provide necessary support to the preparation of the final NRDA reports. These reports will be essential for understanding the injuries the spill caused to various injured resources. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. ~~(JP)~~

Recommendation:

Should a ~~detailed study~~ Final report plan be prepared?

Yes ~~XX~~

Yes, in modified form____

Maybe____

No X

Comments: This is for completion of all NRDA hydrocarbon analysis of samples taken by NRDA projects from 1989 to 1991. RRCG still needs to address handling of Restoration chemistry needs. NOAA budget may be underestimated, based on analysis needs identified during review.

Budget ~~estimate~~ - NOAA $600K ~~(BM)~~
USFWS $150K

insert at beginning of comments → Request Detailed Study plan.

Resource Category: Fish/Shellfish

Study Number: FS3 **Closeout** __X__ **Continuation** _____

Study Title: Coded Wire Tag Studies on PWS Salmon

Sponsoring Agency: ADF&G

Consequential Injury? Yes, egg mortalities are higher and increasing in oiled areas (40-50% vs. 20% in 1991). Fry suffered sublethal histopathology and MFO effects; juveniles reduced growth. 1991 egg mortality indicates 40-50% in oiled vs. 20% in unoiled. Functional sterility rate of 15% in oiled streams.

Continuing? Yes, greater egg mortality in oiled streams continued in 1991.

Recovery Occurring? No, 1991 egg mortality is of a magnitude usually accompanied by high fry mortalities in hatcheries. This is higher in 1989 or 1990.

Identifiable restoration endpoint?

(See Agency Recommendations)

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity.

Monitor recovery, including results of restoration actions.

Recommendation:

Should a final report be prepared?

Yes__X___, December 1992

Yes, in modified form_____

Maybe_____

No____

Comments: Primarily a Methods study. Injury not studied

Coded wire tagging allows researchers to determine the origin of tagged fish. From this percent survival, contribution to fisheries, and straying are also determined. Injury assessment is at population level effects. Other components are needed to complete the picture, but coded wire tags are key elements for obtaining this information.

Budget: ~~$30,000~~ $90,000

(Note: budget was increased from 30,000 to 90,000 to reflect needs that were anticipated to be ~~included~~ covered in R60.)

Resource Category: Birds (BOAT SURVEYS)

Study Number: Bird Study 2 closeout

Study Title: Surveys to monitor marine bird and sea otter populations in EVOS area

Sponsoring Agency: USFWS

Consequential Injury? Bird populations in PWS declined since pre-spill surveys for 16 species or species groups (grebes, cormorants, northern pintail, harlequin duck, oldsquaw, scoters, goldeneyes, bufflehead, black oystercatcher, Bonaparte's gull, black-legged kittiwake, arctic tern, pigeon guillemot, Branchyramphus (PEG) [marbled and Kittlitz] murrelets, and northwest crow). Statistical tests comparing pre- and post-spill populations detected declines in oiled area for eight species or species groups (cormorants, harlequin ducks, black oystercatcher, arctic tern, pigeon guillemot, tufted puffin, murres, and northwest crow).

Continuing? To a number of species

Recovery Occurring? Current data do not indicate recovery is occurring. Further surveys are needed to determine whether recovery is underway or injury is continuing.

Identifiable restoration endpoint?

The restoration endpoint of this project is monitoring. The preparation of final reports will be essential for understanding the injuries the spill caused to sea otters and birds. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. ~~(JP)~~

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: This project should continue under R 13.

~~Close-out~~ Budget: $60K

Resource Category: Birds (MURRES)

Study Number: Bird Study 3 closeout

Study Title: Murres: Population surveys of seabird nesting colonies in PWS, Kenai, Barren Islands and other nearby colonies with emphasis on changes in numbers and reproduction of murres

Sponsoring Agency: USFWS

Consequential Injury? As the oil exited PWS and moved through the Gulf of Alaska, it collided with large rafts of breeding age murres congregating around major colonies. The resulting mortality included an estimated 198,000 adult breeding birds, representing 60 to 70 percent of the total breeding population of certain major colonies. Extrapolating to include mortality of non-breeders, mortality is estimated to be as high as 300,000 birds. This loss resulted in a major disruption of breeding behavior and phenology resulting in reproductive failure for the past three years.

Continuing? Yes

Recovery Occurring? No, although there are some very initial indications some colonies or portions of colonies are returning to more normal phenology, continued monitoring is needed to determine if these changes will continue and result in improved reproductive success.

Identifiable restoration endpoint?

Restoration endpoints include: monitoring and enhancing recovery by (a) reducing disturbance and (b) enhancing social synchrony. The preparation of final reports will be essential for understanding the injuries the spill caused murres. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration of the resource. ~~(JP)~~

Recommendation:

Should a final report be prepared?

Yes_XX_ (~~Completion date~~ September 1992)

Yes, in modified form____

Maybe____

No____

Comments: The following objective from the NRDA study should be incorporated in Restoration Study 11:

-Document rate of recovery of murres in terms of numbers of breeding adults and their reproductive success and chronology at colonies in and near the oil spill area;

~~Close-out~~ Budget: $125,000

Resource Category: Birds (BALD EAGLES)

Study Number: Bird Study 4 closeout ✓

Study Title: Assessing the effects of EVOS on bald eagles

Sponsoring Agency: USFWS

Consequential Injury? There were 153 bald eagles recovered dead from the beaches in the oil spill area, representing an estimated total kill of between 500 and 1,000 eagles, 70 to 80 percent of these birds were adults and the remainder were ~~(PEG)~~ sexually immature. The population in the eastern oil spill area has been static since the spill with reproduction severely depressed in 1989 and certain continuing effects observed in 1990. In 1989, 85 percent of eagle nests in oiled areas failed. Fledgling success was 1 chick per successful nest as compared to 1.2 chicks for unoiled areas. Evidence of hydrocarbon contamination found in food items, egg contents, shells and shell fragments, and blood serum.

Continuing? Not certain

Recovery Occurring? Probably, but no change in eagle numbers observed since the spill. Reproduction in 1990 was significantly better than in 1989. No data are available for 1991, although anecdotal information suggests 1991 was a poor year for eagle reproduction in Prince William Sound.

Identifiable restoration endpoint?

The restoration endpoint of this study is monitoring recovery. The preparation of final reports will be essential for understanding the injuries the spill caused to bald eagles. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. ~~(JP)~~

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out budget - $75K~~

Budget $75,000

Resource Category: Birds (MARBLED MURRELETS)

Study Number: Bird Study 6 closeout

Study Title: Assessment of the abundance of marbled murrelets at sites along the Kenai Peninsula and PWS

Sponsoring Agency: USFWS

Consequential Injury? Proportionally more marbled murrelets were killed during the oil spill relative to their numbers at risk. There were 612 dead marbled murrelets collected into the morgue. Marbled murrelet numbers have declined significantly in PWS, from approximately 300,000 in 1972 to 100,000 in 1989-1991. The contribution of the oil spill to that decline has not been fully determined. Petroleum hydrocarbon contamination was found in tissue of unoiled murrelets collected in oiled areas in 1989. These birds also had low body weights. Birds collected in unoiled areas did not have petroleum hydrocarbon contamination in tissue.

Continuing? Yes

Recovery Occurring? Probably not, but it is difficult to separate spill-related injuries from long-term declines. There is no indication of recovery in murrelet numbers in the spill affected areas of PWS or Kodiak (areas with more than one post-oil spill survey). However, control of human disturbance at one study site resulted in some increase in numbers in 1989. The increase did not continue into 1991.

Identifiable restoration endpoint?

The restoration endpoint of this study is monitoring and habitat protection. The preparation of final reports will be essential for understanding the injuries the spill caused to marbled murrelets. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. ~~(JP)~~

Recommendation:

Should a final report be prepared?

Yes_XX_ (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out~~ budget - $18K000

Resource Category: Birds (Storm Petrel)

Study Number: Bird Study 7 closeout ✓

Study Title: Assessment of the effects of EVOS on fork-tailed storm petrel

Sponsoring Agency: USFWS

Consequential Injury? Study was discontinued after 1989.

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

This project will result in the preparation of the final NRDA report. The preparation of final reports will be essential for understanding the injuries the spill caused to various bird species. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. ~~(JP)~~

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out~~ Budget - $5K

Resource Category: Birds (Black-legged Kittiwakes)

Study Number: Bird Study 8 Closeout

Study Title: Assessment of injuries to reproductive success of black-legged kittiwakes in PWS

Sponsoring Agency: USFWS

Consequential Injury? Studied discontinued after 1989

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

This project will result in the preparation of the final NRDA report. The preparation of final reports will be essential for understanding the injuries the spill caused to various bird species. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out~~ Budget - $5K 5,000

Resource Category: Birds (Pigeon Guillemot)

Study Number: Bird Study 9 closeout

Study Title: Assessment of injury to pigeon guillemot population and breeding success

Sponsoring Agency: USFWS

Consequential Injury? This study was discontinued after 1989

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

The preparation of final reports will be essential for understanding the injuries the spill caused to pigeon guillemots. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. ~~(JP)~~

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: Close-out budget - $18K

Resource Category: Birds (HARLEQUIN DUCKS)

Study Number: Bird Study 11 closeout

Study Title: Injury Assessment of Hydrocarbon Uptake by Sea Ducks in PWS and Kodiak

Sponsoring Agency: ADF&G/USFWS

Consequential Injury? Harlequin ducks, resident intertidal feeders breeding in PWS, experienced reproductive failure in 1990 and 1991 (no surveys were completed in 1989). No broods were reported in the oil spill areas in 1990. Only one very late brood was recorded in a previously heavily oiled area in late 1991. The State of Alaska closed harlequin duck hunting in 1991 in PWS for the month of September in order to reduce further loss to the remaining resident population. Harlequin ducks were subject to considerable direct mortality resulting from the spill. Ingestion of petroleum hydrocarbons by six species of sea ducks, including harlequins, might have resulted ~~(PEG)~~ in poor physiological condition in 1989.

Continuing? Yes

Recovery Occurring? No indication of recovery.

Identifiable restoration endpoint?

- -Monitoring
- -Habitat Protection
- -Clean-up of Mussel beds
- -Additional harvest restrictions

Recommendation:

Should a final report be prepared?

Yes_XX_ November 1992.

Yes, in modified form____

Maybe____

No____

Comments: None

~~Close-out~~ Budget - $50,000

Resource Category: Birds (Shorebirds)

Study Number: Bird Study 12 closeout

Study Title: Assessment of injury to shorebirds staging and nesting in PWS and Kenai Peninsula

Sponsoring Agency: USFWS

Consequential Injury? Study was discontinued after 1989

Continuing? Not applicable

Recovery Occurring? Not applicable

Identifiable restoration endpoint?

This project will result in the preparation of the final NRDA report. The preparation of final reports will be essential for understanding the injuries the spill caused to various bird species. If this information is not clearly and completely available to those responsible for restoration, it will not be possible to adequately address the restoration needs of the resource. (JP)

Recommendation:

Should a final report be prepared?

Yes XX (September 1992)

Yes, in modified form____

Maybe____

No____

Comments: ~~Close-out~~ Budget - $18K

Resource Category: Fish/Shellfish

Study Number: F/S27 **Closeout** _____ **Continuation** __X__

Study Title: Sockeye Salmon Overescapement

Sponsoring Agency: ADF&G

Consequential Injury?

Yes, less than minimal number of smolts escaped to meet adult spawning escapement goal later. In order to protect spawning escapement and assist recovery of these stocks, complete closure of the commercial and sport fisheries will be necessary in 1994, will probably be necessary in 1993, and may be necessary in 1995 (the 1992 field season would help determine this). Each year that this happens, loss to the fisheries could minimally exceed $200 million.

Continuing?

Yes, smolt production drastically reduced. Will not support historical returns of adult spawners.

Recovery Occurring? No.

Identifiable restoration endpoint?

(See Agency Recommendations)

Continued damage assessment in OY4.

Monitor recovery, including results of restoration actions

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity.

Recommendation:

Should a final report be prepared?

Yes____

Yes, in modified form_____

Maybe_____

No_X_

Comments: Request detailed study plan, modified to include other Cook Inlet streams.
Policy question.

Budget: $490,000

Resource Category: Fish/Shellfish

Study Number: F/S28 **Closeout** _____ **Continuation** __X__

Study Title: Run Reconstruction

Sponsoring Agency: ADF&G

Consequential Injury?

Injury to eggs, fry and juvenile has been documented. This study combine these and requires information on fishing mortality and adult movements to complete determination of injuries to pink and other salmon.

Continuing? Supports injury determination.

Recovery Occurring? Unknown

Identifiable restoration endpoint?

(See Agency Recommendations)

Refine management practices and adjust harvest levels to restore wild stocks and maintain genetic diversity.

Recommendation:

Should a final report be prepared?

Yes____

Yes, in modified form_____

Maybe_____

No_X_

Comments: Prepare a modified detailed study plan. Delay modeling until adult movements between districts is estimated. Discuss in detailed study plan.
Should include test fishing for adult fish; this will require budget increase.
Policy question.

Budget: $440,000

Resource Category: Fish/Shellfish

Study Number: F/S30 **Closeout** _____ **Continuation** __X__

Study Title: Database Management

Sponsoring Agency: ADF&G

Consequential Injury? N/A

Continuing? Supports injury determination studies for fish studies.

Recovery Occurring? N/A

Identifiable restoration endpoint?

(See Agency Recommendations)

Study will also support restoration program.

Recommendation:

Should a final report be prepared?

Yes_____

Yes, in modified form_____

Maybe_____

No_X_

Comments: Prepare detailed study plan for 1992. Determine proportion of effort supports projects other than oil spill.

Cost out accordingly.
Coordinate with R40

Budget: $178,700

Resource Category: Fish/Shellfish

Study Number: FS4B **Closeout** ✓ **Continuation** _____

Study Title: Effects of Oil Contamination on Juvenile Pink Salmon in PWS

Sponsoring Agency: NOAA

Consequential Injury? Yes, reduced growth in oiled areas.

Continuing? 1990 level of contamination/exposure greatly reduced (based on beach sediment data)

Recovery Occurring? ~~N/A~~ unknown

Identifiable restoration endpoint?

(See Agency Recommendations)

Monitor recovery.

Recommendation:

Should a final report be prepared?

Yes X, November 1992

Yes, in modified form_____

Maybe_____

No____

Comments: Proposed laboratory study may be considered in 1993.

Budget: $120,000

Resource Category: Marine Mammals

Study Number: MM2 **Closeout** X **Continuation** _____

Study Title: Injury to Killer Whales

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes

Recovery Occurring? Yes

Identifiable restoration endpoint?

(See Agency Recommendations)

Minimize human disturbance, identification of critical habitat.

Recommendation:

Should a final report be prepared?

Yes X May 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: Social structure of AB is breaking down.
Over 3 years, encounters with KW have noticeably decreased (may be associated with prey)
Look at Photo id's for chronology of bullet wounds
Examine cost, reduce

Budget: $35,000

Resource Category: Subtidal

Study Number: ST4 **Closeout** _____ **Continuation** __X__

Study Title: Fate and Toxicity of Spilled Oil

Sponsoring Agency: NOAA

Consequential Injury? Yes

Continuing? Yes, toxicity may have shifted from 0m to 6m depths, possibly deeper.

Recovery Occurring? Yes, at most shallower depths; no at deeper levels

Identifiable restoration endpoint?

(See Agency Recommendations)

These data and analysis will provide essential context for the interpretation of initial injury and subsequent recovery from the spill.

Recommendation:

Should a final report be prepared?

Yes_X___ Tentative final report expected in February 1993.

Yes, in modified form_____

Maybe_____

No____

Comments: Prepare DSP on bioassay work and mass balance budget for oil
Encourage P.I. to focus on key sites in common with other subtidal studies (coordination required)
Request P.I. coordinate subtidal studies
Detailed study plan required with modification to coordinate with other studies.

Budget: $160,000

Resource Category: Subtidal

Study Number: ST3B **Closeout** __X__ **Continuation** _____

Study Title: Transport of Hydrocarbons/Sediment Traps

Sponsoring Agency: ADEC

Consequential Injury? Yes

Continuing? Yes, sediment traps collected oiled sediments through the winter of 1990-1991 adjacent to oiled beaches.

Recovery Occurring? Yes, weathering of hydrocarbon compounds occurring.

Identifiable restoration endpoint?

(See Agency Recommendations)

Recommendation:

Should a final report be prepared?

Yes__X__ Due November 1992.

Yes, in modified form_____

Maybe_____

No____

Comments: Final trap retrieval will occur in March 1992.

Budget: $46,700

Resource Category: Subtidal

Study Number: ST8 **Closeout** _____ **Continuation** __X__

Study Title: Mussel Tissue and Sediment Hydrocarbon Data Synthesis

Sponsoring Agency: NOAA

Consequential Injury? Yes, HC contamination occurred.

Continuing? Yes.

Recovery Occurring? Yes.

Identifiable restoration endpoint?

(See Agency Recommendations)

Synthesis effort required to consolidate NRDA hydrocarbon data from all projects that collected sediment and mussels.

Recommendation:

Should a final report be prepared?

Yes__X__, date to be determined

Yes, in modified form_____

Maybe_____

No____

Comments: Ultimately will provide a GIS product showing spatial distribution of persistence of hydrocarbon analyses.
Synthesis of hydrocarbon data needed to closeout a variety of projects.
R78 was withdrawn and combined with this.
Detailed study plan requested for 1992.
This project was originally a portion of ST1.

Budget: $180,000