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Exxon Valdez Oil Spill Trustee Council

Restoration Office
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Phone: (907) 278-8012 Fax: (907) 276-7178

MEMORANDUM

DATE: 10 September 1992

TO: Trustee Council

THROUGH: Dave Gibbons, Interim Administrative Director

FROM: Jerome Montague, Chair 1993 Work Plan Work Group

The enclosed 1993 Work Plan documents include:

1. Four tables listing projects by numerical order, Restoration Team voting order, damage assessment or restoration category and resource.

2. The initial draft 1993 Work Plan proposed project descriptions.

3. Five "Idea Lookup Tables" with instructions to allow tracking of the public and agency project ideas, submitted in June.

A brief synopsis of the activities leading to the development of the draft 1993 Work Plan follow. In mid-June, 463 one page project ideas were received from the public and trustee agencies for consideration in 1993. After review, duplicates and comments (rather than ideas) were removed. Of the 358 remaining ideas, the Restoration Team first reviewed them in terms of: (1) compliance with the requirements of the civil settlement; (2) technical feasibility; and (3) compliance with laws, regulations and policies. If the idea failed to pass any one of these three criteria, they were rejected for further consideration. Those that were rejected by failing item 3 were sent to legal counsel for confirmation. The Restoration Team and the Chief Scientist then reviewed the projects contingent upon whether they were damage assessment or restoration projects. If it was a damage assessment closeout project in 1992, it was rejected while if it was a new or continuation project, they were considered further only if there was reason to believe injury was present or continuing but the injury had not been adequately described. In terms of restoration ideas they had to have a restoration endpoint be time critical or a lost opportunity and must not be major long-term commitment of funds to be considered further. The long-term commitment criterion was waived if the idea was time critical or represented a lost opportunity. After the screening described above 119 ideas remained to be developed and considered further.

A meeting was held in July by the Restoration Team and Chief Scientist to see if this list covered a meaningful spectrum of potential restoration actions and should be included in the 1993 Work Plan. This process reduced the number of remaining ideas to 54 that were subsequently developed into brief project descriptions (3-pagers) and detailed budgets (forms 2A, 2B, 3A and 3B) by whichever of the six trustee agencies had the most appropriate expertise regardless of the origin (public or private) of the idea(s). The Restoration Team discussed these documents with peer reviewers and the Chief Scientist resulting in a number of changes and some Chief Scientist recommendations on priority. The Restoration Team then further discussed the projects in a week-long meeting and voted on them in terms of their individual merit. After the revisions were made to text and budgets, the Chief scientist again commented on the package. The Restoration Team then voted on the projects relative to their priority for inclusion into the package. It is this vote that is reflected in the first set of tables entitled Exxon Valdez Oil Spill 1993 Proposed Projects.

The Restoration Team also discussed the possibility of the RT rather than the lead agency determining whether a project is to be conducted in-house or contracted but a decision was not reached. Hence in the budget figures herein, the amount in line 300 is the agency recommendation for contracting.

The documents in this package are complex with considerable cross-referencing between budgets and project numbers and some errors can be found and, additionally, the text has not had the level of editorial review required before it is printed. We hope you will excuse these problems in your review.

The primary task on September 14 is to determine which projects are to be developed further and be included in the draft 1993 Work Plan and the budget that is to be given to state and federal Offices of Management and Budget in order to be included in the 1993 federal fiscal year. Being developed further means that detailed project plans (in-house) or Requests For Proposals (contracted) will be developed and peer reviewed while the draft plan is out for public comment. The $5.1 million set aside for habitat (93064) should be considered somewhat separately from other projects since the imminent threat process has not been completed and thus, the exact nature of the action for which we are budgeting is unknown.

We recommend that all 64 projects be included in the draft 1993 Work Plan for public comment.

EXXON VALDEZ OIL SPILL

1993 Proposed Projects

- In Numerical Order
- In Vote Order
- In Category Order
- In Type Order

September 1992

EVOS 1993 PROPOSED ___JECTS: NUMERICAL ORDER

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PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-001	Recreation damage assessment	0:6	609.6	42.0
93-002	Sockeye Salmon Overescapement: Red Lake on Kodiak and Kenai River system rearing lakes	5:1	714.6*	97.0
93-003	Pink salmon egg to pre-emergent fry survival in PWS	6:0	686.0*	115.5
93-004/ 93-013	Pink salmon documentation, enumeration, preservation of genetically discrete wild populations in PWS	5:1	899.1*	261.2
93-005	Cultural resources education	6:0	400.9	33.6
93-006	Site specific archeological restoration	6:0	258.6	0
93-007	Archeological site stewardship program	6:0	193.3*	0
93-008	Archeological site patrol & monitoring	6:0	295.8	0
93-009	Public information, education, & interpretation	5:1	316.7	22.4
93-010	Murres: reduce disturbance near colonies	3:3	56.8	7.5
93-011	River otters/harlequin ducks: develop harvest guidelines	5:1	11.2	0
93-012	Kenai River sockeye: genetic stock identification	5:1	300.6*	169.0
93-014	Pink, chum, sockeye salmon: quality assurance for coded-wire tag application	3:3	94.8	9.6
93-015	Kenai River sockeye: salmon restoration	5:1	732.6*	90.0
93-016	Chenega chinook and coho salmon release program	5:1	25.9	0
93-017	Subsistence restoration	6:0	281.2	0
93-018	Cutthroat trout/dolly varden: enhanced management for wildlife stocks	5:1	285.2	118.1
93-019	Chugach region village mariculture project	0:6	589.1	0

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-020	Bivalve shellfish hatchery and research center	3:3	55.7	0
93-021	Restoration of murres by way of transplantation of chicks--feasibility study	0:6	0	0
93-022/ 93-049	Murres: enhancing productivity and monitoring recovery	6:0	281.0	21.9
93-024	Sockeye salmon stock - restoration of Coghill Lake	5:1	191.8	23.8
93-025	Montague Island chum salmon restoration	5:1	81.5	0
93-026	Fort Richardson hatchery water pipeline	3:3	3,617.0	0
93-028	Restoration and mitigation of essential wetland habitats	5:1	82.1	0
93-029	PWS Second Growth Management	5:1	62.0	0
93-030	Sockeye salmon: Red Lake restoration	5:1	77.2*	0
93-031	Sockeye salmon: Red Lake mitigation	5:1	153.7	0
93-032	Pink salmon: Pink and Cold Creek restoration	5:1	36.1	0
93-033	Harlequin duck restoration monitoring: PWS and Afognak	6:0	506.6	64.8
93-034	Pigeon guillemot colony survey	5:1	165.8	9.2
93-035	Black oystercatchers: impacts of oiled mussel beds	6:0	107.9	17.3
93-036	Oiled mussel beds: recovery monitoring and restoration in PWS and GOA	6:0	404.8*	117.0
93-037/ 93-055	Intertidal and subtidal communities: experimental evaluation of oiled/control paired design	0:6	201.7	30.0
93-038	Shoreline assessment	6:0	520.7	0
93-039	Intertidal communities: Herring Bay experimental and monitoring studies	6:0	516.1*	180.0

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-040/ 93-054	Longterm ecological recovery monitoring program	1:5	234.0	0
93-041	Monitoring program: phase 2	6:0	237.9	0
93-042	Killer whales: recovery monitoring	4:2	127.1	0
93-043/ 93-044	Sea otter population demographics and habitat use in area	5:1	291.9	147.5
93-045	Boat surveys: marine bird and sea otter populations in PWS	6:0	262.4	44.3
93-046	Harbor seals: habitat use, behavior, monitoring in PWS	6:0	230.5	56.7
93-047	Subtidal monitoring	6:0	1,000.7	217.6
93-048	Communication system for oil spill area	0:6	10,000.0	0
93-050	Update: restoration feasibility study #5	3:3	10.2	0
93-051	Habitat protection information: anadromous streams and marbled murrelets	6:0	1,562.1	209.3
93-052	Bald eagle habitat: identification and protection	0:6	188.0	0
93-053	Hydrocarbon data analysis	6:0	105.5*	18.0
93-057	GIS: damage assessment	6:0	67.5*	0
93-058	Habitat protection and acquisition	**	**	**
93-059	Imminent threat habitat protection: identifying and characterizing available data sets for habitat protection	6:0	42.3	0
93-060	Habitat protection: accelerated data acquisition	6:0	43.9	0
93-061	Habitat protection: new data acquisition	6:0	535.0	0
93-062	GIS: restoration	6:0	138.4*	0

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-063	Survey/evaluation of instream habitat and stock restoration techniques for anadromous fish	6:0	59.4	0
93-064	Imminent threat habitat protection: acquiring land (set-aside money)	6:0	5,125.0	0
	GRAND TOTAL		34,075.50	2,123.30

* Project was funded as part of the 1992 Work Plan.
** Removed as a project.

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EVOS 1993 PROPOSED PROJ___3: RESTORATION TEAM VOTE

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
	THESE PROJECTS RECEIVED 6 OR 5 YES VOTES			
93-003	Pink salmon egg to pre-emergent fry survival in PWS	6:0	686.0*	115.5
93-005	Cultural resources education	6:0	400.9	33.6
93-006	Site specific archeological restoration	6:0	258.6	0
93-007	Archeological site stewardship program	6:0	193.3*	0
93-008	Archeological site patrol & monitoring	6:0	295.8	0
93-009	Public information, education, & interpretation	5:1	316.7	22.4
93-017	Subsistence restoration	6:0	281.2	0
93-022/ 93-049	Murres: enhancing productivity and monitoring recovery	6:0	281.0	21.9
93-033	Harlequin duck restoration monitoring: PWS and Afognak	6:0	506.6	64.8
93-035	Black oystercatchers: impacts of oiled mussel beds	6:0	107.9	17.3
93-036	Oiled mussel beds: recovery monitoring and restoration in PWS and GOA	6:0	404.8*	117.0
93-038	Shoreline assessment	6:0	520.7	0
93-039	Intertidal communities: Herring Bay experimental and monitoring studies	6:0	516.1*	180.0
93-041	Monitoring program: phase 2	6:0	237.9	0
93-045	Boat surveys: marine bird and sea otter populations in PWS	6:0	262.4	44.3
93-046	Harbor seals: habitat use, behavior, monitoring in PWS	6:0	230.5	56.7
93-047	Subtidal monitoring	6:0	1,000.7	217.6

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-051	Habitat protection information: anadromous streams and marbled murrelets	6:0	1,562.1	209.3
93-053	Hydrocarbon data analysis	6:0	105.5*	18.0
93-057	GIS: damage assessment	6:0	67.5*	0
93-062	GIS: restoration	6:0	138.4*	0
93-059	Imminent threat habitat protection: identifying and characterizing available data sets for habitat protection	6:0	42.3	0
93-064	Imminent threat habitat protection: acquiring land (set-aside money)	6:0	5,125.0	0
93-060	Habitat protection: accelerated data acquisition	6:0	43.9	0
93-061	Habitat protection: new data acquisition	6:0	535.0	0
93-063	Survey/evaluation of instream habitat and stock restoration techniques for anadromous fish	6:0	59.4	0
93-002	Sockeye Salmon Overescapement: Red Lake on Kodiak and Kenai River system rearing lakes	5:1	714.6*	97.0
93-004/ 93-013	Pink salmon documentation, enumeration, preservation of genetically discrete wild populations in PWS	5:1	899.1*	261.2
93-011	River otters/harlequin ducks: develop harvest guidelines	5:1	11.2	0
93-012	Kenai River sockeye: genetic stock identification	5:1	300.6*	169.0
93-015	Kenai River sockeye: salmon restoration	5:1	732.6*	90.0
93-016	Chenega chinook and coho salmon release program	5:1	25.9	0
93-018	Cutthroat trout/dolly varden: enhanced management for wildlife stocks	5:1	285.2	118.1
93-024	Sockeye salmon stock - restoration of Coghill Lake	5:1	191.8	23.8

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-025	Montague Island chum salmon restoration	5:1	81.5	0
93-028	Restoration and mitigation of essential wetland habitats	5:1	82.1	0
93-029	PWS Second Growth Management	5:1	62.0	0
93-030	Sockeye salmon: Red Lake restoration	5:1	77.2*	0
93-031	Sockeye salmon: Red Lake mitigation	5:1	153.7	0
93-032	Pink salmon: Pink and Cold Creek restoration	5:1	36.1	0
93-034	Pigeon guillemot colony survey	5:1	165.8	9.2
93-043/ 93-044	Sea otter population demographics and habitat use in area	5:1	291.9	147.5
	Subtotal		18,291.50	2,034.20
	THESE PROJECTS RECEIVED 4 OR 3 YES VOTES			
93-042	Killer whales: recovery monitoring	4:2	127.1	0
93-010	Murres: reduce disturbance near colonies	3:3	56.8	7.5
93-014	Pink, chum, sockeye salmon: quality assurance for coded-wire tag application	3:3	94.8	9.6
93-020	Bivalve shellfish hatchery and research center	3:3	55.7	0
93-026	Fort Richardson hatchery water pipeline	3:3	3,617.0	0
93-050	Update: restoration feasibility study #5	3:3	10.2	0
	Subtotal		3,961.60	17.10

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
	THESE PROJECTS RECEIVED 2, 1, OR NO YES VOTES			
93-040/ 93-054	Longterm ecological recovery monitoring program	1:5	234.0	0
93-019	Chugach region village mariculture project	0:6	589.1	0
93-048	Communication system for oil spill area	0:6	10,000.0	0
93-001	Recreation damage assessment	0:6	609.6	42.0
93-037/ 93-055	Intertidal and subtidal communities: experimental evaluation of oiled/control paired design	0:6	201.7	30.0
93-052	Bald eagle habitat: identification and protection	0:6	188.0	0
93-021	Restoration of murres by way of transplantation of chicks--feasibility study	0:6	0	0
93-058	Habitat protection and acquisition	**	**	**
	Subtotal		11,822.40	72.00
	GRAND TOTAL		34,075.50	2,123.30

* Project was funded as part of the 1992 Work Plan.
** Removed as a project.

SEP 1992

EVOS 1993 PROPO___ PROJECTS: CATEGORY

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
	DAMAGE ASSESSMENT			
93-003	Pink salmon egg to pre-emergent fry survival in PWS	6:0	686.0*	115.5
93-002	Sockeye Salmon Overescapement: Red Lake on Kodiak and Kenai River system rearing lakes	5:1	714.6*	97.0
93-001	Recreation damage assessment	0:6	609.6	42.0
	Subtotal		2,010.20	254.50
	RESTORATION MONITORING			
93-033	Harlequin duck restoration monitoring: PWS and Afognak	6:0	506.6	64.8
93-035	Black oystercatchers: impacts of oiled mussel beds	6:0	107.9	17.3
93-036	Oiled mussel beds: recovery monitoring and restoration in PWS and GOA	6:0	404.8*	117.0
93-038	Shoreline assessment	6:0	520.7	0
93-041	Monitoring program: phase 2	6:0	237.9	0
93-045	Boat surveys: marine bird and sea otter populations in PWS	6:0	262.4	44.3
93-046	Harbor seals: habitat use, behavior, monitoring in PWS	6:0	230.5	56.7
93-047	Subtidal monitoring	6:0	1,000.7	217.6
93-030	Sockeye salmon: Red Lake restoration	5:1	77.2*	0
93-043/ 93-044	Sea otter population demographics and habitat use in area	5:1	291.9	147.5

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-004/ 93-013	Pink salmon documentation, enumeration, preservation of genetically discrete wild populations in PWS	5:1	899.1*	261.2
93-034	Pigeon guillemot colony survey	5:1	165.8	9.2
93-042	Killer whales: recovery monitoring	4:2	127.1	0
93-040/ 93-054	Longterm ecological recovery monitoring program	1:5	234.0	0
93-037/ 93-055	Intertidal and subtidal communities: experimental evaluation of oiled/control paired design	0:6	201.7	30.0
	Subtotal		5,268.30	965.60
	RESTORATION MANAGEMENT ACTIONS			
93-005	Cultural resources education	6:0	400.9	33.6
93-006	Site specific archeological restoration	6:0	258.6	0
93-007	Archeological site stewardship program	6:0	193.3*	0
93-008	Archeological site patrol & monitoring	6:0	295.8	0
93-009	Public information, education, & interpretation	5:1	316.7	22.4
93-017	Subsistence restoration	6:0	281.2	0
93-011	River otters/harlequin ducks: develop harvest guidelines	5:1	11.2	0
93-018	Cutthroat trout/dolly varden: enhanced management for wildlife stocks	5:1	285.2	118.1
93-012	Kenai River sockeye: genetic stock identification	5:1	300.6	169.0
93-015	Kenai River sockeye: salmon restoration	5:1	732.6	90.0
93-010	Murres: reduce disturbance near colonies	3:3	56.8	7.5

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
	Subtotal		3,132.90	440.60
	RESTORATION MANIPULATION AND/OR ENHANCEMENT			
93-022/ 93-049	Murres: enhancing productivity and monitoring recovery	6:0	281.0	21.9
93-039	Intertidal communities: Herring Bay experimental and monitoring studies	6:0	516.1*	180.0
93-063	Survey/evaluation of instream habitat and stock restoration techniques for anadromouns fish	6:0	59.4	0
93-016	Chenega chinook and coho salmon release program	5:1	25.9	0
93-024	Sockeye salmon stock - restoration of Coghill Lake	5:1	191.8	23.8
93-025	Montague Island chum salmon restoration	5:1	81.5	0
93-028	Restoration and mitigation of essential wetland habitats	5:1	82.1	0
93-029	PWS Second Growth Management	5:1	62.0	0
93-031	Sockeye salmon: Red Lake mitigation	5:1	153.7	0
93-032	Pink salmon: Pink and Cold Creek restoration	5:1	36.1	0
93-020	Bivalve shellfish hatchery and research center	3:3	55.7	0
93-026	Fort Richardson hatchery water pipeline	3:3	3,617.0	0
93-019	Chugach region village mariculture project	0:6	589.1	0
93-021	Restoration of murres by way of transplantation of chicks--feasibility study	0:6	0	0
	Subtotal		5,751.40	225.70

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
	HABITAT PROTECTION			
93-051	Habitat protection information: anadromous streams and marbled murrelets	6:0	1,562.1	209.3
93-059	Imminent threat habitat protection: identifying and characterizing available data sets for habitat protection	6:0	42.3	0
93-064	Imminent threat habitat protection: acquiring land (set-aside money)	6:0	5,125.0	0
93-060	Habitat protection: accelerated data acquisition	6:0	43.9	0
93-061	Habitat protection: new data acquisition	6:0	535.0	0
93-052	Bald eagle habitat: identification and protection	0:6	188.0	0
93-058	Habitat protection and acquisition	**	**	**
	Subtotal		7,496.30	209.30
	TECHNICAL SUPPORT			
93-053	Hydrocarbon data analysis	6:0	105.5*	18.0
93-057	GIS: damage assessment	6:0	67.5*	0
93-062	GIS: restoration	6:0	138.4*	0
93-014	Pink, chum, sockeye salmon: quality assurance for coded-wire tag application	3:3	94.8	9.6
93-048	Communication system for oil spill area	0:6	10,000.0	0
93-050	Update: restoration feasibility study #5	3:3	10.2	0
	Subtotal		10,416.40	27.60
	GRAND TOTAL		34,075.50	2,123.30

* Project was funded as part of the 1992 Work Plan. ** Removed as a project.

EVOS 1993 PROPOSED PROJECTS: TYPES

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
	FISH PROJECTS			
93-063	Survey/evaluation of instream habitat and stock restoration techniques for anadromous fish	6:0	59.4	0
93-003	Pink salmon egg to pre-emergent fry survival in PWS	6:0	686.0*	115.5
93-032	Pink salmon: Pink and Cold Creek restoration	5:1	36.1	0
93-004/ 93-013	Pink salmon documentation, enumeration, preservation of genetically discrete wild populations in PWS	5:1	899.1*	261.2
93-002	Sockeye Salmon Overescapement: Red Lake on Kodiak and Kenai River system rearing lakes	5:1	714.6*	97.0
93-024	Sockeye salmon stock - restoration of Coghill Lake	5:1	191.8	23.8
93-030	Sockeye salmon: Red Lake restoration	5:1	77.2*	0
93-031	Sockeye salmon: Red Lake mitigation	5:1	153.7	0
93-012	Kenai River sockeye: genetic stock identification	5:1	300.6*	169.0
93-015	Kenai River sockeye: salmon restoration	5:1	732.6*	90.0
93-025	Montague Island chum salmon restoration	5:1	81.5	0
93-014	Pink, chum, sockeye salmon: quality assurance for coded-wire tag application	3:3	94.8	9.6
93-016	Chenega chinook and coho salmon release program	5:1	25.9	0
93-018	Cutthroat trout/dolly varden: enhanced management for wildlife stocks	5:1	285.2	118.1
93-026	Fort Richardson hatchery water pipeline	3:3	3,617.0	0
	Subtotal		7,955.50	884.20

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
	SHELLFISH PROJECTS			
93-020	Bivalve shellfish hatchery and research center	3:3	55.7	0
93-019	Chugach region village mariculture project	0:6	589.1	0
	Subtotal		644.80	0.00
	BIRD PROJECTS			
93-033	Harlequin duck restoration monitoring: PWS and Afognak	6:0	506.6	64.8
93-011	River otters/harlequin ducks: develop harvest guidelines (duplicate)	5:1	11.2	0
93-022/ 93-049	Murres: enhancing productivity and monitoring recovery	6:0	281.0	21.9
93-010	Murres: reduce disturbance near colonies	3:3	56.8	7.5
93-035	Black oystercatchers: impacts of oiled mussel beds	6:0	107.9	17.3
93-034	Pigeon guillemot colony survey	5:1	165.8	9.2
93-045	Boat surveys: marine bird and sea otter populations in PWS (duplicate)	6:0	262.4	44.3
93-021	Restoration of murres by way of transplantation of chicks--feasibility study	0:6	0	0
	Subtotal		1,391.70	165.00
	MARINE AND TERRESTRIAL MAMMAL PROJECTS			
93-045	Boat surveys: marine bird and sea otter populations in PWS (duplicate)	6:0	N/A	N/A
93-043/ 93-044	Sea otter population demographics and habitat use in area	5:1	291.9	147.5

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-046	Harbor seals: habitat use, behavior, monitoring in PWS	6:0	230.5	56.7
93-042	Killer whales: recovery monitoring	4:2	127.1	0
93-011	River otters/harlequin ducks: develop harvest guidelines (duplicate)	5:1	N/A	N/A
	Subtotal		649.50	204.20
	INTERTIDAL/SUBTIDAL PROJECTS			
93-036	Oiled mussel beds: recovery monitoring and restoration in PWS and GOA	6:0	404.8*	117.0
93-038	Shoreline assessment	6:0	520.7	0
93-039	Intertidal communities: Herring Bay experimental and monitoring studies	6:0	516.1*	180.0
93-047	Subtidal monitoring	6:0	1,000.7	217.6
93-028	Restoration and mitigation of essential wetland habitats	5:1	82.1	0
93-040/ 93-054	Longterm ecological recovery monitoring program	1:5	234.0	0
93-037/ 93-055	Intertidal and subtidal communities: experimental evaluation of oiled/control paired design	0:6	201.7	30.0
	Subtotal		2,960.10	544.60
	HUMAN RESOURCES PROJECTS			
93-005	Cultural resources education	6:0	400.9	33.6
93-006	Site specific archeological restoration	6:0	258.6	0
93-007	Archeological site stewardship program	6:0	193.3*	0

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-008	Archeological site patrol & monitoring	6:0	295.8	0
93-009	Public information, education, & interpretation	5:1	316.7	22.4
93-017	Subsistence restoration	6:0	281.2	0
93-001	Recreation damage assessment	0:6	609.6	42.0
	Subtotal		2,356.10	98.00
	HABITAT PROTECTION PROJECTS			
93-029	Prince William Sound Growth Management	5:1	62.0	0
93-051	Habitat protection information: anadromous streams and marbled murrelets	6:0	1,562.1	209.3
93-059	Imminent threat habitat protection: identifying and characterizing available data sets for habitat protection	6:0	42.3	0
93-064	Imminent threat habitat protection: acquiring land (set-aside money)	6:0	5,125.0	0
93-060	Habitat protection: accelerated data acquisition	6:0	43.9	0
93-061	Habitat protection: new data acquisition	6:0	535.0	0
93-052	Bald eagle habitat: identification and protection	0:6	188.0	0
93-058	Habitat protection and acquisition	**	**	**
	Subtotal		7,558.30	209.30
	TECHNICAL SUPPORT PROJECTS			
93-041	Monitoring Program - Phase 2	6:0	237.9	0
93-053	Hydrocarbon data analysis	6:0	105.5*	18.0

PROJECT NUMBER	PROJECT NAME	YES/NO VOTES	NEW FY93 FUNDS ($000)	FY94 TERMINATION COSTS ($000)
93-057	GIS: damage assessment	6:0	67.5*	0
93-062	GIS: restoration	6:0	138.4*	0
93-050	Update: restoration feasibility study #5	3:3	10.2	0
93-048	Communication system for oil spill area	0:6	10,000.0	0
	Subtotal		10,559.50	18.00
	Grand Total		34,075.50	2,123.30

* Project was funded as part of the 1992 Work Plan.
** Removed as a project.

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93021	Restoration of Murres by Way of Transplantation of Chicks-Feasibility Study **(Project description not submitted by lead agency)**
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93036 Recovery Monitoring of Intertidal Oiled Mussel Beds in Prince William Sound and the Gulf of Alaska Impacted by the EVOS

93037 Experimental Evaluation of Oiled/Control Paired Design Used in Assessing Damage and Recovery of Inter and Subtidal Communities **(combined with 93055)**

93038 Shoreline Assessment **(combined with 93023 & 93037)**

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93050	Update: Restoration Feasibility Study #5 (Identification and Recordation of Information Services Revellent to Land and Resources Affected by the EVOS)
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93058	Habitat Protection and Acquisition Option **(No additional costs associated with this effort)**
93059	Imminent Threat Habitat Protection
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93061	New Data Acquisition

EXXON VALDEZ OIL SPILL PROJECT PROPOSAL

Project Number: 93001

Project Source:

Project Title: Recreation Resources Damage Assessment

Project Category: Damage Assessment

Project Type: Recreation Resources

Lead Agency: Department of Agriculture, Forest Service

Cooperating Agencies: Department of the Interior, National Park Service, Alaska Department of Natural Resources and the Department of Interior, Fish and Wildlife Service.

Project Term Two years Start Date: 1/10/93 Finish Date 9/30/94

INTRODUCTION

A. Background on the Resource/Service

The recreation resources in Prince William Sound and the Gulf of Alaska to the west and the Copper River Delta are inextricably linked to a wide variety physical, biological, and cultural resources. These "tangible" resources coupled with the users of the Sound and the providers of services and facilities constitute recreation opportunities.

B. Summary of Injury

There is anecdotal evidence which indicates that significant changes occurred in the utilization of the recreational resources in Prince William Sound following the oil spill. These changes appear to involve reductions in use, relocation of use, and possibly increases in use in areas without the carrying capacity to sustain it. Most often, use patterns changed as a result of the perception by consumers regarding contamination. Social perceptions are the basis for most recreational use decisions.

C. Location

The damage assessment will focus on the Recreation resources of the Sound and the Gulf but will be conducted at least to some degree, on a national basis because the ultimate clientele for recreation and resource use in Prince William Sound includes consumers from throughout the United States.

WHAT

A. Goal

The primary goal of this project is to assess damage to recreation resources, including recreation service providers, in Prince William Sound, the west and Gulf of Alaska through Kodiak and Shelikoff Strait

resulting from the Valdez oil spill.

The secondary goal of this project is to establish a baseline data set for developing restoration measures for recreation.

Another secondary goal is to provide baseline data to evaluate the consequences to recreation of restoration measure implemented for other resources.

B. Objectives

The objectives of this project will be to (1) Identify changes in the recreation settings in the study area resulting from the oil spill. (2) Identify the changes in user perceptions of the recreation opportunities in the study area resulting from the oil spill. (3) Identify changes in use levels and patterns in the study are resulting from the oil spill. (4) Identify the change in type and demand for recreation by the residents of Prince William sound resulting from stress associated with the oil spill. (5) Identify supply of recreation opportunities that can be substituted.

WHY

A. Benefit to Injured Resources/Services

Establish estimates from quantitative and qualitative data regarding the extent and type of damages which resulted from the Valdez oil spill and compile data for developing appropriate and effective restoration activities.

B. Relationship to Restoration Goals

This project will provide data and information which will directly facilitate the development of a comprehensive restoration plan.

HOW

A. Methodology

The methodological approach of this project will include a number of procedures for collecting information and data which will be used to derive damage estimates and determine effective restoration activities. Both primary and secondary data collection activities will be necessary. From secondary data sources, information on pre-spill recreation setting, changes in visitation rates, available recreation services, and expenditure patterns will be collected. These data will provide a description of pre-spill recreational use patterns.

This information will also provide the context for the collection of primary data from several consumer populations. Stratified random samples of recreational anglers and recreational hunters in the spill area for the years 1988, 1989 and 1990 will provide data relevant to consumers' use rates and perceptions of damage to recreation settings. A national survey will expand the scope of this damage assessment by providing data on perceptions of potential consumers and the tourism industry regarding the extent and consequences of environmental damage to recreation setting in Prince William Sound.

Finally, we will identify recreation places and services in the sound which might substitute for damaged

places and services and we will identify education and service needs to provide accurate information to users about the current conditions of the Sound.

B. Coordination with Other Efforts

The work on this project will be coordinated with and to some degree based on the field work and surveys developed by Dr. J. Steve Picou, who over the last four years has studied local communities impacted by the spill, and the CUSTOMER survey work done in 1992 which began the process of identifying activities, places and user attitudes. We hope to utilize Dr. Picou, Dr. Pat Reed from CUSTOMER and personnel from each of the agencies involved. Some of the survey work will be contracted and other portions will be accomplished by the Copper River Delta Institute.

ENVIRONMENTAL COMPLIANCE

As a non-ground disturbing activity, this action does not fall under the NEPA requirements. OMB clearance may be required for some of the survey instruments.

WHEN

The research into existing information will be completed in 1993 as will survey design and the first round of survey information collection. We anticipate the need for follow up survey work in 1994 to clarify issues raised by the 1993 survey work, After 1994, small scale survey work will need to be done to monitor changes and progress on restoration work.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-002

Project Source:

Project Title: Sockeye Overescapement

Project Category: Damage Assessment

Project Type: Fish/Shellfish

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies: U.S. Fish and Wildlife Service

Project Term: **Start Date:** Ongoing (Oct 1, 1992) **Finish Date:** Continuing (Sept 30,1993)

INTRODUCTION:

A. Background on the Resource/Service

The sockeye salmon resource of Kodiak Island lakes affected by overescapement comprise approximately 20% of the Kodiak Island long-term commercial sockeye salmon harvest. The Kenai River sockeye salmon lakes affected by the EXXON VALDEZ oil spill (EVOS) are the major income producer for commercial fishermen in Cook Inlet (CI). Sockeye salmon spawn in lakes associated with river systems. Adult salmon serve an extremely important role in the ecosystem, providing food for marine mammals, terrestrial mammals, and birds. Additionally, carcass decomposition serves to charge freshwater lake systems with important nutrients. Juvenile salmon, which rear in lakes for one or two years, serve as a food source for a variety of fish and mammals. Sockeye salmon are also an important subsistence, sport, and commercial species. The ex-vessel value of the commercial catch of sockeye from these lake systems has averaged about $42 million per year since 1979, with the 1988 catch worth $115 million. Sockeye salmon returns to the Kenai River system support some of the largest recreational fisheries in the State.

B. Summary of Injury

Commercial fishing for sockeye salmon in 1989, was curtailed in upper CI, the outer Chignik districts, and the Kodiak areas due to presence of oil in the fishing areas from the EVOS. As a result, the number of sockeye salmon entering four important sockeye-producing systems (Kenai/Skilak, Chignik/Black, Red, and Frazer Lakes) and two less important lake systems (Akalura and Afognak or Litnik lakes) greatly exceeded levels that are thought to be most productive.

Overly large spawning escapements may result in poor returns by producing more rearing juvenile sockeye than can be supported by the nursery lake's productivity (Kyle et al. 1988). In general, when rearing fish abundance greatly exceeds the lake's carrying capacity, prey (zooplankton) are altered by changes in species and size composition (Mills and Schiavone 1982, Koenings and Burkett 1987, Kyle et al. 1988) and concomitant effects on all trophic levels can occur (Carpenter et al. 1985). Because of such changes, juvenile sockeye growth is reduced, mortality increases, larger percentages holdover for another year of rearing; and the poor quality of smolts increases marine mortality. Where escapements are two to three times normal levels, the resulting high juvenile densities crop the prey

resources to the extent that more than one year is required to return to normal productivity. Rearing juveniles from subsequent brood years suffer from both the poor quality of forage and from the increased competition for food by holdover juveniles (Townsend 1989; Koenings and Kyle 1991). This is the brood

year interaction underlying cyclic variation in the year class strength of anadromous fish. Smolt production from the Kenai River in 1991 was extremely low as was production of smolt from Red Lake. In the spring of 1992, the Kenai River smolt estimates dropped by another order of magnitude, suggesting catastrophic declines in sockeye salmon returns in future years. Counts of smolt migration in Red River (on Kodiak Island) relatively higher in 1992, but still insufficient to provide an average return for this system. The effects /erescapement can cause continued adversity because of multiple-year impacts on the zooplankton community or other critical juvenile life-history habitat components. Consequently, damage assessment studies require continuation until the juvenile sockeye salmon habitat is restored or naturally recovers.

C. Location

The studies will be conducted on the Kenai Peninsula include the Tustumena and Kenai River lake systems. In addition, studies will continue on Kodiak Island to assess the damage to the Red Lake system with Upper Station Lake acting as a control.

WHAT:

The goal of these studies is to determine the impacts of the overescapement of 1989 that was associated with fishery closures due to the EVOS. The studies have specifically focused on Red Lake and the major rearing lakes of the Kenai River system. Study activities include the enumeration of smolt production and sampling of smolt population characteristics, and monitoring of subsequent adult returns from these systems as well as measuring the changes in the rearing habitat of the effected lakes and nearby unaffected lake systems. A secondary benefit of these studies may be to provide insight as to what, if anything, can facilitate rapid recovery of these systems.

The specific objectives of these studies are:

A. Estimate the number, age, and size of sockeye salmon juveniles rearing in selected freshwater systems.

B. Estimate the number, age, and size of sockeye salmon smolts migrating from selected freshwater tems.

C. Determine effects of large escapements resulting from fishery closures caused by the EVOS on the rearing capacity of selected nursery lakes through:
   a. analysis of age and growth of juveniles and smolts
   b. examination of nutrient budgets and plankton populations.

D. In addition, evaluation of diel vertical migration induced by sockeye salmon predation on subsequent growth and survival of juvenile sockeye will be made. Also, assessment of the role of egg-bearing copepods as an essential diet component of sockeye salmon juveniles in glacial lakes will be conducted.

WHY:

Before any mitigation and restoration of sockeye salmon in the effected lakes can be undertaken, the extent and cause of damage needs to be established. The resource in question has major implications for the commercial fishing industry on Kodiak Island and in Cook Inlet, where sockeye salmon provide

the major source of income. In addition, heavy use of the Kenai River by subsistence, personal use, and sport fishermen have much importance to the Alaskan economy.

To restore lost resources it is essential that a clear understanding of damages be assessed. In the case of overescapement, a lake may require many years to recover, as the extent of damage may persist. Thus, to revent reoccurrence and compounding damage, and to expedite natural restoration of the system, an nderstanding of the mechanism is essential.

HOW:

From early May to early July, two inclined plane traps will be operated daily in the outlet stream of Red Lake about one mile below the lake's outlet. The catch will be counted by species, and sockeye smolts will be sampled daily for age, length, weight, and condition factor. Each week 500 sockeye smolts will be marked (biologically inert dye), and released about 0.5 mile above the traps to determine trap efficiency. A similar operation will occur at Upper Station Lake which is the study control. This project will also provide support for the assessment conducted by FRED Division (fall fry townetting) of pre-smolt sockeye rearing conditions (biomass and growth data) in Red and Upper Station Lakes.

On the Kenai River, expanded smolt enumeration is proposed for the lower river through increased marking and recovery effort. In addition, coded wire tagging of smolts is proposed on the Moose River and a smolt project is planned for the Russian River system.

Limnology studies will continue on Upper Station and Red lakes on Kodiak, the major lakes of the Kenai River (Skilak and Kenai lakes), and on Tustumena Lake which is the control for the Kenai system. In addition, an optical plankton counter will be used to assist in determining the effects of predator induced diel vertical migration in Skilak Lake. These studies will be coupled with expanded tow netting on Skilak and Kenai Lake to obtain juvenile sockeye salmon specimens throughout their rearing cycle in freshwater. Water quality and physical measurements from all of the lakes will continue to be monitored. Disease screening of fish specimens is also planned.

ENVIRONMENTAL COMPLIANCE: None of the proposed projects are intrusive. They involve collection of data and do not affect fish and wildlife populations or their habitat.

WHEN:
The studies are continuous and will most likely continue beyond the end of the upcoming fiscal year (September 30, 1993). The studies will terminate when the sockeye salmon populations or their habitat recover to pre-spill conditions. Progress reports and interim findings will be released annually in a progress report issued in late November. Major discoveries are issued through news releases or through scientific publication.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-003

Project Source:

Project Title: Pink Salmon Egg to Pre-emergent Fry Survival in Prince William Sound.

Project Category: Damage Assessment/Restoration Monitoring

Project Type: Fish and Shellfish

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies: National Marine Fisheries Service (NOAA)

Project Term: **Start Date:** 01/03/92 (day/month/year) **Finish Date:** 30/07/95 (day/month/year)

INTRODUCTION: Each year approximately one half billion wild pink salmon fry emerge from the streams of Prince William Sound (PWS) and migrate seaward. Adult returns of wild pink salmon to PWS average from 10-15 million fish annually. These huge outmigrations of wild pink salmon and subsequent adult returns play a major role in the PWS ecosystem. Both juveniles and adults are important sources of food for many fish, birds, and mammals. Adults returning from the high seas also convey needed nutrients and minerals from the marine ecosystem to estuaries, freshwater streams, and terrestrial ecosystems. Wild pink salmon also play a major role in the economy of PWS because of their contribution to commercial, sport, and subsistence fisheries in the area.

Up to 75% of pink salmon spawning in PWS occurs in intertidal areas. In the spring of 1989 oil from the *T/V Exxon Valdez* oil spill (EVOS) was deposited in layers of varying thickness in intertidal portions of many western PWS streams utilized by spawning salmon. Pink salmon eggs and fry rearing in these intertidal areas appear to have been adversely affected by the oil. Salmon egg mortalities were 70%, 65%, and 115% higher in oiled streams than in comparable and nearby unoiled streams in 1989, 1990, and 1991. Differences between oiled and unoiled streams in 1989 and 1990 were confined to intertidal spawning areas and may be attributed to direct lethal effects of oil. Large differences observed across all tide zones in 1991 may be the consequence of damage to germ cells of the adults which originated from the 1989 brood year when egg and larval exposures to intertidal oil were greatest. A consequence of this genetic damage may be persistent functional sterility and reduced returns per spawner for populations from oiled streams.

The proposed damage assessment and resource monitoring study will consist of field and laboratory studies conducted in western PWS and additional laboratory studies at the National Marine Fisheries Service (NMFS) Research facility at Little Port Walter in southeastern Alaska. The majority of project funds will be spent to support the portion of the project located in PWS and will contribute to the local economy of Cordova.

Results of the project will direct future restoration efforts for pink salmon and may impact future harvest management strategies in PWS fisheries.

WHAT: The project will continue to monitor egg mortalities in the oiled and unoiled wild pink salmon streams previously studied, examine stream characteristics unrelated to oiling which may partially or completely explain observed mortality differences, and provide laboratory verification that field results observed for eggs in 1989, 1990 are consistent with lethal effects of oil contamination of intertidal pink salmon spawning habitat. The laboratory verification experiment will also test the hypothesis that oil contamination during incubation can result in functional sterilization of exposed animals at sexual maturity and may explain the persistence of higher egg mortalities observed in all tide zones of oiled streams in 1991.

The specific objectives of the project are as follows:

1. Estimate the density, by tide zone, of eggs and pre-emergent fry in 31 streams using numbers of live and dead eggs and fry.
2. Estimate egg mortality and overwinter survival of pink salmon eggs in the oiled and unoiled streams among the 31 sampled.
3. Determine whether the increased pink salmon egg mortalities observed in oiled streams in 1989, 1990, and 1991 can be attributed to the physical characteristics of the study streams.
4. Determine survival, genetic damage, hydrocarbon uptake, mixed function oxidase activity, and sublethal teratogenic effects from long term exposures to oil in each of two exposure groups: 1) green eggs to eyeing and 2) green eggs to swim-up.
5. Determine survival, genetic damage, hydrocarbon uptake, and mixed function oxidase activity from long term exposures of juvenile pink salmon fed oil-contaminated food.
6. Determine growth characteristics from each exposure group from juvenile stage to maturity.
7. Assess whether differences exist among exposure groups with respect to fecundity, fertilization rate, genetic damage, and sub-lethal teratogenic effects in the second generation progeny through swim-up.
8. Compare lab study with field observations:
    1. Determine if the elevated egg mortalities in 1989 and 1990 were potentially caused by oiling in the environment.
    2. Determine if the elevated egg mortalities in oiled streams in 1991 were potentially caused by genetic damage to 1989 eggs.

WHY: Information from this study will provide resource managers insight to the magnitude and persistence of damages sustained by wild pink salmon due to EVOS. Efforts to restore damaged pink salmon populations depend upon the ability to identify sources of reduced survival and to monitor their persistence. Information on the potential of oil exposures causing genetic damage is needed so spawning escapement goals can be reevaluated and adjusted if necessary. Verification of the genetic hypothesis would also provide the first evidence that reproductive capacity of fish exposed to chronic or acute sources of oil pollution would be compromised.

HOW: *Field Studies.* A systematic sampling program stratified by stream and tide zone will be used to collect egg and fry density and survival data from 11 oiled and 14 unoiled sites sampled previously in *NRDA* Fish/Shellfish Study 2, *Injury to Salmon Eggs and Fry in PWS.* Sampling will consist of egg-digs conducted in late September and early October, and fry-digs conducted in mid-March. Egg and pre-emergent fry data will be summarized by date, stream, level of hydrocarbon impact, stream zone, and number of live and dead eggs and fry. Density estimates will be used to assess adult spawning success.

Relative numbers of live and dead eggs and fry will be used to test for continued reductions in survival in oiled streams.

'.aboratory Study 1. Intra-stream crosses will be made using within stream pools of randomly combined jametes from six oiled and six unoiled streams from southwestern PWS. Eggs from the crosses will be incubated through hatching in a controlled laboratory environment. Egg mortalities will be compared for all crosses. Crossing results will be compared to results from field studies to determine the effect of stream characteristics on egg mortality differences previously observed between oiled and unoiled sites.

Laboratory Study 2. This study consists of three experiments. The first will examine the effects of six levels of intertidal gravel oil contamination and two durations of exposure on responses to various life history stages of cultured eggs and fry. Responses measured in the first generation will include survival to eyeing, survival to emergence, hydrocarbon uptake, survival to maturity, growth to maturity, and fecundity. Responses measured in the second generation will include fertilization rate and number of defective progeny. Samples for use in genetic analyses will be collected from first generation eyed eggs, emergent fry, juveniles, and mature adults. Genetic analyses will include flow cytometry methods and examination of metaphase germ cells. Second generation eyed eggs and emergent fry will be similarly sampled. The second experiment will determine if cultured fish fed oiled food for 6 weeks experience genetic damage and reduced gamete viability. Treatments will consist of 6 concentrations of oil in the feed (1 control and 5 different oil levels). Biological responses to be measured between emergence and the first 6 weeks of feeding will include growth, survival, hydrocarbon concentration, chromosome damage, and MFO incidence. Subsequent response measurements will include growth to maturity, fecundity, fertilization rate and number of defective progeny. Flow cytometry samples and samples for examination of metaphase cells will be taken after the first 6 weeks and will mirror those taken in the first experiment. The third experiment will determine if there is evidence of differential gamete survival to emergence between ten randomly paired families of cultured fish for five different treatment regimes. The treatments will be a combination of oiling concentrations from study 1 (Ci) and duration of exposure as follows: 1) control, 2) C_2 through eyeing, 3) C_2 through emergence,) C_4 through eyeing, and 5) C_4 through emergence. The fertilized gametes from ten randomly selected pairs f pink salmon (family) will be divided into aliquots, each aliquot will be randomly assigned one of the five treatments (3 aliquots per treatment). Ten family groups will be created and assigned in this manner. Individual aliquots will be incubated in pipe incubators and all fish culture practices will be randomized between families. Families will be incubated until emergence when they will be inspected, counted, and terminated.

ENVIRONMENTAL COMPLIANCE: Egg and pre-emergent fry sampling will require an ADF&G Title 16 permit and an ADF&G biological collections permit. Transport of wild gametes to the PWSAC hatchery will require an ADF&G Fish Transport Permit for each stock and a Permit Alteration may be required to rear and incubate the wild eggs at the AFK Hatchery.

WHEN: August 1993 - Interim Report 1 including: in-stream egg density and survival results, intra-stream crossing results, first generation doses response results for eggs and fry.

August 1994 - Interim Report 2 including: update of Interim Report 1,First generation doses response results through year 1.

Final Report - July 1995

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-004

Project Source:

Project Title: Documentation, Enumeration, and Preservation of Genetically Discrete Wild Populations of Pink Salmon Impacted by EVOS in Prince William Sound.

Project Category: Restoration Monitoring and Management Action

Project Type: Fish and Shellfish

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies: U.S. Forest Service

Project Term: **Start Date:** 03/01/93 **Finish Date:** 6/30/95

INTRODUCTION: Historically, approximately five-hundred-million wild pink salmon fry emerged from streams throughout Prince William Sound (PWS) each year to migrate seaward. Adult returns of wild pink salmon averaged from 10 to 15 million fish annually. Unlike returns of adult hatchery fish, these returning wild-stock adults play a critical role in the total Prince William Sound ecosystem; they convey essential nutrients and minerals from the marine ecosystem to estuaries, freshwater streams, and terrestrial ecosystems. Both juveniles and adults are important sources of food for many fish, birds, and mammals. Wild pink salmon also play a major role in the economy of PWS because of their contribution to commercial, sport, and subsistence fisheries in the area.

Wild-stock pink salmon suffered both direct lethal and sublethal injuries as a result of the Exxon Valdez oil spill (EVOS). Pink salmon embryos and alevins suffered increased mortality, diminished growth, and a high incidence of somatic cellular and genetic abnormalities as a result of spawning ground contamination and rearing in oiled areas. Wild stocks most impacted by the *Exxon Valdez Oil Spill* (EVOS) are also subject to excessive exploitation in mixed stock fisheries of western PWS which are targeting on large hatchery returns. Also, in 1989 the commercial harvest of pink salmon had to be shifted away from the hatchery and wild stocks in the oiled areas to target only the wild stocks in eastern Prince William Sound. This resulted in over-harvest and depletion of these stocks evidenced by general run failures of stocks in the northern and eastern portions of the Sound in 1991.

Furthermore, coded-wire tag recovery results from NRDA F/S Study 3 indicate that damaged wild salmon streams located on hatchery stock migratory corridors in western PWS experience a high incidence of genetic interchange as a result of straying from the burgeoning hatchery populations. Ample evidence in the literature suggests that hatchery fish are ill adapted to wild conditions and that genetic interchange between hatchery and wild stocks may lead to reduced fitness of wild stocks. The combined effects of oil damage, excessive harvest, and genetic burden on wild fish may result in an overall reduction in population size, genetic diversity, and fitness of PWS salmon populations.

The proposed damage assessment and resource monitoring study will consist of field studies conducted from Cordova and laboratory studies in Anchorage. The majority of the funds support PWS

field studies and will contribute to the local economy of Cordova. The project may result in altered harvest management strategies in PWS fisheries and will contribute to the natural recovery process for PWS pink salmon populations.

WHAT: In this project we will monitor the recovery of damaged wild streams through timely and accurate estimates of wild pink spawning escapements, quantify the extent of hatchery stock staying into wild salmon streams, and examine the genetic structure of representative salmon populations from throughout PWS, measuring both within and between population diversity. Genetic sample sites will include those which tagging results indicate are highly susceptible to hatchery straying (see Restoration Science project R60) in order to better clarify putative EVOS impacts on hatchery/wild-stock interactions.

Fisheries managers will use escapement data inseason to enact harvest management strategies which insure that sufficient fish escape fisheries to spawn in streams damaged by EVOS. Straying data will be used in conjunction with genetic data to develop alternate hatchery production strategies and develop criteria for wild-stock sanctuary areas where straying is minimal or does not occur. An understanding of the population genetics of affected pink salmon populations will also be used to guide restoration management decisions including those regulating commercial harvest. Genetic monitoring and risk assessment are also required to evaluate any supplemental restoration programs in a manner similar The Northwest Power Planning Council currently uses such a monitoring and evaluation program for their supplemental restoration program.

The specific objectives of the project are as follows:

1. Estimate straying rates of hatchery and wild stocks of pink salmon through systematic sampling of spawner carcasses in approximately 50 streams in PWS.
2. Monitor the recovery and status of pink salmon stocks through total weir enumeration of intertidal and upstream spawning escapements in eight streams which are representative of streams injured by the oil spill.
3. Define the genetic structure of pink salmon stocks in the EVOS-affected area in order to better direct harvest management decisions made for restoration purposes on a stock-specific rather than species-specific basis.
4. Provide information needed for genetic risk assessment and genetic monitoring of supplementation programs (e.g., as a result of Study R105) to guide stock-specific restoration and enhancement.

WHY: The most cost effective method for restoring injured wild pink salmon populations to their pre-spill condition is through modification of the human uses which affect their natural recovery. Commercial harvest is the major factor controlling wild pink salmon spawning escapement and reproductive success. The ability to impose stock-specific management on the commercial fishery and reduce fishery exploitation of oil impacted wild stocks is vital to their restoration. One of the most important pieces of information for stock-specific management of fisheries is timely and accurate escapement data which this project will supply.

The importance of pink salmon in the PWS ecosystem is predicated upon their abundance and their diverse spatial and temporal distribution. Genetic interchange between hatchery and wild fish may lead

to reductions in the overall fitness and population size of wild stocks and will most certainly alter historic patial and temporal abundance of wild pink salmon in the PWS ecosystem. The status of wild salmonid populations was a concern prior to the oil spill and the documented damage to these populations further increases the concern and the need to understand the underlying population structure and amount of gene exchange among populations. Reproductively isolated populations are by definition self-recruiting--the adults generally do not stray to repopulate depleted areas. Therefore, basing management decisions on known population structure is critical to facilitate successful restoration of reproductively isolated units.

Hatchery supplementation of wild pink salmon stocks cannot be contemplated without knowledge of the underlying population structure (see State of Alaska Genetic Policy). To do so would put the unique adaptive advantages of the wild stocks at risk. The same population genetic data will provide baseline for possible mixed-stock fishery analysis (e.g., see Restoration Science Project R59) and possible genetic marking. Genetic marks are now used to manage the harvest of Fraser River pink salmon, for example, and such techniques may ameliorate the hatchery/wild-stock management problems exacerbated by the EVOS.

HOW: Adult salmon will be counted through weirs at eight streams where outmigrating fry were enumerated and coded-wire tagged and where adults were counted in previous years. Weir crews will perform daily ground surveys of intertidal and upstream portions of the weired streams and at ten additional streams. At weekly intervals they will also apply Peterson disk tags to fish as they enter weired streams. During daily foot surveys crews will enumerate live and dead pink salmon, record Peterson disk tag recoveries from dead fish, and record the number of carcasses with missing adipose fin denoting the possible presence of a coded-wire tag. Heads from adipose clipped carcasses will be removed and sent to a centralized laboratory for tag extraction and decoding. Paired aerial and weir data will be used to calibrate aerial estimation procedures and estimate observer bias. Weir data, daily counts of live and dead fish, and results of Peterson disk tagging studies will be used to estimate average stream life for streams in the PWS aerial survey program. Improved stock specific estimates of spawning escapements combined with commercial catch contribution data will allow fisheries managers to accurately assess the impacts of the harvest management strategies on impacted stocks.

Pink salmon populations sampled during the escapement enumeration project represent a small percentage of the over 900 anadromous spawning populations in Prince William Sound. To better document the full extent of hatchery staying this project will expand tag recovery efforts in approximately 50 important spawning streams throughout PWS. Tag recoveries will be accomplished through multiple ground surveys during periods of peak salmon returns. Tag recovery sampling will be identical to the sampling at weired systems.

Tissue samples for baseline genetic data will be taken from 100 fish from two hatcheries and from spawned-out fish in 18 of the 50 streams sampled for straying. Both early and late stocks and inter-tidal and upstream-spawning stocks will be included among the 18 sampled. Heart, liver, and muscle tissue and aqueous humor will be removed from each individual sampled, frozen immediately on liquid nitrogen, and returned to Anchorage for storage at -80° C.. Results of genetics samples will be used to define the genetic structure of pink salmon populations in PWS and identify reproductively isolated populations. Results of coded-wire tag recovery data will be analyzed and used in concert with genetic data to identify areas with no evidence of straying which could be designated as genetic sanctuaries

which could be protected by future management actions and hatchery release strategies. Those oiled reas with documented high levels of straying should be monitored to examine the long term effects of straying and the resultant wild/hatchery salmon hybridization on the overall fitness of wild populations.

Genetic data will be collected using the techniques of allozyme protein electrophoresis on all samples and restriction fragment length polymorphism (RFLP) analysis of mitochondrial DNA (mtDNA) on a subset of samples. These procedures are well-established and currently being conducted in the genetics laboratory of ADF&G. As appropriate, data will be merged into the state and federal inter-agency coast-wide databases.

ENVIRONMENTAL COMPLIANCE: ADF&G has Title 16 permits for all of the proposed intertidal weirs. Corp of Engineers permits are not required since none of the weirs are on navigable waters. All sampling on weired and unweired systems is covered by ADF&G biological collection permits. None of the proposed camps or structures are permanent nor will they permanently alter the study sites in any way. All weirs, camp structures, and equipment will be removed from study sites upon completion of the project.

WHEN:	December 1993 -	Interim Report 1 including: Summary of weir counts, live and dead counts, stream life estimates, aerial surveyor bias estimates by stream, and hatchery straying rates by hatchery and stream for 1993.
	December 1994 -	Interim Report 2 including: Summary of 1994 escapement and straying data and comparison of 1993 and 1994 results. Escapement and straying data analyses will be in the same format as 1993 report and including a comparison of 1993 and 1994 results.
	June 1995 -	Final Report

EXXON VALDEZ OIL SPILL PROJECT PROPOSAL

Project Number: 93005

Project Source:

Project Title: Cultural Resources Information, Education and Interpretation

Project Category: Management Action

Project Type: Archaeology

Lead Agency: Department of Agriculture, Forest Service

Cooperating Agencies: Department of Interior, National Park Service; Alaska Department of Natural Resources

Project Term: Start Date: 1/1/93 Finish Date: 9/30/93

INTRODUCTION

The Exxon Valdez Oil Spill affected cultural resources in much of southcentral Alaska. These resources are ethnographically within the Alutiiq, or Pacific Eskimo, area. Known sites in the region contain information from as long as 8,000 years ago to the early 20th century A.D. These sites are the non-renewable source of date which are the basis of knowledge about past peoples and their relationship to the marine and terrestrial animals, plants, and other natural resources of the area.

One of the most significant injuries to cultural resources as a result of the Exxon Valdez oil spill was vandalism and looting resulting from increased visibility and knowledge of site locations. Mitigation of this injury involves education of the public about the valuable cultural heritage information preserved in these archaeological sites, and the losses which result from the unscientific digging and looting of sites.

The proposed mitigation measures will occur for the most part in oil spill affected communities. Increased circulation of existing brochures and posters is proposed for Anchorage, communities in Prince William Sound, on the Kenai Peninsula, and on Kodiak Island. These same communities will be included in Alaska Archaeology Week activities, the expansion of which would be coordinated in Anchorage. Several projects will be developed locally and made available to communities both within the Oil Spill area and throughout the state. These include the proposed portable cultural resources exhibits, public service announcements, educational videos, curriculum developed to state educational standards, and educational pamphlets to be distributed through museums, visitor centers, tour operators, and other public outlets. Local groups will be organized and promoted in oil spill affected communities to involve interested amateurs in archaeology under professional guidance. Curriculum development will occur primarily in the communities of southcentral Alaska, and secondarily state-wide through the Department of Education and individual school districts.

WHAT

The overall goal and purpose of these projects it to educate the public to the value and finite nature of cultural resources, thereby effecting value and behavioral changes so that future site looting and

C. Location

The public information outreach will benefit all of Southcentral Alaska with an emphasis on the communities of Valdez, Whittier, Cordova, Seward, Homer, Kodiak, and the Municipality of Anchorage.

WHAT

A. Goal

1. To inform and educate the public on the effects and impacts of the Exxon Valdez oil spill, current research and restoration project activities.

2. To provide to the public an accurate/balanced view of existing conditions in PWS.

3. To interpret PWS and the Gulf of Alaska environment to the public to enhance their enjoyment and understanding of this area.

4. To enhance eco-tourism recreation opportunities and experiences through interpretation of the natural resources and environment.

B. Objectives

1. Development of a family of brochures on the oil spill impacted areas - the focus of the brochures will be on how the different subject areas were or were not affected by oil spill, and on educating recreationists and other users of the oil spill areas about minimum impact use to avoid further damage to injured resources. Subjects to be covered would include but not be limited to marine mammals, waterbirds, anadromous fish, plants, upland wildlife, intertidal life, cultural resources, history of PWS, upland birds, and recreational opportunities.

2. The development and production of a family of videos on the oil spill impacted areas. These will be short (5-10 minutes) videos that can be used in visitor centers, in kiosks, taken to schools, public meetings or can be sent off as stand alone entities or as a combined package to whomever has a need for this type of information.

3. Develop an interpretive plan for the oil impacted areas and train and place interpreters on cruise and tour vessels.

4. Develop education curriculum modules to be used in schools throughout Southcentral Alaska.

5. Develop traveling exhibits on the oil spill and the impacted environment. These would incorporate hands on activities, live video and interpretive materials. These exhibits would be appropriate for kiosks, visitor centers or schools.

WHY

This project will provide to the public balanced and accurate information on the oil spill, injured and non-injured resources, and on restoration efforts. This project would tie into the restoration team's need to provide the public with information.

HOW

A public affairs specialist (PAS) will be hired by the Forest Service in FY 1993 as overall coordinator for the approved projects. The PAS will report to the public affairs officer on the Chugach National Forest and be responsible for monitoring the progress of all projects and for their ultimate completion. Projects may be accomplished by agency (both state and federal) specialists or by contract. The project coordinator will also be responsible and accountable for all project budgets.

Support services such as clerical help, purchasing, contracting and the execution of interagency agreements (if needed) will be provided by the Chugach National Forest Supervisor's Office.

Close coordination with other agencies will be critical. The project coordinator will need to work closely with other appropriate cooperating state and federal agencies to ensure their active involvement. All of the projects will be accomplished through the efforts of a multi-agency team.

ENVIRONMENTAL COMPLIANCE

These projects are categorically excluded (FSH 1909.15, paragraph 26.1a, item #4).

WHEN

	Start		Complete	
Brochures (10)	10/92		9/93	
Writing Script	1/93		4/93	
Design and Layout	4/93		7/92	
Printing		7/93		9/93
Video (1)	1/93		9/94	
Footage Gathering	1/93		7/93	
Edit & Duplicating	7/93		9/93	

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93010

Project Source:

Project Title: Reduce Disturbance Near Murre Colonies Showing Indications of Injury from the *Exxon Valdez* Oil Spill

Project Category: Management action

Project Type: Birds

Lead Agency: Department of the Interior - Fish and Wildlife Service

Cooperating Agencies: None

Project Term: **Start Date:** 1 January 1993 **Finish Date:** 30 September 1993

INTRODUCTION:

Background on the Resource/Service.--Common and thick-billed murres were the species of higher vertebrates most frequently injured by the oil from the *Exxon Valdez* spill. These diving seabirds have continued to demonstrate abnormal breeding behavior and low reproductive output at several sites since the spill. Murres normally nest in dense aggregations, presumably an adaption which reduces the rate of predation of eggs and chicks. Social behavior within aggregations apparently is important in stimulating the onset of laying and there is a tendency for laying within aggregations to be relatively synchronous. Murres often respond to abrupt, loud noises by panic flights from nesting cliffs. They are especially prone to panic flights when they are not incubating an egg or brooding a chick. If a small percentage of the murres in an aggregation have laid and a panic flight occurs, eggs tend to be abandoned temporarily. In contrast, after a substantial proportion of birds have laid, incubating birds are more likely to remain with eggs even when non-breeders and pre-breeders fly. In most locations, eggs left unattended are taken by avian predators (e.g., gulls, ravens). If food is adequate and eggs are lost early in incubation, murres will relay about 14 days after eggs are lost. Nevertheless, a lower proportion of chicks fledge from second eggs than from first. The result of panic flights, especially when such flights occur during early incubation, is reduced productivity.

Summary of Injury.--Over 100,000 murres were killed by the oil, and counts of birds at colonies within the trajectory of the oil indicated reduced populations after the spill. In the 3 years following the spill, remaining murres at colonies affected by the oil have initiated laying relatively late, if they laid at all, and reproductive output has remained lower than normal. Avian predators have been responsible for much of the egg loss. Murres in colonies where a high percentage of the individuals are failing to reproduce tend to be flighty at the slightest disturbance. As indicated above, panic flights, especially early in incubation, tend to reduce productivity for the colony. With reduced populations, it is important for remaining murres to produce recruits at a high enough rate to cause recovery. Poor reproductive success following the spill has continued, and few young were produced during the breeding seasons of 1989-1991 to recruit to breeding populations in the future. If this continues, recovery to former population levels is unlikely.

Location.--The project will attempt to reduce disturbance at the main murre colonies where evidence of injury has been recorded. These colonies are Ugaiushak Island and Puale Bay, located on the south side of the Alaska Peninsula near the downstream end of the spill trajectory; the Barren Islands, located near Homer between the Kenai Peninsula and Kodiak Island area; the Triplet Islands, located between Kodiak

nd Afognak Island; and the Chiswell Islands, located near Seward. This project will include education displays and efforts in Kodiak, Homer, Seward, and Chignik.

WHAT:

Goal.--The purpose of this project is to facilitate the recovery of murre colonies affected by the *Exxon Valdez* oil spill by reducing disturbance during the breeding season.

Objectives.--

1. Educate people who use areas near the murre colonies affected by the *Exxon Valdez* oil spill about the need to avoid disturbance to birds.

2. To enhance productivity of murres by reducing disturbance.

WHY:

Benefit to Injured Resources/Services.--Murre colonies within the trajectory of the spill were injured initially by loss of breeding birds. The lingering effect has been abnormal breeding behavior resulting in reduced reproductive success. This may be the result of a breeding population composed almost entirely of young inexperienced birds which may not have been present in 1989 when the oil-related mortality occurred. Reducing disturbance near breeding colonies during the breeding season should enhance productivity by diminishing the panic flight which leave eggs and chicks exposed to predators. Reducing sturbance bouts also may accelerate the return to an earlier nesting phenology by reducing the oportion of pairs that are forced to relay lost eggs. The timing of chick hatching is presumably timed to coincide with maximum food resources needed to successfully rear chicks. A return to more normal timing would therefore favor higher reproductive output and foster restoration of populations to former levels.

Relationship to Restoration Goals.--There are few reasonable proactive approaches that will aid restoration of murres, but minimizing disturbance likely will result in increased hatching success of murre eggs. Further, if eggs laid early are not lost, the phenology of breeding events should return to a more normal schedule, one adaptive for maximum survival of young.

HOW:

Methodology.--The public education campaign would include development of a brochure, articles in community and industry newspapers and magazines (e.g. commercial fisherman), presentations to communities and industry groups, and automated slide shows at visitor contact centers at Homer, Kodiak, and Seward. Recommendations would be provided on how users may conduct activities in a less disturbing a manner (e.g, ask halibut charter operators to gaff fish rather than shooting them to eliminate the loud noise). The targeted audience would include tour boat and fishing charter operators from Seward and Homer, and commercial fisherman from villages in the vicinity of colonies (e.g., Kodiak, Seldovia, Chignik, Seward). In addition, workshops for charter operators would be held, the Federal Aviation Agency would be contacted to try to get advisories out to pilots in these areas, and regular radio and television spots would be developed for use in selected communities. Although existing facilities, communication networks, and ongoing programs would aid accomplishment of the objective, ıe person would be hired specifically to perform the duties associated with this project.

Coordination with Other Efforts.--This effort will compliment existing interpretive programs, and provide an opportunity to build understanding an appreciation for marine resources. An effort would be made to solicit aid from the National Park Service and Alaska Department of Fish and Game to disseminate information. Another restoration project, monitoring would provide a basis for judging the effectiveness of this project to minimize disturbance. Coordination with existing law enforcement programs will be a part of this project, but no new regulations are proposed initially. Not only murres but other colonial seabirds would benefit from reduced disturbance.

ENVIRONMENTAL COMPLIANCE:

This is a non intrusive project which appears to qualify for categorical exemption under NEPA.

WHEN:

Oct. 1992	Advertise for and hire a lead person
Nov.-Dec. 1992	Plan specific strategies for project and coordinate with cooperators
Jan.-Mar. 1993	Produce brochure, develop presentations, and schedule presentations
Apr.-Aug. 1993	Distribute information, make presentations
Sept. 1993	Analyze program effectiveness, recommend modifications

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-011

Project Source:

Project Title: Develop Harvest Guidelines to Aid Restoration of River Otters and Harlequin Ducks

Project Category: Management Actions

Project Type:

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies:

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

INTRODUCTION: River otters (*Lutra canadensis*) and harlequin ducks (*Histrionicus histrionicus*) occur throughout the area impacted by the *Exxon Valdez* oil spill. Damage assessment studies of both species has documented injury and raised the possibility of long-term detrimental affects. Legal harvest of these species is continuing. This is a controllable source of mortality that should be applied as a restoration tool. However, that application cannot occur until harvest guidelines are developed and implemented that fully utilize injury assessment information. This project will develop those guidelines.

Otters forage in intertidal and subtidal zones that were heavily contaminated with oil. Analysis of bile and blood samples indicated hydrocarbons were accumulated and that toxic effects of oil are continuing. Oiled mussels eaten by otter are likely one source of continuing contamination. Home ranges of radio-collared animals were larger in oiled than nonoiled areas suggesting that oil contamination made it more difficult for them to find food. Body lengths, body weights and diet diversity were all lower in oiled areas, further substantiating indications of food problems. A population decline in the oiled area in 1991 was indicated by a high rate of latrine site abandonment (nearly 15%) as compared to nonoiled sites (less than 4%).

More than 2,000 sea duck carcasses were recovered after the spill, including more than 200 harlequins. Harlequins use the intertidal and shallow subtidal zones most heavily affected by the spill. They feed on invertebrates, such as mussels, which showed continuing evidence of hydrocarbon contamination. Tissues from about 40% of harlequins sampled in the oiled area during 1989 and 1990 were contaminated with hydrocarbons, and about 33% of birds collected in the spill area were in poor body condition. In 1991, surveys indicated a harlequin population decline and near total reproductive failure in oiled areas of PWS. Preliminary results of 1992 surveys suggested continuing reproductive failure.

WHAT:

Goal. This project will recommend harvest guidelines to facilitate restoration of river otters and harlequin ducks in PWS.

Objectives for river otters are to:

1. Estimate number, composition and location of historical and current harvest.
2. Recommend seasons and bag limits that will facilitate restoration.

Objectives for harlequin ducks are to:

1. Recommend seasons and bag limits that will facilitate restoration.

WHY:

Manipulation of seasons and bag limits to aid recovery of river otter and harlequin duck populations is likely the only restoration action possible over the next several years. Mortality from trapping and hunting could be reduced and recovery thereby accelerated. However, it must be clear that the benefit to injured species outweighs the loss of resource use opportunity for the public.

Other restoration actions, such as transplants or protection and enhancement of habitat will not be effective in the short-term because both species likely suffer continued exposure to petroleum hydrocarbons through ingestion of contaminated food. Moreover, it is possible that natural degradation of hydrocarbons in the environment over a long period of time is the only way to eliminate this food contamination.

Work proposed by this project will supplement normal management activities of ADF&G Division of Wildlife Conservation. It will allow formulation of harvest guidelines that consider restoration goals. Normal management activities for river otters and harlequins include at least four weeks of staff time devoted to collecting and analyzing harvest data, considering regulation changes, and implementing any season and bag limit changes that are approved. Those activities are supported by data entry services, travel funds, and facilities.

HOW:

River Otters.

The reliability of monitoring the use of latrine sites as an index to population trend will be evaluated. Literature will be searched and experts will be contacted to obtain opinions. If monitoring appears reasonable, it will be proposed as a continuation project.

Most harvest will be quantified by searching ADF&G furbearer sealing records. Additional harvest by local subsistence users that was not reported will be estimated using results of household surveys conducted by ADF&G Subsistence Division during 1992-93. Funding for those surveys is not requested as part of this proposal. All available information will be summarized by year beginning in 1985.

Harvest guidelines will be formulated by considering the restoration goal, population trend and harvest level. The goal is to restore the oil spill area to its pre-spill condition. Achieving it will require reversing an apparent downward population trend. The role of harvest mortality as a limiting factor will be estimated and guidelines formulated to insure that harvest facilitates recovery.

Harlequin Ducks.

Harvest and population data will be considered and harvest guidelines developed. The sport harvest data used will be very general in nature because specific information on harlequins in PWS has not been collected by management agencies. Existing subsistence harvest information is also non-specific. However, improved subsistence data is expected from household surveys that will be conducted by ADF&G Division of Subsistence during 1992-93. Population status information is expected from the harlequin duck restoration monitoring study (#93-033).

ENVIRONMENTAL COMPLIANCE:

No environmental assessment is required for this project.

WHEN:

River Otter.

month/year	
10/92	Make recommendation concerning emergency order changing 1992/93 trapping season.
3/93	Evaluate reliability of latrine site monitoring as an index to population trend.
8/93-9/93	Summarize harvest, make recommendation concerning an emergency order changing 1993/94 trapping season.

Sea Ducks.

month/year	
1/93	Make recommendation on season and bag limit to Board of Game.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-012

Project Source:

Project Title: Genetic Stock Identification of Kenai River Sockeye Salmon

Project Category: Restoration Management Actions

Project Type: Fish/Shellfish

Lead Agency: Alaska Dept. of Fish and Game

Cooperating Agencies:

Project Term: **Start Date:** 1/3/92 **Finish Date:** 9/30/95

INTRODUCTION: Fishing time in the Upper Cook Inlet area was greatly reduced in 1989 due to the presence of oil from EVOS. As a direct result, sockeye salmon (*Oncorhynchus nerka*) spawning in the Kenai River system exceeded optimal escapement goals by three times. This overescapement resulted in a severe overproduction of sockeye salmon fry. The overabundance of sockeye salmon juveniles depleted invertebrate prey populations to the point that widespread juvenile mortality occurred during the winter-spring rearing period. Consequently, sockeye smolt outmigrations in the Kenai River have been severely reduced, and the number of adult sockeye salmon returning from the 1989 overescapement in the Kenai River system is expected to be exceptionally low. Starting in 1993, a dramatic reduction, or complete elimination, of Kenai River sockeye salmon harvests may be necessary to ensure even minimally adequate escapements.

Sockeye salmon harvested from the mixed-stock fishery of Cook Inlet include fish from the Kenai, Kasilof, and Susitna Rivers. In order to effectively manage the harvest of EVOS-damaged stocks, Restoration Science Study R59 - Assessment of Genetic Stock Structure of Salmonids - was implemented. This study uses Genetic Stock Identification (GSI) techniques to identify Kenai River stocks in mixed stock Cook Inlet fisheries. Area managers will use this information to modify fishing areas and openings in order to facilitate the harvest of surplus Kasilof and Susitna River stocks while protecting the EVOS-damaged Kenai River stocks.

Restoration of Kenai River sockeye stocks will benefit subsistence, sport, and commercial fishermen in coastal communities throughout Cook Inlet, from Homer north through Anchorage to Tyonek. In 1992 nearly 10,000 families obtained subsistence permits to harvest salmon in UCI, most targeting Kenai River sockeye salmon. The most recent statistics indicate that nearly 100,000 sport anglers fished the Kenai River for salmon

in 1990, spending $38 million in 1986 dollars. Forty percent of those anglers were from out of state. Of the 1,323 permits licensed to commercial fish in UCI, 80% are fished by state

residents with the remaining predominately from Pacific Coast states. Average ex-vessel value (1987-1991) of the UCI commercial salmon harvest was $ 67.8 million.

WHAT: We will continue to develop a comprehensive genetic database of sockeye salmon stocks in Cook Inlet. In 1992 we began collecting baseline genetic data from 28 subpopulations from the Kenai, Kasilof, and Susitna Rivers. Beginning in 1993, samples from the Cook Inlet commercial harvest will be analyzed to estimate the composition of the fisheries. This information will enable area managers to identify Kenai River fish occurring in the mixed-stock commercial fishery and thus harvest surplus stocks of sockeye salmon while providing protection to EVOS-damaged stocks destined for the Kenai River. The specific objectives are to:

1. Refine and expand the allozyme database to include all significant spawning stocks contributing to mixed-stock harvests of sockeye salmon in Cook Inlet. Initiate the development of DNA marker detection in sockeye salmon to test for expanded resolving power.

2. Obtain genetic data each week from samplings of the various mixed-stock fisheries occurring in 1993 - 1995.

3. Use Genetic Stock Identification (GSI) algorithms to estimate the proportion of Kenai River stocks in mixed stock fisheries so that managers may modify area and time of harvest in order to protect these damaged stocks while targeting surplus Kasilof River and Susitna River stocks. Estimates will be provided within 48 hours post-fishery.

WHY: Attempts to use stock identification to manage harvests of Cook Inlet sockeye salmon in the past have relied on scale growth patterns. However, the accuracy of the scale technique alone has not been reliable, and it is insufficient to permit the in-season protection of the EVOS-damaged Kenai River stocks. GSI techniques rely on genetic variation to discriminate between populations of organisms. This method has recently been applied as an in-season fisheries management tool, and it has proven to be extremely effective for allocating and adjusting the harvest of fish stocks intercepted in mixed-stock fisheries such as those that occur in Cook Inlet. Once a data base has been established, GSI techniques should provide a mechanism for in-season management on a stock-specific basis. This will allow managers to control the harvest of Kenai River sockeye salmon and facilitate their recovery.

HOW: A comprehensive baseline genetic database will be developed for all sockeye salmon stocks contributing to Cook Inlet fisheries. Additional sockeye salmon will be collected from approximately 20 baseline subpopulations each year (1993-1995). Sites will be chosen to supplement those being collected during the 1992 field season.

Project Number: 93-012

Mixed stock fishery samples will be collected from every drift net fishery occurring during the July fisheries (1993-1995). Muscle, liver, heart, and eye tissue will taken from individual fish and examined by protein electrophoresis (allozyme analysis) for discriminating gene markers. Genotypic and allelic frequency estimates will be calculated from allozyme electrophoretic data for each baseline and mixed-stock sample at every gene

locus examined and will be used to identify discrete spawning populations. Stock components of mixed fishery samples will be estimated using a conditional maximum likelihood algorithm. Fishery composition estimates will be available within 48 hours following the fishery so that management decisions can be based on the actual composition of the fisheries.

We will also screen representative individuals for DNA-level markers. Total genomic DNA will be extracted and amplified through PCR (polymerase chain reaction) techniques utilizing various mitochondrial and nuclear primers. Restriction analyses as well as sequencing studies will be performed. Maximum likelihood simulation studies will be performed to test the additional resolution that could be provided by the DNA-level data. DNA data will be collected from the fishery samples as scientifically and logistically feasible.

ENVIRONMENTAL COMPLIANCE: Collecting permits will be obtained as required.

WHEN:

Baseline & Mixture sample collections/coordination with project R53	June-Sept. 1992
Laboratory analyses of baseline & model mixtures	July-Dec. 1992
Laboratory analysis of baseline populations & annual report	Jan.-Apr. 1993
Laboratory analyses of mixtures; numerical analyses of stock structure; modelling for 1993 mixture analyses	July-Sept 1993
Baseline analyses, in-season analyses, annual report	Oct. 93 - Sept. 94
Baseline analyses, in-season analyses, final report	Oct. 94 - Sept. 95

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-014

Project Source:

Project Title: QUALITY ASSURANCE FOR CODED-WIRE TAG APPLICATION IN FISH RESTORATION PROJECTS

Project Category: Technical Service

Lead Agency: Alaska Department of Fish and Game (ADFG)

Cooperating Agencies:

Project Term: **Start Date:** 1/1/93 **Finish Date:** 12/31/93

INTRODUCTION:

This project will maintain high quality coded-wire tag (CWT) application and CWT data tracking for EVOS restoration projects. The target species are pink, chum, and sockeye salmon. The Exxon Valdez oil spill severely damaged wild pink and chum salmon populations. Various amounts of oil were deposited in intertidal spawning habitats in Prince William Sound (PWS) where up to 75% of the spawning occurs. Salmon eggs deposited in 1989 and all subsequent years have been contaminated and direct egg mortality has been documented. The growth and survival of juvenile salmon during the early marine period was reduced by oil contamination in 1989. Recently suspected genetic damages resulting from oil contamination in spawning beds may further reduce the productivity and fitness of wild salmon populations for many years to come. Sockeye salmon rearing lakes on Kodiak Island and elsewhere were damaged when fisheries were closed allowing large numbers of spawners to escape into rearing lakes. The resulting large fry populations overgrazed the resident fry food resources in the lakes causing a reduction in lake carrying capacity. The benefits of this project will be realized in the communities of Kodiak, Anchorage, Whittier, Valdez, and Cordova which support important sport and commercial fishing industries in the region.

WHAT:

The goal of this project is to establish and maintain high quality CWT application and data tracking procedures within EVOS restoration projects. The project will achieve the following objectives:

1. Interface CWT application database with CWT recovery databases being developed for restoration projects,

2. Implement appropriate quality control standards, tag application, and data tracking procedures for CWT application within EVOS restoraton projects and provide technical assistance to staff involved with CWT application,

3. Review data from CWT application projects at the end of the season to insure that quality control standards, tag application, and data tracking procedures are maintained, and

4. Conduct a pilot project to develop a methodology to quantify CWT placement in pink salmon fry and incorporate into CWT application database.

WHY:

Coded-wire tagging is currently used in several fishery 'management action' and 'resource manipulation and enhancement' projects. Management action projects utilize CWT data to (1) direct fishing effort away from damaged wild salmon, and (2) inventory and evaluate the effects of straying hatchery salmon on wild salmon populations. Manipulation and enhancement projects utilize CWT as an tool to evaluate project success. Failure to assure proper CWT application procedures and data tracking may seriously compromise the quality of CWT programs, confound interpretation of CWT data, and reduce the success of EVOS restoration projects. This project is designed to maintain high quality CWT application and data tracking procedures to insure that this stock separation tool provides the expected results.

Coded-wire tagging is a very effective tool for marking large numbers of juvenile fish if high quality tag application and data tracking procedures are maintained. All CWT programs are based on the assumption that tagged fish are representative of untagged fish. Poor tag application and fish handling procedures will result in a violation of this assumption by (1) reducing the growth and survival of tagged fish, or (2) reducing the fishes' ability to home accurately to its stream of origin. Standard methods must be used during the application process to minimize damage to tagged fish, insure good tag placement, properly estimate number of tagged fish, number of untagged fish, tag mortality, tag retention, and number of good fin clips. This project will benefit all restoration projects that involve coded-wire tagging (e.g. Red Lake Salmon Restoration, Restoration of Coghill Lake Sockeye, Inventory and Effects of Straying of Hatchery Pink Salmon on Wild Pink Salmon Populations in PWS, Montague Island Chum Salmon Restoration) by insuring maintenance of quality control standards and interfacing of CWT application and recovery databases. Technical assistance will be provided to private groups that will use CWT to evaluate restoration program success (e.g. Chenega Chinook and Coho Stocking).

Poor tag placement is the most likely cause of reduced growth, survival, and homing ability in tagged fish. There is documented damage to the olfactory nerve in chum salmon fry tagged with CWT. Good placement is particularly important to maintain when tagging pink salmon fry because of their small size. Each year approximately one million CWTs are applied to pink salmon at five private non-profit hatcheries in PWS. Recovery of these marked fish in hatchery broodstock and common property and cost recovery harvests is essential for effective management of hatchery and wild salmon populations. Recovery of CWT fish is currently being used to evaluate the effect of straying hatchery salmon on damaged wild salmon populations in PWS. A program to quantify CWT placement in pink salmon is needed to insure that variations in placement between tag codes does not confound interpretation of straying data.

HOW:

This project will establish and maintain high quality CWT application and data tracking procedures within all EVOS restoration projects. The project will initially focus on a review of existing CWT quality control and tag application procedures. Sample sizes and procedures currently used to estimate tag mortality, tag retention, and fin clip quality will be evaluated and adjusted if necessary. The existing CWT application database will be interfaced with developing CWT recovery databases. Standard quality control, tag application, and data tracking procedures will be implemented. Documents detailing these procedures will be distributed to government and private groups responsible for CWT application in various EVOS restoration projects. Each CWT application site will be visited periodically to answer

questions and insure that CWT quality standards are being followed. Each restoration project involving CWT will prepare a report describing the methods and results from each field season. CWT reports will be reviewed for consistency with quality standards and recommendations will be developed for further improvement of the program.

A pilot study will be conducted to collect data needed to design a program to quantify CWT placement in pink salmon fry. Samples of tagged fry (n = 200) will be collected from randomly selected tag groups/codes

of pink salmon. Fry tissues will be cleared with a sequential treatment of formaldehyde and potassium hydroxide solution. A computer image analysis system will be used to quantify tag placement within the head of each fish relative to a reference line drawn between the eyes. Histological analyses will be conducted to determine the degree of olfactory nerve damage in fish exhibiting poor tag placement. The data obtained from the study will be used to estimate sample sizes and costs associated with quantification of tag placement.

ENVIRONMENTAL COMPLIANCE:

This project will not have a direct impact on any environmental parameters.

WHEN:

This project will take place during FY93. Project activities will occur throughout much of the year (Table 1).

Table 1: Annual schedule of project activities.

Date	Activity
Jan. - Feb.	Review and revise CWT quality control standards and interface CWT application database with CWT recovery databases
Feb. - June	Collect samples for tag placement study and assist restoration project staff involved with CWT application
June - July	Review data from CWT application projects
July - Sept.	Process samples from tag placement study and analyze data
Oct. - Nov.	Prepare annual report

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-015

roject Source:

Project Title: Kenai River Sockeye Salmon Restoration

Project Category: Restoration Management Action

Project Type: Fish/Shellfish

Lead Agency: Alaska Department of Fish and Game (ADF&G)

Cooperating Agencies:

Project Term: **Start Date:** 1/3/92 **Finish Date:** 9/30/96

INTRODUCTION:

Sockeye salmon *Oncorhynchus nerka* which spawn in the Kenai River system were injured by the *Exxon Valdez* oil spill. Greatly reduced fishing time in the Upper Cook Inlet area due to the oil spill caused sockeye spawning escapement levels in the Kenai River system to exceed the desired amount by three times. The biological impact of the oil spill on Kenai River sockeye salmon stocks is expected to be serious. Data collected by NRDA Fish/Shellfish Study 27, *Sockeye Salmon Overescapement*, showed eatly reduced survival estimates of juvenile sockeye salmon during the winter-spring rearing period. ..ie extremely high escapement appears to have produced more rearing juvenile sockeye salmon than could be supported by nursery lake productivity. In general, when rearing salmon abundance greatly exceeds lake carrying capacity, the species and size composition of prey resources are altered which, in turn, affects all trophic levels. Because of such changes, juvenile sockeye growth is reduced and freshwater mortality is increased. Greater numbers of fry remain in the lake for another year of rearing. Competition for a limited food supply reduces condition of surviving fry. Marine mortality is increased because of poor condition of outmigrating smolts.

Limiting sockeye salmon fry production by closely regulating the number of spawning adults is the best way to restore the productivity of these rearing areas. However, the number of adult sockeye salmon returning from the 1989 overescapement may be so low that a severe reduction, or complete elimination, of human use of this species may be necessary starting in 1993 to ensure minimum spawning escapements.

This project consists of increased monitoring and management of the sockeye salmon stocks in the Kenai River and Upper Cook Inlet (UCI) north of Anchor Point. The project will benefit subsistence, sport, and commercial fishermen in coastal communities throughout Cook Inlet, from Homer north through Anchorage to Tyonek. In 1992 nearly 10,000 families obtained subsistence permits to harvest salmon in UCI, most targeting Kenai River sockeye salmon. The most recent statistics indicate that nearly 100,000 sport anglers fished the Kenai River for salmon in 1990, spending $38 million in 1986 dollars. Forty percent of those anglers were from out of state. Of the 1,323 permits licensed to ommercial fish in UCI, 80% are fished by state residents with the remaining predominately from Pacific oast states. Average ex-vessel value (1987-1991) of the UCI commercial salmon harvest was $ 67.8

million.

WHAT:

The goal of this project is to restore Kenai River sockeye salmon stocks injured by the oil spill. This will be accomplished through improved stock assessment capabilities, more accurate regulation of spawning levels, and modification of human use. Restoration of Kenai River sockeye salmon stocks will be achieved when average fry, smolt, and adult production can be maintained at pre-spill levels. Prey resources of rearing lakes must also be restored to normal levels (This will be monitored under another restoration study, which will be based on information obtained from NRDA Fish/Shellfish Study 27).

Specific objectives of this proposal are to (1) improve stock identification capabilities by combining parasite and genetic stock identification information with available scale growth data to provide statistically reliable estimates of Kenai River stocks in the mixed stock fishery of Upper Cook Inlet (UCI), (2) increase the accuracy and precision of escapement monitoring by supplementing hydroacoustic equipment used in the Kenai River, and (3) provide more accurate estimates of abundance of Kenai River sockeye salmon within UCI through hydroacoustic assessment techniques.

WHY:

More intensive management is necessary to restore affected stocks to pre-spill levels and maintain them at those levels until the populations stabilize. This project will help restore those stocks by providing the information needed to properly manage human uses. Intensive fisheries management will temporarily reduce human pressure on these injured stocks to speed their recovery. As a means of minimizing impacts on the fisheries, existing fisheries may need to be restricted or redirected to alternative sites. For Cook Inlet this will relieve pressure on what are anticipated to be small runs to the Kenai River in the next several years without shutting down other UCI fisheries.

HOW:

Stock Identification

Stock identification studies used to regulate human use of UCI sockeye salmon have, in past years, relied on scale growth patterns. The accuracy and precision of this technique has varied considerably from year to year. Kenai stocks typically dominate the total return and their scale patterns are generally distinct enough to provide some separation from other stocks. However, when runs to other systems are more abundant (as may occur in 1993-1995) separation of Kenai stocks will be much more difficult. Improvements in stock identification procedures will be necessary to identify the contribution of Kenai River sockeye salmon to the total run accurately in this situation. Recent work by ADF&G, in cooperation with National Marine Fisheries Service staff, has shown that parasite occurrence can be used to improve estimates of stock contribution during the fishing season. The combination of scale patterns, parasites and genetic stock identification techniques (Restoration Science Study Number 59) will greatly increase the accuracy of UCI stock assessment estimates.

Sockeye salmon escapements into major drainages of Upper Cook Inlet were sampled for genetic, parasite, scale and otolith characteristics in 1992. During 1993, 20 additional baseline populations will be sampled and mixed-stock samples will be collected from the commercial drift gillnet fishery. Stock composition of mixed stock fishery samples will be estimated using scale pattern analysis, parasite data, genetic data, or a combination of all three. Stock resolution will be enhanced by using several kinds of biological marker data simultaneously. Typically a maximum-likelihood estimation procedure for a mixture problem with learning samples has been used to combine these data. The principal

components of this project are sample collection, transportation to genetic laboratory facilities (for preparation by Restoration Study Number 59) and real time stock composition modeling necessary for inseason resource management decisions.

Escapement Monitoring

Bendix Corporation side-scan hydroacoustic equipment has been used since 1976 to count adult sockeye salmon entering the Kenai River to spawn. Lack of Bendix replacement parts and the inability to purchase new Bendix counters will compromise our future ability to provide escapement estimates. Accuracy of estimates would be greatly enhanced through use of newer, more technically advanced equipment. Evaluation of new equipment in 1992 will result in selection of the most appropriate replacement system. Funding for purchase of replacement equipment was authorized in 1992. ADF&G will conduct continuous operations with both the old Bendix equipment and the new equipment on both banks of the Kenai River during a three week period in 1993 to encompass the peak of the sockeye salmon run. This will provide a measure of quality assurance that will allow comparison of data previously collected using only the Bendix device to that collected using new equipment. Use of the Bendix is expected to be unnecessary in subsequent years.

Offshore Assessment Program

Sockeye salmon returning to UCI are captured with a drift gill net at a series of stations between Anchor River and Red River delta. Estimates of the total sockeye salmon return are made several times during the season by estimating expected total test fishery catch per unit of effort for the season and catchability of sockeye salmon in the test fishery calibrated by the commercial drift gillnet fishery. Analysis of historical data indicates that existing sampling effort and catch has not been proportional to abundance. Calibration by the commercial fleet is not guaranteed for future reduced run sizes. In 1992 hydroacoustic equipment and techniques were evaluated by a contractor experienced in marine salmon investigations to supplement the existing program. Anticipated results include: 1) operating parameters of the hydroacoustic system used, 2) real time estimates of fish density, 3) fish distribution across the transects, and 4) definition of run timing models and total return estimates. In 1993 a hydroacoustic survey will be conducted to provide a real-time estimate of adult sockeye salmon in UCI. Placement and duration of transects needed for the 1993 survey will be based on 1992 results to provide an appropriate level of precision and accuracy for an abundance estimate of sockeye salmon. This is to include appropriate species composition estimates of fish targets. Purchase of offshore hydroacoustic equipment will be necessary in order to meet these goals.

ENVIRONMENTAL COMPLIANCE: A Corps of Engineers Section 10 or 404 permit, State of Alaska Title 16 permit, and a finding that this project is consistent with the Alaska Coastal Zone Management Plan may be required.

WHEN: Four additional years will be required to meet project objectives. Adult returns from the injured 1989 brood year will occur during 1993-1995, but information on the 1990, 1991, and 1992 brood years will also be needed to monitor recovery of the system. Adult returns from the 1992 brood year will not be observed until 1996.

Events and Milestones for 1992-1993

1992

Aug. Begin to evaluate results of escapement monitoring, purchase new equipment and design escapement monitoring for 1993.

1993

Jan. Begin to evaluate results from the offshore hydroacoustic investigation and design a survey for 1993.

Project Number: 93-015

April Results of baseline genetic sampling due to evaluate accuracy and precision of stock composition modeling and set sample design and sample size goals for 1993.

May Award contract for the offshore hydroacoustic survey in UCI to begin in July.

June Begin field work: fishery sampling and escapement monitoring begin in July, and escapement sampling for stock identification baselines through September.

Sept. Interim Report to include (1) performance of stock composition modeling with scale, genetic, and parasite data, (2) estimates of adult sockeye escapement in the Kenai River, and (3) offshore hydroacoustic estimates of sockeye salmon.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-016

Project Source:

Project Title: Chenega Chinook and Coho Salmon Release Program.

Project Category: Manipulation and Enhancement

Project Type:

Lead Agency: ADF&G

Project Term: **Start Date:** 1/1/1993 **Finish Date:** 12/31/2003

INTRODUCTION:

A. Background Due to the oil spill, stocks of salmon were seriously impacted by gross pollution. Subsistence as well as sport and commercial fisheries were disrupted. Traditional usage of fish stocks and fishing grounds by the Chenega Village residents was lost. This project will help to restore lost subsistence fishing and establish new alternate subsistence fishing opportunities.

B. Injury As a result of the Exxon Valdez Oil Spill, subsistence harvest of salmon and other resources was disrupted.

Location Fish production at W. Noerenberg (WHN) Hatchery at Esther Island in PWS. (This is the preferred site if production can be accomplished without major modifications). Fish will be released and harvested in the vicinity of Chenega Village in southwestern Prince William Sound, at Deadend Bay.

WHAT

A. Goal To replace subsistence resources by permitted releases of chinook and coho salmon at designated sites near Chenega village from stocks of Prince William Sound Aquaculture Corporation (PWSAC) Wally Noerenberg Hatchery near Esther Island.

B. Objectives

- Produce 50,000 chinook salmon smolts at the W. Noerenberg Hatchery for transport and release at site(s) near Chenega Village
- Hold and feed, the smolts in net pens at the release site for 2 weeks before they are released.
- Harvest approximately 1500 adult chinook salmon when they return (Assume 3% survival rate; 4 years before all year classes are represented).
- Produce 50,000 coho salmon smolts for transport, holding, feeding and release near Chenaga Village.

- Harvest approximately 2500 adult coho salmon annually (assume 5% survival rate; annual return beginning 1 year after first release).

WHY

A. Benefit These projects will restore and improve subsistence salmon harvests that were lost because of the Exxon Valdez Oil Spill.

B. Restoration Goals Results from this project will help to restore lost subsistence fisheries. (Restoration Options: replace lost subsistence use (Management of Human uses) 18 (Resource Manipulation), 30 (Other) related to hydrocarbon contamination of subsistence foods.

HOW

A. Method

1). Smolts will be utilized from existing production lots and raised to smolt stage at the W.H.N. Hatchery.

2). Smolts will be transported by barge to the designated sites.

3). Smolts will be held and fed in net pens for 2 weeks before release to improve survival and imprinting.

4). Adults will be harvested when they return.

- Chinook Salmon: broodstock - from hatchery stock.

- Coho Salmon: broodstock - from donor stock near the release site.

- All plans will be reviewed by the PWS Regional Planning Team (RPT) and by the Fish Transport Permit (FTP) process and will comply with the ADF&G Fish Genetics Policy.

B. Other Efforts This project will provide an alternate source of food for subsistence use and reduce the need for reliance on wild stocks that were injured by the oil spill.

ENVIRONMENTAL COMPLIANCE

This project will be reviewed by the NEPA Process, the PWS RTP, and the ADF&G FTP review before it is implemented.

WHEN

FY1993: January - Plans are reviewed by the NEPA process, PWSAC, and the PWSAC RPT.
June - first chinook smolts transported, penned, fed, and released.

FY1994: October - coho salmon broodstock screening and selection.
June - first "adult" (jack) returns of chinook salmon.

FY1995: October - first coho salmon eggs are taken from the designated location.

FY1996: First coho salmon smolts are released.

FY1997: August - first coho salmon adults return.
June - first complete complement of all chinook salmon age classes return.

Each year, smolts will be released in June (or late May).

Chenega chinook and coho salmon release program.

Chinook Salmon:	- egg take and rearing (50,000 smolts at $0.25 per smolt)	$12,500
	- tagging (5000 fish at 0.20/fish)	$1,000
	- transport (2 days at $2,000/day)	$4,000
	- net pens and on-site rearing	$4,000
	(FY1994) Sub-Total	$21,500
Coho Salmon:	- broodstock screening and evaluation (Fish Pathology and Genetics)(FY1993)	$5,000
	- egg take (FY1995) (70,000 eggs; 20 females; remote site)	$5,000
	- tagging (FY1995) (5000 at 0.20/fish)	$1,000
	- rearing and production (FY1995) (50,000 smolts at $0.25 per smolt)	$12,500
	- transport (FY1995) (2 days at $2,000/day)	$4,000
	- net pens and on-site rearing (FY1995)	$4,000
	Sub-Total	$26,500

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-017

Project Source:

Project Title: Subsistence Restoration Project

Project Category: Restoration Management Actions

Project Type: Subsistence

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies:

Project Term: **Start Date:** 1/1/93 **Finish Date:** 9/30/95

INTRODUCTION: Subsistence use of fish and wildlife constitute a vital natural resource service that was injured by the *Exxon Valdez* oil spill. Data collected by the Alaska Department of Fish and Game's Division of Subsistence has demonstrated this injury. Annual per capita subsistence harvests declined dramatically (from 12 percent to 77 percent decline compared to pre-spill averages) in ten of the communities in the path of the spill during the first year after the event. While some of these communities' harvests demonstrated a limited recovery in the second post-spill year, harvest levels in other affected communities showed no signs of recovery. Concern over the long-term health effects of using resources from the spill area, a loss of confidence on the part of subsistence hunters and fishermen in their own abilities to determine if their traditional foods are safe to eat, and a perceived reduction in available resources, all contribute to the reduced harvest levels. We propose to undertake a subsistence restoration project involving the following communities; Chenega Bay, Tatitlek, Cordova, Valdez, Nanwalek, Port Graham, Seldovia, Kenai, Seward, Larsen Bay, Karluk, Old Harbor, Akhiok, Port Lions, Ouzinkie, Kodiak City, Chignik Lake, Chignik, and Chignik Lagoon.

WHAT: The goal of the project is to restore the subsistence use of fish and wildlife damaged by the *Exxon Valdez* Oil Spill. Community meetings will be held in order to identify and map the specific areas and resources of continued concern to subsistence users. This will provide a comprehensive, final opportunity to identify these concerns. We will provide prioritization and locations of sites to the Alaska Department of Environmental Conservation for use in their spring shoreline survey, Restoration Project 93-018, to focus their treatment effort if necessary. Samples of subsistence foods will be collected from harvest areas identified during the mapping. Community representatives will assist in site selection, as well as the collection of samples. The samples will be analyzed for the

presence of hydrocarbon contamination. The results of the tests, along with findings from other damage assessment and restoration studies, will be interpreted by the Oil Spill Health Task Force, and reported to the communities in an informational newsletter and community visits. This information will assist the Trustee Council in making decisions concerning restoration, enhancement or replacement of lost subsistence resources and uses. In addition, some mitigation of lost subsistence use will be provided by making funds available to communities to support travel to harvest areas away from oiled sites or to areas where resources have not been depleted. As further mitigation, funds will be made available to support subsistence food sharing programs between communities.**

WHY: The Oil Spill Health Task Force has had some success in conveying the message that most subsistence foods are safe to eat. However, concern about long-term effects remains. Also, the limited access to the damage assessment studies has created the impression in most communities that the task force did not base its conclusions on a complete assessment of all data. We need an opportunity to put the information from the damage assessment into context. This will help to empower the people in the impacted communities to make informed decisions and encourage those who are so inclined to return to using more subsistence resources. It would also restore the communities' abilities to pass on skills and knowledge associated with using subsistence foods.

Making information from subsistence users part of the restoration process will facilitate the recovery of subsistence use areas, the importance of which might otherwise be missed. There is a need in these communities to actively participate in restoration of the environment. This project would provide for this involvement.

The project answers the need to continue to monitor the risks to human health from the oil spill. This is consistent with the goal of restoring human services of the natural resources damaged in the oil spill. It also addresses the need to restore the natural resources and the services these resources previously provided to subsistence users.

HOW: By involving subsistence users in decisions affecting mitigation, and the monitoring, enhancement and replacement of the natural resources, we can accelerate the recovery of the resources subsistence users rely upon. This, combined with effective communication of information concerning the safety of the resources should cause subsistence harvests to begin to approach pre-spill levels, and reduce anxiety about their use.

The Division of Subsistence will use the results of a joint study currently being conducted with the U.S. Minerals Management Service in 15 communities impacted by the *Exxon Valdez* oil spill to determine the communities where concern continues to exist, as well as the nature of that concern. Similar activities were suggested by the Bureau of Indian Affairs

** If this portion of the project is determined not to be a legal use of the settlement funds, and is eliminated, it would reduce the cost of the project by 53.5 thousand dollars.

for inclusion in 93-017. These were seen as duplicative with the MMS/ADF&G study and therefore not included in 93-017. As a member group of the Oil Spill Health Task Force, the Division of Subsistence will continue to ensure coordination with that group.

The details of the subsistence research being undertaken by the Department of the Interior as part of the Chenega Bay settlement are not available to us due to the litigation sensitive nature of the work. Nevertheless, we have been assured by Regina Sleater, an attorney of the U.S. Department of the Interior, that there is minimal overlap between our study and theirs. In addition, she notes that the results of the Interior study will be available in December 1992 and 93-017 will be able to build upon rather than overlap with the Interior project.

ENVIRONMENTAL COMPLIANCE: This project is categorically excluded under NEPA guidelines.

WHEN: Note: there will be ongoing communication with subject communities throughout the duration of the project, with visits to communities as needed.

January 1-May 31, 1993 Community meetings to map areas and species of concern
June-July 1993 Coordinate with DEC shoreline assessment to verify oiling information
June 1993 Collect subsistence food samples for testing (anticipate 2 month turn around for test results)
August 1993 Informational newsletter issued
September 1993 Collect subsistence food samples for testing
November 1993 Informational newsletter issued
December 1993 Collect subsistence food samples for testing
February 1993 Informational newsletter issued
March 1994 Collect subsistence food samples for testing
May 1994 Informational newsletter issued
June-July 1994 Coordinate with DEC shoreline assessment to verify oiling information
June 1994 Develop plan for additional cleanup/mitigation of oil
September 1994 Develop plan for enhancement/replacement of resources
May 1995 Coordinate with DEC shoreline assessment to verify oiling information

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-018

Project Source:

Project Title: Enhanced Management for Wild stocks in Prince William Sound, Special Emphasis on Cutthroat Trout and Dolly Varden.

Project Category: Restoration Management actions

Project Type: Fish/Shellfish

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies: United States Forest Service

Project Term: **Start Date:** 1/1/93 **Finish Date:** 9/30/94

INTRODUCTION

The status of many of the wild fish stocks and their habitats in the aftermath of the oil spill, are unknown. Numerous efforts have been conducted or initiated to evaluate effects of the oil spill on specific stocks and information exists scattered throughout various agencies on various aspects of some of these stocks. Higher mortality and slower growth rates for Dolly Varden and cutthroat trout were documented in oiled areas compared to non-oiled areas. Recreational fishing for Dolly Varden and cutthroat trout was curtailed by emergency closures and changes in sport regulations following the oil spill, likely resulting in faster recovery times for the stocks that were closed to sport fishing. In other parts of Prince William Sound (PWS), however, there is insufficient information on which to base population management actions for these two species. In addition, information to prioritized population and habitat management actions for most of the wild fish stocks in PWS is lacking or at least unconsolidated. Without appropriate information on which to base management action, injury may occur to other stocks due to overfishing or overly conservative regulations may be made which would unnecessarily restrict recreational sport fishing opportunities. Likewise, a readily accessible informational database is needed to identify appropriate strategies for protecting, maintaining and enhancing populations and habitat of wild stocks of fish in PWS.

Project personnel will operate weirs in Cordova, Valdez and western PWS at Eshamy Creek to sample outmigrating cutthroat trout and Dolly Varden. Where possible enumerations of other salmon smolts will be made. Concurrently, the Forest Service will construct a database of information on the wild stocks of cutthroat trout, Dolly Varden, coho salmon, pink salmon, and all other freshwater and anadromous fish in PWS. The combination of these two efforts will benefit all users who participate in sport fisheries in PWS by providing the means to assist resource managers in making prudent decisions regarding the viability and long term sustainable yield of all fish species in PWS.

WHAT

The goal of this project is to collect the information needed for the responsible management of

cutthroat trout. Resultant management actions will be prioritized towards recovery of depressed stocks of all species while assuring that anglers can fish for Dolly Varden and cutthroat trout where stocks are healthy enough to withstand fishing pressure.

Alaska Department of Fish and Game (ADF&G) objectives are;

1.) Determine the abundance of anadromous Dolly Varden and cutthroat trout over 200 mm in length outmigrating from Eyak Lake, McKinley Lake, Robe Lake and Eshamy Lake for both 1993 and 1994.

2.) Obtain length compositions of the 1993 and 1994 outmigrations of Dolly Varden and cutthroat trout over 200 mm in length from Eyak Lake, McKinley Lake, Robe Lake and Eshamy Lake such that the composition is within ± 5% of the true value 95% of the time.

3.) Estimate mean length at age for anadromous cutthroat trout that overwintered in Eyak Lake, Mckinley Lake, and Eshamy Lake such that the estimate is within ± 10mm of their true value 90% of the time.

United States Forest Service (USFS) objectives are:

4.) Compile existing information on all freshwater and sea-run fish stocks in PWS in a readily available computerized format that will be made available to all interested resource management agencies.

WHY

The goal of this project is to collect the information needed to develop management strategies which will provide for the responsible management of wild fish stocks and their habitats in PWS, with special emphasis on Dolly Varden and cutthroat trout. Restoration project R 106, which was funded in 1991, provided preliminary information about the distribution of Dolly Varden and cutthroat in PWS and the adjoining CRD. Numerous other studies on other fish species have been conducted since the oil spill and much information prior to the oil spill on fish stocks in PWS exists scattered among various agencies and researchers. Information on where populations exist, their significance (eg., biological, commercial, recreational cultural), habitat limiting factors, susceptibility to disturbance and potential impacts to populations and habitats is needed to adequately prioritize management actions. The availability of all this information in a readily accessible computerized format will increase the effectiveness of the Forest Service and other resource managers in the maintenance of population diversity in PWS.

Cutthroat trout and Dolly Varden population information is currently lacking for many sites in PWS. Two of the overwintering populations which will be studied in 1993 and 1994 are those of Eyak and McKinley Lakes. Both of these lake systems currently support popular sport fisheries; however abundance and length composition for these populations is not known. Therefore we don't know how much fishing pressure either population can sustain. Furthermore, logging activities are planned for the Eyak Lake drainage. Population data from this site prior to logging will be useful in assessing the impacts of logging on these populations. Robe Lake was selected for evaluation because of the habitat restoration opportunities that exist at this site. This drainage once supported active sport fisheries for salmon and Dolly Varden. However, the lake has physically

deteriorated in the last 20 years, and we don't know is what the lake currently supports for terms of fish. Because this site has the possibility of replacing

ost fishing opportunity we feel that population research at this site is warranted. Eshamy Lake was a NRDA treatment site for Dolly Varden and cutthroat trout. We believe that it should be continued to be monitored in order to gauge the recovery of populations that were exposed to oil. Abundance and length parameters for the populations of the four sites will be studied for two consecutive years to obtain accurate estimates. These estimates, along with the information gained from NRDA F/S 5 and R 106 will be used to form a regulatory package for Dolly Varden and cutthroat trout fisheries in PWS that will be presented to the Alaska Board of Fisheries in 1996.

HOW

To estimate abundance of sea-run cutthroat trout and Dolly Varden all emigrating fish over 200 mm in length, passing through weirs placed on the four streams and rivers will be counted during the spring outmigrations for both species. To obtain length compositions for overwintering stock, all fish over 200 mm in length will be measured to the nearest 1 mm. To obtain estimates of mean length at age, three scales will be removed from all cutthroat trout emigrating through the weirs. Age will be determined by examination of the scales.

All existing information, including the results of the Dolly Varden and cutthroat trout field portion of this project, will be compiled by a contractor, hired and directed by Forest Service personnel. The contractor will work closely with individuals from the AD&G, USFWS, NMFS and USFS esearchers, and individuals who have information on wild fish stocks in PWS. A computer latabase will be developed using ORACLE software and will operate in a MS-DOS environment.

ENVIRONMENTAL COMPLIANCE

Title 16 permits will be obtained for each weir that is installed.

WHEN

1 January - 31 March 1993 - Operational plan will be written, materials purchased, crews will be hired and the Eyak River weir will be constructed.
1 January - 15 February 1993 - Contract for FS database will be written.
15 February - 15 April 1993 - Contract will be advertised
15 April - 30 June 1993 - Field Season
April 30 1993 - Contract will be awarded
1 May - 1 September 1993 - Database structure developed and collection of information will be started.
1 July - 1 September 1993 - Data entry, editing, and analysis. Cutthroat trout scales will be aged.
30 September 1993 - Preliminary Report
January - 31 March 1994 - Operational plan will be written, materials purchased and crews will be hired.
1 September 1993 - 1 September 1994 - Continued data compilation and computer database construction
.5 April - 30 June 1994 - Second field Season
1 July - 1 September 1994 - Data entry, editing, and analysis. Cutthroat trout scales will be aged.

30 September 1994 - Database completed and installed on Forest Service personnel computer.
1 September - 1 October 1994 - Final Report will be written.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-019

roject Source:

Project Title: Chugach Region Village Mariculture Project

Project Category: Restoration Enhancement

Project Type: Shellfish

Lead Agency: Alaska Department of Fish & Game

Cooperating Agencies: Chugach Regional Resources Commission

Project Term: **Start Date:** 10/1/92 (day/month/year) **Finish Date:** 9/30/96 (day/month/year)

INTRODUCTION:

This project involves the culture of bivalve shellfish for use as a subsistence food and for economic development in Native villages of the Chugach Native Region. There are five Native villages in the region; Eyak, adjacent to Cordova, Tatitlek in northern Prince William Sound, Chenega Bay in southwest Prince William Sound, and Nanwalek and Port Graham, both of which are located on the southwestern tip of the Kenai Peninsula. All these villages will participate in this project. Shellfish have long comprised a significant subsistence food resource for these villages. This resource also has commercial potential for mariculture. A pilot commercial mariculture project underway near the Chenega Bay village in 1989 was aborted because of the oil spill.

The March 1989 Exxon Valdez oil spill adversely affected the waters and beaches utilized by the villagers. This environmental disaster dramatically underlined the long-standing reliance of Chugach Native villages on the productivity of the marine habitat for their livelihood and traditional lifestyle.

Shellfish resources in the oil spill-affected area suffered double jeopardy. First, the sheltered habitats that were most hospitable to shellfish were also most protected against Prince William Sound's natural cleansing action. Oil spill residues tend to persist in contaminated shellfish habitats. The National Oceanic and Atmospheric Administration estimated that oil could remain in sheltered, low energy areas for twenty years or longer. Regardless of the action taken to remove the oil from shellfish beds, it will be a long time before these shellfish could be considered fit to eat. Second, the tendency of shellfish to accumulate, concentrate and store toxic contaminants such as polycyclic aromatic hydrocarbons (PAHS) compounds this habitat damage. An active approach to replace lost resources is needed.

The upshot is that the oil spill badly eroded community confidence in the healthfulness of this subsistence shellfish stocks. It also arrested initial efforts to explore the commercial feasibility of shellfish mariculture.

Thus, the oil spill has given special impetus and urgency to ongoing efforts to initiate Native-sponsored shellfish mariculture projects. Mariculture is a feasible and cost-effective means to conserve, repair and enhance the natural productivity of the renewable resource base.

WHAT:

The broad long range goal of the village mariculture project is to strengthen the villages' economic well-being and self-sufficiency through the culture of shellfish stocks for subsistence and commercial harvest.

Three specific project sub goals are identified to implement the long range goal to strengthen Chenega Bay and Tatitlek's economies and economic self-sufficiency:

- develop self-supporting village-owned and -managed commercial mariculture enterprises.
- create new local opportunities for employment and earned income.
- restore/enhance traditional subsistence as a supplement to cash income.

Eyak, Tatitlek and Chenega Bay have already begun the process of establishing mariculture operations. The first year project objective for these villages will be to complete the development of initial mariculture facilities installation, initiate maintenance activities and expand mariculture training program for the villagers.

First year objective for English Bay and Port Graham will be to identify potential sites for mariculture operations and initiate permitting procedures required for mariculture development.

Objectives for the ensuing years of the project will involve establishing mariculture operations for Port Graham and Nanwalek, continued training, expanding production and continued market development.

WHY:

This project will provide the villages of the Chugach Native region with a means to develop the local bivalve resource in a manner that provides some level of protection against man-made disasters such as EVOS. The local marine environment offers one of the very few opportunities available to theses villages for economic development. EVOS amply demonstrated how vulnerable marine resource development is to disasters such as the oil spill. As well as being an efficient way of utilizing the local marine environment, the mariculture techniques that will be utilized in this project will allow steps to be taken to protect the shellfish that are under culture from the effects of disasters such as EVOS. Such steps could include moving the shellfish to a safe area or sinking them in subtidal water.

The project is designed to provide a long term source of income and subsistence food. It

will provide a means for the villagers to maintain their traditional lifestyle in the face of increased and sometimes conflicting use of the area of the Chugach region. The project has already gone through feasibility testing and is designed to will become self sufficient after the development stage which will take the next four years. Development will consist of purchase and installation of seed and equipment, training interested villagers in mariculture techniques and setting up a management structure in each village to take over the project after the development stage.

HOW:

The basic strategy for the village mariculture projects will be to concentrate initially on oyster culture. The reason is that oyster seed is readily available for culturing, there is a good market for oysters grown in Alaska and oysters have proven to be an acceptable substitute for local shellfish species (oysters are not indigenous to Alaska) for subsistence use. The objective will be to set up a mariculture operation in each village that will produce about 650,000 marketable oysters per year.

The feasibility of establishing mariculture projects in the Native villages of the Chugach Region has been tested extensively at both Tatitlek and Chenega Bay. As mentioned, both these villages have established mariculture feasibility operations with very encouraging results. In addition, data collected from the Port Graham/Nanwalek (English Bay) area and from potential sites in the vicinity of Eyak suggest the mariculture would be successful in these areas as well.

For those villages that already have permitted mariculture areas the procedure will be to establish new oyster culture operations or increase existing operations to commercial production levels. A mariculture specialist will be retained to organize the operations in these villages, help put together village crews for training and initiate a training program that will run concurrently with the development of the mariculture operations. Mariculture development plans, required as part of the permitting process, will be followed in setting up and developing the culture sites.

For those villagers without permitted sites, initial efforts will concentrate on locating suitable sites and submitting permit applications. Criteria used for locating sites will include the presence of residual oil, the amount of tidal flow, level of protection from adverse weather, upland ownership and ease of access from the village. It may be that for some reason it is determined that mariculture is not practical or feasible for a particular village at this time. In this case the village will be dropped from the project.

In addition to oysters, there is good potential for the culture of clams and scallops as well as the availability of good markets for these products. Clams and scallops are also important for subsistence use. It is hoped that this project can investigate the potential for clam and scallop mariculture on the Chugach region. However, before that can be undertaken a reliable source of clam and scallop seed needs to be established.

The bulk of the cost for this project will go to training village residents in mariculture and in establishing a management structure for each village. In order to have an effective program it will be necessary to maintain these aspects of the project. Some cost

savings could be realized by reducing the amount of seed and culture equipment. However, this would results in village projects with inefficient levels of production. Obviously, reducing the scope of the project to include fewer villages would reduce the cost. It would be possible to reduce the overall cost of the project by up to 50% and still maintain some level of long term benefit.

ENVIRONMENTAL COMPLIANCE:

To obtain a permit a mariculture site must meet the criteria set forth in the Corps of Engineers general permit for mariculture projects in Alaska (GP 91-7). They must also be in compliance with the local coastal zone management plan. An environmental impact analysis has not been necessary for permitted mariculture sites.

WHEN:

For villages without permitted mariculture sites: Identify suitable sites - prior to March 30 of year one; Apply for mariculture permits - March and April of year one; obtain permits - March of year two.

For villages with permitted sites: First year: Organize village crew, set up training schedule and initiate training - January; Order culture equipment and seed - January; Install culture equipment and seed - March through June; initiate ongoing maintenance schedule for mariculture operations - March; Continue training and maintenance - ongoing. Second Year: Training and maintenance - ongoing; Order new seed - January; Install new seed - March through June; Sort out market sized oysters from first year seed and place in intertidal hardening area - ongoing after July; Begin to market oysters - ongoing after mid August. The remaining years off the project will concentrate on increasing production efficiency in order to bring each village operation to the 650,000 marketable oyster per year level, and to increase marketing effort and improve transport.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-020

roject Source:

Project Title: Bivalve Shellfish Hatchery and Research Center

Project Category: Restoration manipulation and/or enhancement

Project Type: Bivalve shellfish

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies:

Project Term:	**Start Date:** 01/01/93 (day/month/year)	**Finish Date:**	09/30/93 (feasibility study) (day/month/year)

INTRODUCTION:

Background: Shellfish resources in the spill-affected area were impacted in several ways. Most obviously, shellfish populations were damaged, destroyed and/or contaminated by the spill and/or subsequent cleaning activities.

ummary of the Injury: Some bivalve shellfish populations were affected directly by the toxic effects of the spilled oil. Other populations were severely reduced and in some cases completely destroyed by subsequent cleaning practices. Still other populations were contaminated or were suspected to be contaminated to the degree that they were unfit for human consumption and/or were negatively affecting birds, mammals and other animals that fed upon those shellfish. Evidence indicates that natural cleansing is not proceeding well in some areas. The sheltered habitats most hospitable to shellfish were also those most protected from natural cleansing action. Oil spill residues continue to persist in these areas. Recent evidence indicates that these residues may persist for twenty years or more (National Oceanic and Atmospheric Administration). These shellfish will continue to be unsuitable for human consumption and will continue to enter the food chain affecting birds, mammals and other consumers. Shellfish also tend to bio-accumulate toxic contaminants, making them suspect for consumption as long as spill residues remain.

Native communities in the oil-impacted area were altered by the Exxon Valdez Oil Spill. Prior to the EVOS at least one mariculture feasibility study was under way (near Chenega Bay Village). This was terminated because of the spill. Replacement shellfish opportunities are reasonable expectations for impacted villages.

Location: The project involves two physical facilities. The proposed location for these facilities is in Seward, Alaska. A component of this study is to determine if that is the best location. Target locations for projects resulting from the operation of these facilities include Tatitlek, Chenega Bay, Eyak, ort Graham and Nanwalek.

WHAT:

Goal: The goal of this project is to assess the feasibility of using aquatic farming technology to restore, replace or enhance bivalve shellfish populations in oil affected areas and to mitigate the negative affects of the Exxon Valdez Oil Spill on native communities.

Objectives: The initial objectives of the project are to assess the feasiblility of a shellfish production hatchery and a mariculture technical center to be used to restore, replace and/or enhance bivalve shellfish populations in oil-impacted areas. A report on the feasibility of the proposed facilities relative to potential uses will be generated from data collected during the year. Alternative configurations will be considered and analyzed. This initial study will also attempt to identify potential species and establish production goals for those species.

Native communities and organizations in the affected area would be involved from the outset in development of this project. Pending the results of the feasibility analysis, they would be the logical entity to operate the production shellfish hatchery.

If full funding for construction of the facilities is not realized from oil spill funds, additional funding sources will be required before they can be built. Though this would not affect the stated objectives, it would alter the project time frames and facility priorities

WHY:

Benefit to Injured Resources/Services: Bivalve shellfish populations were severely impacted by the oil spill and by the cleanup efforts following. All of the affected populations were used to some degree by marine mammals, birds, fishes and in many cases for human subsistence. This project would provide the facilities and infrastructure to research techniques to restore, replace and/or enhance affected populations using shellfish hatchery and aquatic farm-based technology.

HOW:

Methodology: Utilizing concepts already developed for the Seward shellfish hatchery and the ADF&G Mariculture Technical Center, a feasibility analysis of the project will be conducted. Engineering and biological expertise will be retained to conduct the analysis. If construction funds are later approved, direct restoration, replacement and/or enhancement of bivalve shellfish will be accomplished via an on-shore production hatchery operated by the private sector using technology developed at a State operated research center. The combination of the two facilities is necessary to accomplish the overall production objectives of this project because of the lack of technology for indigenous species.

Analysis of similar projects in other areas will be conducted. The information will be incorporated into the project design.

Evaluation and feasibility determinations of potential projects for restoration, replacement or enhancement of bivalve shellfish in more remote areas, but of import to marine mammals, birds and fish will also be accomplished.

Coordination:

uring the process of needs assessment and feasibility analysis, necessary coordination of efforts needs will also be determined and analyzed. At this time ADF&G is aware of efforts by Alaska native groups to establish a shellfish hatchery and an aquatic farm industry in the oil-affected area. This project is supportive of and will be coordinated with those efforts to insure maximum efficiency and utility.

ENVIRONMENTAL COMPLIANCE:

Project compliance with the National Environmental Policy Act (NEPA) will be assessed during the feasibility phase. Until project design and specifications are finalized, specific NEPA requirements cannot be determined. Aquatic farms are addressed under a Corps of Engineers general permit (GP 91-7). If facilities are constructed a determination of compliance with the Alaska Coastal Management Plan (ACMP) will be required. The required State and Federal permits will be identified and incorporated into the project planning process.

WHEN:

The feasibility study will occur this budget year (1/1/93 - 9/30/93). The clam restoration/enhancement demonstration project will occur next budget year.

If the project is determined to be feasible and appropriate budgets realized, construction of the facilities ill begin in 1993 (Oil Year 6). The facilities will be operational in 1994.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93022

Project Source:

Project Title: Evaluating the feasibility of enhancing productivity of murres by using decoys, dummy eggs, and recordings of murre calls to simulate normal densities at breeding colonies affected by the *Exxon Valdez* oil spill, and monitoring the recovery of murres in the Barren Islands

Project Category: Manipulation and Enhancement; Restoration Monitoring

Project Type: Birds

Lead Agency: Department of the Interior - Fish and Wildlife Service

Cooperating Agencies: None

Project Term: **Start Date:** 1 January 1993 **Finish Date:** 31 December 1993

INTRODUCTION:

Background on the Resource/Service.--Murres were the species of higher vertebrates most heavily affected by the oil from the *Exxon Valdez* spill. These diving seabirds have continued to demonstrate abnormal breeding behavior and low reproductive output at several sites since the spill. Factors that normally result in increased breeding success of common murres are breeding in high-density concentrations and laying eggs in synchrony with neighbors. Being one of a crowd apparently reduces vulnerability to avian predators. Within a colony, birds in groups that breed early tend to be more productive than birds breeding later, and older birds tend to breed earlier and be more successful than young birds. Prior to laying, murres tend to be flighty. In cases where a small percentage of murres in a cluster have begun to incubate before others have laid, incubators tend to leave their eggs exposed to predators, joining the flock when panic flights occur. Nevertheless, as more birds lay there is a tendency for incubators, now apparently feeling safer with company, to remain with eggs when non breeders flush.

For reasons not yet fully understood, murres at colonies affected by the oil have not yet resumed normal breeding schedules. Apparently a relatively small proportion of birds have laid their eggs earlier than others, and egg predation by gulls has been high. Perhaps a substantial proportion of experienced breeders was killed in the spill so that the population now is composed of mostly young, inexperienced breeders. It is not well understood how crucial the presence of older birds is to the social facilitation of normal breeding, and it is possible that a shortage of experienced breeders is causing the abnormal timing and poor reproductive success. Another contributing factor could be reduced breeding densities, since populations were reduced by mortality of adults. The use of tape recorded murre calls, placement of decoys and dummy eggs could stimulate more normal breeding behavior.

Summary of Injury.--Over 100,000 murres were killed by the oil, and counts of birds at colonies within the trajectory of the oil indicated reduced populations after the spill. In the 3 years following the spill, remaining murres at colonies affected by the oil have initiated laying up to 1 month late, if they laid at all, and reproductive output has remained much lower than would be expected. Three consecutive years poor reproductive success is very unusual based upon other studies.

ocation.--Experiments would be conducted at murre colonies in the Barren Islands, located between the Kenai Peninsula and the Kodiak Archipelago.

WHAT:

Goal.--The purpose of this project is to evaluate the feasibility of using artificial means to stimulate normal breeding behavior, as measured by nesting chronology and success, in murres at colonies affected by the oil spill.

Objectives.--

1. Determine the feasibility of enhancing the breeding success of murres by using decoys, dummy eggs, and recorded murre calls.

2. Monitor the recovery of murres in the Barren Islands.

WHY:

Benefit to Injured Resources/Services.--If murres can be induced to resume nesting at normal dates and if predation were reduced, reproductive success should increase. Increased recruitment from birds produced at injured colonies is likely to provide the best opportunity for populations to recover from reductions caused by the *Exxon Valdez* oil spill. Pioneering from other colonies outside the spill area is not likely to contribute in a major way in the near future since murres exhibit a high tendency to return) their natal colonies to breed, especially if there are available nest sites. There would be available nest tes at colonies with reduced populations. The monitoring phase is essential to understand the results of the feasibility study and to assess the recovery of the colony as a whole following the oil spill. The underlying causes of the abnormal nesting behavior (e.g., delayed laying) are not yet understood, and monitoring data will provide the basis for testing various hypotheses. Understanding the impact of the oil spill may make it possible to minimize damage in future spills by directing clean up efforts appropriately. Moreover, documentation of the response of murres in the aftermath of the oil spill will provide a basis for predicting the extent of the injury from future spill.

Relationship to Restoration Goals.--This project meets the Trustee Council goal of restoring the spill area to its pre-spill condition by providing information that could be used to develop a management action. If one or more of the experimental treatments proves to be feasible, it should be possible to implement the technique extensively enough to generate improved success for a portion of one or more colonies. At least for these portions, more young should be produced and ultimately begin the process of recovery to former population levels.

HOW:

Methodology.--Treatment and control plots would be selected at East Amatuli Light Rock and on Nord Island in the Barrens. Decoys, and solar powered sound players would be placed in selected locations ior to the arrival of murres on cliffs. It would be necessary to use technical climbing gear to

ccomplish the objective on Nord Island. Time-lapse cameras would be used to monitor plots on E. matuli Rock because access after murres have laid would disturb the birds.

Coordination with Other Efforts.--The two subprojects included here are complimentary. Data from the monitoring program will be used assess the effectiveness of this project, and a single project leader would guide both projects.

ENVIRONMENTAL COMPLIANCE:

This is a non intrusive project which appears to qualify for categorical exemption under NEPA.

WHEN:

Jan.-Apr. 1993	Plan and arrange logistics (e.g., boat charters), recruit seasonal employees, develop detailed study protocols, assemble field gear, purchase equipment
May 1993	Place decoys, players, dummy eggs, and time-lapse cameras in field
Jun.-Aug. 1993	Conduct field studies
Sep.-Oct. 1993	Analyze data
Nov.-Dec. 1993	Write progress report
Dec. 15, 1993	Submit progress report

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-024

Project Source:

Project Title: RESTORATION OF THE COGHILL LAKE SOCKEYE SALMON STOCK

Project Category: Restoration manipulation and enhancement

Lead Agency: Alaska Department of Fish and Game (ADFG)

Cooperating Agencies: U.S. Forest Service (USFS)

Project Term: **Start Date:** 1/1/93 **Finish Date:** 12/31/97

INTRODUCTION: This project will restore the natural productivity of Coghill Lake and the resident sockeye salmon (*Oncorhynchus nerka*) population through use of established lake fertilization techniques. Coghill Lake is located on the eastern side of Port Wells in the northwest region of Prince William Sound (PWS). The Coghill Lake sockeye salmon stock historically supported important sport and commercial fisheries. Returns have declined in recent years from a historical average of 250,000 to only 25,000 in 1991. Damage assessment studies on juvenile salmon suggest that the Exxon Valdez oil spill contributed to the decline of the Coghill sockeye stock. Salmon migration patterns indicate that juvenile sockeye smolt from Coghill Lake likely migrated through oil-contaminated areas in western PWS. Juvenile salmon similar in size to Coghill smolts utilized oiled nearshore nursery habitats. The growth and survival of juvenile salmon utilizing these habitats was reduced by oil contamination from the Exxon Valdez spill. The Coghill Lake stock is presently at dangerously low levels. Action must be taken to restore the stock before any further decline occurs. The communities of Anchorage, Whittier, Valdez, and Cordova will benefit from this project. Coghill Lake sockeye have been heavily utilized by sport fishermen travelling from Whittier by boat and from Anchorage by air. Commercial fishermen from all of these communities have historically fished the Coghill Lake sockeye salmon stock. Restoration of Coghill Lake sockeye salmon will further improve management of important sockeye and chum salmon stocks returning to hatcheries in western PWS.

WHAT: The goal of this project is to restore the natural productivity of Coghill Lake and the resident sockeye salmon population through use of established lake fertilization techniques. The USFS will apply fertilizer to the lake each summer for five years (the USFS has already purchased the fertilizer from another funding source). The ADFG will conduct limnological and fisheries studies needed to monitor and refine the fertilization program. These studies will focus on the effects of fertilization on primary and secondary production and the growth and survival of juvenile sockeye salmon in the lake. The ADFG component of the project will achieve the following objectives each year:

1. determine the response of lake nutrient levels, primary and secondary production, and plankton species composition to lake fertilization,

2. monitor changes in water temperature, light penetration, and water level in the lake,

3. determine the habitats utilized by sockeye salmon fry at various lifestages,

4. determine if fry prey composition, growth, and overwinter survival changes in response to lake fertilization,

5. estimate the effect of fertilization on lake carrying capacity and smolt-to-adult survival, and

6. develop recommendations for refinement of the lake restoration program.

WHY: This project will restore an important natural resource and resource service in the Exxon Valdez oil-pill area. Restoration of the Coghill sockeye stock will further provide natural resource services to replace those once provided by other injured stocks. Damage assessment studies on juvenile salmon suggest that the Exxon Valdez oil spill may have contributed to the decline of the Coghill sockeye stock. Lake fertilization techniques have been successfully applied in Alaska and elsewhere to restore the productivity of sockeye salmon rearing lakes. The production of sockeye salmon populations is closely linked to the productivity of lakes where the fish rear for one to three years. The availability of food in rearing lakes determines the growth and size of smolts that emigrate to sea. Smolt size in turn determines ocean survival and subsequent adult returns. The fry food resources in Coghill Lake are currently very low. As a result, the lake cannot support large numbers of fry, and the smolts are very small. Fertilization is needed to increase lake productivity and boost fry food abundance until natural nutrient input from salmon carcasses is restored.

HOW: Limnological sampling will be conducted twice each month at two stations. Dissolved oxygen concentrations will be measured from the surface to a depth of 40 m. Eight liter water samples will be collected from the 1m stratum, chemocline, and monimolimnion. Replicate vertical zooplankton tows will be taken using a 153-μm mesh conical net. Water samples will be analyzed for the following parameters: conductivity, alkalinity, calcium, magnesium, turbidity, total iron, filterable reactive phosphorus, total phosphorus, nitrate and nitrite, total Kjeldahl nitrogen, total nitrogen, and reactive silicon. Yearly phosphorus loading will be estimated. Euphotic zone depth and algal standing crop will be estimated. Zooplankton abundance will be estimated from triplicate counts of organisms in 1 ml subsamples. Zooplankton dry weight and biomass will be estimated by regression analysis using body length measurements on 10 individuals from each taxa. Light penetration will be measured at 1 m increments from the surface to a depth equivalent to 1% of the subsurface light. Water temperature in the epilimnion and water level will be continuously monitored by electronic recorders moored at 5, 15, and 25 m depth.

The habitats used by sockeye salmon fry in the lake will be determined from visual surveys, beach seine and tow net catches, and hydroacoustic surveys conducted in June, August, and October. A 70-Khz echosounder will be used to determine the vertical distribution of fry in the lake during the day and at night. Twenty samples (n = 10) of ten sockeye salmon fry will be collected from various habitats during each survey for later analysis of stomach contents and otolith growth.

Stomach analysis will be conducted on sockeye fry (n = 200) collected during each survey. Prey items in the stomach will be identified to the lowest possible taxonomic level. Prey body weight will be estimated by regression analysis using body length measurements on 10 individuals from each taxa. Stomach contents weight will be estimated by the product of abundance and mean body weight for each taxa. Chi-square analysis will be used to test for differences (P = .05) in the proportion of stomach contents weight in each taxonomic group between three time periods. Analysis of covariance will be used to test for differences (P = .05) in stomach contents weight between three time periods.

Otolith microstructure analysis will be conducted on sockeye fry (n = 200) collected during each survey. Thin sections of the otoliths will be prepared using established methods. A computer image analysis system will be used to collect data from the otoliths. A modified Fraser-Lee back calculation procedure will be used to reconstruct fish growth histories during weekly time periods. Weekly growth estimates obtained from otoliths will be regressed against weekly mean water temperatures obtained from electronic temperature recorders. Analysis of covariance will be used to test for differences (P = .05) in temperature-specific growth between Coghill Lake sockeye and fish fed an excess ration. Comparison of regression slopes will be used to determine if fry growth in Coghill Lake is limited by food abundance. This information will be used to

monitor the growth response of the fish to fertilization and determine the carrying capacity of the lake.

The overwinter survival of juvenile sockeye will be estimated from fall fry and spring smolt population estimates. Fall fry population size will be estimated with a 120 Khz echosounder towed along 10 randomly selected transects. A mid-water trawl will be used in conjunction with the hydroacoustic surveys to determine species composition, age, and size of fish targets. Sockeye salmon smolts emigrating from Coghill Lake will be enumerated using incline-plane traps. The traps will be operated continuously from early May through June. The catch efficiency of the traps will be determined by mark/recapture analysis. Age composition and size will be estimated from a sample of 40 smolts collected each day. Chi-square analysis and analysis of variance will be used to test for differences ($P=0.05$) in age composition and smolt size between years, respectively. A representative sample of smolts will be coded-wire tagged to enable later estimation of smolt-to-adult survival in the commercial fishery. The combined results from these investigations will be compiled in an annual report describing the success of the fertilization program and recommending refinements to the methodology.

ENVIRONMENTAL COMPLIANCE: An environmental assessment has been conducted to evaluate the various options for rehabilitating Coghill Lake and the resident sockeye salmon population. The assessment has concluded that a program of lake fertilization is the most appropriate method for rehabilitation in this case. Final approval of the environmental assessment is expected before the end of 1992.

WHEN: This project will be conducted over a five year period which corresponds to the generation time for Coghill Lake sockeye salmon. Lake fertilization is expected to elevate lake productivity until carcasses from adult spawners can once again contribute significantly to the nutrient load in the lake. Project activities will take place throughout each year (Table 1).

Table 1: Annual schedule of project activities (1993-1997).

DATE	ACTIVITY
May - June	Enumerate outmigrant smolts and estimate smolt age and size
June - October	Apply fertilizer each week and conduct limnological sampling
June, Aug., Oct.	Determine fish habitat use and sample for otolith and stomach analysis
October	Estimate fall fry population size using hydroacoustic techniques
June - October	Conduct laboratory analyses of limnological, otolith, and stomach samples
October-Dec.	Analyze data and prepare annual report.

EXXON VALDEZ OIL SPILL PROJECT PROPOSAL

Project Number: 93025

Project Source:

Project Title: Montague Island Chum Salmon Restoration

Project Category: Restoration manipulation and/or enhancement

Project Type: Fish/shellfish

Lead Agency: Department of Agriculture, Forest Service

Cooperating Agencies: Alaska Department of Fish and Game

Project Term: 5 yrs Start Date: 1/10/92 Finish Date: 30/9/97

INTRODUCTION

Prior to the 1964 earthquake, Montague Island streams accounted for nearly 8% of the total chum salmon production in Prince William Sound. Habitat alterations caused by the uplift, combined with a number of environmental and man induced factors, led to the virtual extirpation of chums on the Island. While some of the Island's historic chum producing streams are thought to have stabilized over time to once again support chum salmon populations, others have been slow to recover. Many of the historic chum salmon producing streams were also moderately to lightly oiled by the T.V Exxon Valdez oil spill, which caused further degradation of chum salmon habitat, particularly in the inter-tidal spawning areas. There is also a lack of sufficient brood source to re-establish numbers of chums within Montague streams through natural straying and reproduction.

WHAT
The goals of the project are:

1. To re-establish wild stock populations of chum salmon on Montague Island and maintain the genetic diversity of wild chum salmon stocks in Prince William Sound.

2. To provide mitigation to identified injured species through habitat restoration. Once the project is established it could contribute an estimated 300,000 pounds of salmon annually to the common property fishery. Approximately 10 miles of stream habitat will be rehabilitated to provide excellent habitat not only for fish species, but many wildlife species as well. In addition, at least one artificial spawning channel will be created.

WHY

Chum salmon were determined to be an injured species as a result of the Exxon Valdez oil spill. Montague Island remains as one of the best Prince William Sound locations for improving wild chum salmon production. The enhanced habitat will provide off-site mitigation for more severely damaged areas of the Sound.

This project offers a means of minimizing impacts on fisheries within Prince William Sound by increasing chum salmon production. This meets the goals of restoration Option Number 2 (Intensify Management of Fish and Shellfish) and 18 (Replace Fisheries Harvest Opportunities by Establishing Alternative Salmon Runs. It also provides a means for implementing Restoration Option Number 11 (Improve or Supplement Stream and Lake Habitats for Spawning and Rearing of Wild Salmonids). The Forest Service has expertise in a variety of established techniques for salmonid habitat improvement.

HOW
A four-year cooperative chum fry stocking effort in the Chalmers river was completed in 1990. This stocking proved successful when more than 1,000 chums were observed returning to Chalmers river. Pending favorable spawning success of these fish, stocking efforts will be expanded to include all historic chum salmon producing streams on Montague Island. Cooperative work with the Alaska Department of Fish and Game and Prince William Sound Aquaculture Corporation will continue to identify a source for brood stock and eggs will be collected for culture by 1994.

During 1991, spawning habitat surveys were conducted at fourteen of the seventeen top historic chum salmon producing streams, using the Chugach National Forest standard methods for quantifying fish habitat within streams. During FY 92, the habitat assessments will be completed in the remaining three of the seventeen historic chum streams, using the same standard methods. Based on the information collected, recommendations will be made on possible habitat restoration projects for several of the chum salmon streams. These projects will be further evaluated in FY 92 for hydrologic feasibility, using the slope area method (USGS standards for data collection and analysis) and aerial photo interpretation. Projects will include instream structures in the form of large boulders, and log placements, spawning channel development, and riparian habitat management.

During FY 92, riparian forest habitat will be evaluated at three stream sites in the Port Chalmers area of Montague Island, using the R10 standard methods for assessment of plant associations within forested

areas. Based on the data collected, a riparian forest prescription will be developed for each of the three streams in the Port Chalmers area. Riparian forest management will include tree planting and tree thinning of selected zones. Beginning in FY 93, forest riparian areas in the Montague Strait area will be developed for each of these streams, and silvicultural techniques will be applied during FY 94-Fy 97. Through effective silvicultural management these areas can be rehabilitated to provide excellent habitat not only for fish species, but many wildlife species as well.

ENVIRONMENTAL COMPLIANCE

Given the scope of the proposed activities for FY 93, a categorical exclusion would be appropriate. However, larger scale projects such as spawning channel development or instream work using heavy equipment may be developed based on information collected during FY 92 and FY 93 field seasons. These type projects will require environmental assessments and therefore will be evaluated on a project by project basis. Any environmental compliance documents will be budgeted in the program for FY 94 and FY 95 if funding is approved to continue.

WHEN

During FY 93, boulder and log placement will be completed in three streams in the Port Chalmers area. In addition, riparian habitat rehabilitation of 25 acres will be completed at the same streams.

Also during FY 93 riparian forest assessment will begin at five stream sites in the Montague Strait area. Riparian forest management will begin at those sites in FY 94 and be completed by FY 97.

As fisheries and hydrologic assessments are completed in FY 92, projects will be developed for implementation in FY 95-97. Prior to implementation, design and NEPA documentation will be necessary in FY 93-94.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-026

Project Source:

Project Title: Fort Richardson Hatchery Water Pipeline

Project Category: Restoration Enhancement

Project Type: Fish

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies:

Project Term: **Start Date:** 1/1/93 **Finish Date:** 6/30/94

INTRODUCTION: Over escapement of sockeye salmon occurred in the Kenai River as a direct result of the Exxon Valdez oil spill. This has led to a dramatic reduction in smolt survival and collapse of the Kenai River sockeye salmon fishery is expected beginning in 1993.

he Fort Richardson Hatchery currently uses only 50% of available fish rearing space because the existing water supply is limited. Construction of a water pipeline to connect the Fort Richardson Hatchery to the Municipal water system would allow immediate doubling of fish production. This increased production would then be used to provide alternative sport fishing opportunities as early as 1994, thus reducing the impact caused by the loss of the Kenai River sockeye salmon sport fishery.

The increased production of rainbow trout and king, coho, and pink salmon resulting from this project would be released into lakes and streams throughout Upper Cook Inlet and on the Kenai Peninsula providing direct alternative sport fishing opportunities for fishermen most severly impacted. Completion of this project would also increase hatchery dependability and reduce cost per unit of production so all areas served by the Fort Richardson Hatchery would indirectly benefit.

WHAT: The goal of this project is to provide alternative sport fishing opportunities to reduce the social and economic impact of the loss of the Kenai River sockeye salmon sport fishery. It is estimated that at least 100,000 angler days will be lost each year because of the collapse of Kenai River sockeye salmon fishery. Increased production at the Fort Richardson Hatchery would ameliorate this loss.

rish production objectives are as follows:

Species	Number	Size	Potential Angler Days
Rainbow Trout	250,000	100 g	50,000
King Salmon	800,000	15 g	25,000
	50,000	100 g	20,000
Silver Salmon	600,000	20 g	32,000
Pink Salmon	2,000,000	0.15 g	15,000

WHY: The loss of sport fishing opportunities for sockeye salmon on the Kenai River will have significant social and economic impact on the Cook Inlet area. Over 335,000 angler days were spent in pursuit of salmon on the Kenai River in 1990. A major portion of this effort was directed toward sockeye salmon with an average annual harvest of 107,500 sockeye salmon valued at approximately $10,000,000.

The extremely low number of out-migrant smolts in 1991 and 1992 strongly suggests that sockeye salmon production in the Kenai River has collapsed. It is very likely that sockeye salmon fishing will be closed for a number of years starting in 1993. However, if immediate action is taken the Fort Richardson Hatchery water pipeline project would provide alternative sport fishing opportunities during the years the Kenai River loses are expected to e most severe and would significantly reduce these impacts.

HOW: The main project objective would be met by constructing a water delivery system connecting the Municipal Water Utility with the hatchery. The main elements of this system include a cold water line running directly from the Municipal Water Plant to the hatchery and a second line that will provide heated water (via heat exchangers in the Sullivan Power Plant which is adjacent to the Water Plant) to accelerate fish growth.

An engineering feasibility study was completed in 1991 by F. Robert Bell and Associates. This study determined that this project was both technically and economically. In a separate study the Anchorage Economic Development Corporation determined that this project would have a benefit:cost ration of 2.8:1.

Fish cultural methodology will follow well established, standard Department of Fish and Game and FRED Division procedures and policies.

ENVIRONMENTAL COMPLIANCE:

In the Fall of 1992, a peer review synthesis meeting will examine the proposed benefits and associated potential ecological risks (funded through the Chief Scientist's peer review budget) of this project. If the results of this meeting recommend going forward with this project, an environmental

nalysis or environmental impact statement, as required by NEPA criteria, will be prepared as the next step. Only if the EA/EIS determines ecological risks to be acceptable and the Trustee Council concurs will this project move into the design and construction phase (see also Addendum).

Construction permits will be required. They will be the responsibility of the contractor. Hatchery is on a military reservation. Access permits to the reservation may be required. Project may be required to meet requirements under Clean Water Act.

WHEN: If this project is approved by the Trustee Council, a minor amount of preliminary work would begin immediately. In cooperation with the Municipality we would solicit proposals for engineering and design for review so that an engineering firm could be hired as soon as an EIS was completed and funds were available. Major milestones are as follows:

Project peer review synthesis meeting---------- Fall 1992
Environmental Impact Statement---------- January 1993
Public Review of EIS---------- January - March 1993
Contingent upon favorable public review and
concurrance of the Trustee Council, design
and construction funding is approved---------- March 1993
Project design and engineering---------- March -- June 1993.
Collect rainbow trout eggs---------- April 1993
Award construction contract ---------- June 1993
ollect king salmon eggs ---------- July 1993
ollect coho eggs---------- September 1993
Water system on-line to support additional fish-- January 1984
Release fish---------- June 1984

ADDENDUM:

1. The municipality of Anchorage (which strongly supports this project) has an easement for this pipeline route; the corridor already contains an existing powerline.

2. After the pipeline is completed, the program will be partially operated by federal funding as it currently is; consequently, the NEPA public review process has been and will be followed before fish are released. This review process has been incorporated into the development of the ADF&G "Statewide Stocking Plan for Recreational Fisheries" (copy available upon request from FRED Div., Alaska Dept. of Fish and Game, 333 Raspberry Rd., Anchorage, AK 99518-1599). This document has been scheduled for review and updating in 1993. In addition, before any new release location is approved, it is also subjected to another ADF&G review process that addresses fish genetics, fish disease and fisheries management concerns (Fish Transport Permit or FTP process). Thus all releases are subject to both the federal NEPA and state FTP processes currently and will be in the future.

EXXON VALDEZ OIL SPILL PROJECT PROPOSAL

Project Number: 93028

Project Source:

Project Title: Restoration and Mitigation of Wetland Habitats for Injured Prince William Sound Fish and Wildlife species

Project Category: Restoration manipulation and/or enhancement

Project Type: Birds/mammals/fish

Lead Agency: Department of Agriculture, Forest Service

Cooperating Agencies:

Project Term: 5 yrs Start Date: 1/10/93 Finish Date: 9/30/97

INTRODUCTION

Past events associated with the 1964 earthquake drained the 250 ha lake within the San Juan Bay Drainage on Montague Island. Since the uplift, periodic flooding occurs during periods of high, nearly continues rainfall or in combination with snow melt. With this altered water regime the uplifted lake is undergoing a rapid succession from a sedge/grass community to a spruce/hemlock community. At the same time, downcutting of the San Juan Creek has changed the character of the stream along a major portion of its course through the former lake bed. Pool habitats important for anadromous fish rearing have been reduced and adjacent sedge meadows are undergoing plant succession to shrub and forest communities. Opportunities exist for long term improvement of PWS waterfowl, furbearer and anadromous fish habitat within the stream and in the adjacent wet meadow zones.

WHAT

Goal: The purpose of this project is to restore the wetland habitats used by waterfowl, anadromous fish and furbearing species impacted by the oil spill in Prince William Sound.
Objectives:

1. Maintain a wetland component by flooding the uplifted lake bed and reversing succession from a forested habitat type to a early succession grass/sedge community.
2. Create pools and ponds in riparian and flood plain areas to restore associated aquatic vegetation.

WHY

This project has the potential to improve habitat for waterfowl and anadromous fish by creating wetlands. Some intertidal wetlands were injured by the Exxon Valdez oil spill. This project would provide an equivalent resource replacement for those injured wetlands. This project will implement restoration option number 11 (improve or supplement stream and lake habitats) and number 25 (protect or acquire upland forest and watersheds, established or extend buffer zones for nest birds) identified in the Restoration Framework Document.

HOW

This project will be accomplished through the following sequence of events:

1. Feasibility

   This consists of conducting: a) hydrologic analysis to determine subsurface flow regimes; b) soils analysis to determine soils types; and, c) channel morphology analysis. Monthly surveys will determine wildlife use of the area from spring through fall.

2. Inventory Existing Habitat

   This will be accomplished by low level aerial photography of San Juan Bay area. This will be coordinated with proposal number 29854. Vegetation surveys will be conducted to determine existing plant community type.

3. Project Design

   After feasibility and inventory studies are completed, vegetation objectives will be established specific to the targeted species and engineering design will be completed to meet those objectives.

4. Environmental Analysis

   An Environmental Analysis will be conducted prior to a decision for any action. The scope of the Environmental Analysis will depend on the result of public scoping and issues developed.

5. Implementation

   If the decision is made to implement the recommended engineering design after the Environmental Analysis this project could be accomplished over the following three years.

6. Monitoring

   Monitoring will continue for five years after completion of the project to determine if the vegetation objectives were met.

ENVIRONMENTAL COMPLIANCE

Given the scope of this project an Environmental Analysis will be required. The first years work is design work only and is categorically exempt from formal documentation in an environmental analysis.

WHEN

The following is the proposed schedule:

Hydrologic Analysis	1/1 - 2/15, 1993
Fly for Low Aerial Photography	6/1 - 6/15, 1993
Soils Analysis	6/15 - 6/30, 1993
Wildlife Surveys	4/1 - 10/1, 1993
Engineering Data Collection	6/1 - 6/30, 1993

Project Design	9/1 - 9/30, 1993
Environmental Analysis	1/1 - 4/1, 1994
Implementation (project construction)	1994-1998
Monitoring	1994-1998

vandalism is minimized or ended. In the process, damage that has occurred to archaeological sites as a result of the oil spill will be ameliorated. This will be accomplished through:

1. Development and distribution of brochures, public service announcements, and videos concerning the heritage value of cultural resources in the oil spill area.
2. Development, construction, and circulation of 6 portable exhibits on the cultural resources of the oil spill area.
3. Design, production and implementation of curriculum for elementary through high school and teacher training is proposed. This effort will be coordinated with local, State and Federal agencies, private institutions, and other interested parties.
4. Expansion of Alaska Archeology Week and associated activities.
5. Organization and promotion of local amateur groups interested in cultural resources.
6. Interpretation of cultural resources at sites on National Forest and State Parks.

WHY

Although some vandalism and looting of archaeological sites had occurred prior to the oil spill, the increased number of people in the area during clean-up activities and the increased knowledge of site locations led to a higher rate of vandalism of known sites. Because it is impossible to reverse this increase of knowledge about cultural resources, an educational response is necessary concerning the significance and proper treatment of archaeological sites. These educational projects will develop a stewardship ethic reflecting an appreciation for cultural resources, and will enable individuals to be directly involved in furthering the understanding of the prehistory of Southern Alaska.

HOW

Several agencies will cooperate in achieving the desired education results.

1. A Department of Interior National Park Service (NPS) archaeologist will arrange for production and distribution of additional copies of existing ARPA publications and posters, and will design and supervise the production and circulation of the six traveling cultural resource exhibits. This archaeologist will arrange an expansion of the Alaska Archaeology Week program to include oil spill affected communities and will prepare, with the assistance of a Visual Information Specialist, three public service announcements concerning cultural resources.
2. Three archaeologists working for the Alaska Department of National Resources (ADNR) will develop new cultural resource pamphlets to distribute to the general public, as well as a script for a 15-20 minute video about the value of archaeological sites. The actual video will be produced under contract. Most importantly, the archaeologist will organize and promote, in oil spill affected communities, groups interested in local archaeology. In connection with these groups, the archaeologists will develop activities which involve amateurs in archaeological work under the guidance of professionals.
3. The Kodiak and Kenai Peninsula State Parks offices will develop and present programs for school-age children on the importance of protecting cultural resources, and will contract to develop visitor exhibits.
4. Under USDA Forest Service contract a curriculum will be developed by an individual or agency who will be responsible for design, production and dissemination, working cooperatively with Forest Service, NPS, ADNR, Native organizations and other interested parties. Summer institutes will be the venue for teacher training and materials development, to be followed by field testing of materials in classrooms. Subsequent summer institutes will emphasize rewriting of the curriculum, with finalization envisioned by the fifth institute. Teachers who have been trained and have field tested material will become trainers of other teachers within districts and at institutes.

ENVIRONMENTAL COMPLIANCE

Development of curriculum, publications, and videos are categorically excluded from documentation in an environmental impact statement or environmental analysis.

WHEN

Curriculum Development Time Line

Preparation and First Year - 1/1/93 - 4/1/93: Recruit program personnel (Contracting Officer's Representative)/ Develop contract/Award contract. 4/1/93 - 9/30/93: Contact agencies and institutions/ Identify and collect instructional materials/ Become acquainted with literature and data regarding the oil spill. 10/1/93 - 2/27/94: Plan with cooperative agencies the core Elementary Curriculum Outline/ Prepare advertisements/ Initiate contact for contracted persons. 3/1/94 - 6/30/94: Select participants for the summer institute/ Finalize preparations. 7/1/94 - 8/31/94: Conduct the summer institute and prepare for field testing. 9/1/94 - 12/31/94: Coordinate the field testing and oversee the administering of testing of classroom participants.

Second year - 1/1/95 - 12/31/95: This year follows the same flow as the previous year with elementary participants strengthening the instructional materials. A rewrite is anticipated.

Third Year - 1/1/96 - 12/31/96: The only change anticipated will be the preparation for production/printing of the Elementary materials. During the summer only the Secondary summer institute will be conducted.

Fourth Year - 1/1/97 - 12/31/97: Follows similar flow with emphasis on the Secondary material.

Fifth Year - 1/1/98 - 12/31/98: This year will emphasize the production and implementation of these materials as a pilot project in elementary, secondary and college classes. The teachers who have been trained will present inservices in other schools.

BASIC INFORMATION

Project Source:

Project Number: 93-006

Project Title: Site-Specific Archeological Restoration (Interagency)

Project Category: Restoration Management Actions.

Project Type: Archeology

Lead Agency: National Park Service

Cooperating Agencies: State of Alaska (DNR), U.S. Fish and Wildlife, U.S. Forest Service

Project Term: Five years for restoration action component; 10 years for monitoring component (January 1, 1993 to December 30, 2002).

INTRODUCTION:

A two-phase archeological restoration assessment of all existing and accessible oil spill response documentation has revealed that there is solid evidence for substantive injury to 24 known archeological sites that can be directly linked to the Exxon Valdez oil spill event. The sources of injury include oiling, oil spill beach cleanup actions, and vandalism. Of these three identified sources, cleanup activities and vandalism appear to have resulted in the most clear-cut cases of injury to archeological sites (e.g. loss or destruction of diagnostic artifacts, illegal excavation, disturbance of human remains). The effects of oiling are more problematical, but the available evidence indicates that oil penetration impairs the ability of radiocarbon samples to yield accurate dates and may alter archeologically-relevant soil chemistry.

In June 1992 the Trustees convened a multi-agency panel of experts in the archeology of the oil spill region chaired by Martin McAllister, the nation's foremost expert in archeological restoration. This panel gave thorough review to all available oil spill injury data and arrived at the following conclusions:

1. Nineteen known archeological sites had been injured by cleanup activities or vandalism related to the oil spill event.

2. A total of 10 known sites had been affected by moderate to heavy oiling (5 of which are also among the 19 sites injured by cleanup and vandalism).

3. Based on the total known sites and projected archeological sites in the oil spill pathway supplied by the Exxon Company contractors and a special Trustee-sponsored GIS/statistical study by the State University of New York, it is estimated that:

a. A total of 112 archeological sites suffered substantive injury from oil spill cleanup or vandalism tied to the oil spill event.

b. A total of 59 archeological sites were subjected to moderate to heavy oiling during the oil spill event (at least half of these sites also number among the 112 sites affected by other sources of injury).

Note: These numbers represent the most conservative, statistically-derived estimate of injury endorsed by the "McAllister Panel." The next-lowest estimates put forward by Dr. Al Dekin's injury study are 338 and 155, respectively; statistically valid estimates, but based on what appear to be less valid assumptions about the nature and distribution of injury.

The purpose of this project is to conduct site-specific restorative actions at injured archeological sites on federal or state lands within the oil spill pathway. Guidance for the proposed work is drawn from Section 14 of the Archeological Resources Protection Act (ARPA). None of the planned work duplicates previous studies; it is based on a careful review of the results of earlier injury investigations.

WHAT:

The goal of this project is to ameliorate injury to archeological sites that were impacted by oiling, oil spill cleanup, or vandalism as a direct result of the Exxon Valdez oil spill event. The measures include:

1. Full damage examination and analysis of the injured sites.

2. Recovery analysis and curation (and where appropriate, repatriation) of any remaining archeological resources that were exposed or disturbed by oil spill related injury.

3. Data recovery to compensate for the loss of important archeological information at injured sites and/or the stabilization and physical repair of disturbed areas within injured sites.

WHY:

Archeological sites constitute a category of finite, non-renewable resources managed by the state and federal governments for the public benefit. These resources represent a major part of the cultural heritage of the United States and injury to resources of this type results not only in the loss of important scientific data about the human past but in a irrevocable diminution of our nation's historic patrimony. The restorative measures proposed herein are designed to either repair physical injury or reduce the loss of important archeological information caused by injury. Physical repair includes such actions as restoring trampled protective vegetation at a site or filling in a looter's hole. Data recovery is used to recover what bits of information can be

salvaged from the area of an illegal excavation--in a sense, restoring to the public what information has been potentially lost by means of scientific investigations. If restorative measures are not taken; current signs of vandalism may provoke further vandalism, disturbed archeological soils will most likely result in accelerated erosion of archeological fabric, and altered artifact patterns and contaminated radiocarbon samples will probably play subtle havoc with future archeological interpretations in the region--one of Alaska's richest but least known archeological zones. In recognition of the archeological importance of the area, the National Park Service has already committed a majority of its funds under a five-year National Archeological Survey project to conduct a sample survey and evaluation of coastal sites in Kenai Fjords and Katmai. Other participating agencies lack a similar funding source, but they are committed to do what they can to increase survey coverage of the area.

HOW:

The first step in this project will be to conduct site-specific restoration assessments at sites with documented injury, but where there is insufficient detail upon which to determine appropriate treatment (19 sites). The second step will be to carry out the indicated restorative action--either physical repair and/or data recovery. In many cases, the anticipated restoration treatments will be limited in scope and difficulty and the necessary restorative actions will be taken immediately upon completion of the assessment. A few may require carefully- planned return visits. This portion of the work will be carried out in a two-year split (1993 and 1994) to permit sufficient time for planning larger and more complex restorative measures and to take advantage of corrective feedback from the first year of the project.

A concurrent restoration assessment, coordinated with the first, will address long-term injury resulting from oiling. Ten known sites that have been exposed to moderate to heavy oiling will be monitored for a period of 10 years to determine the effect of oil on radiocarbon samples, archeological soil chemistry, and protective site vegetation. Research assessments of this type are specifically authorized by Section 14(c) of ARPA when the nature and level of injury to archeological sites remains uncertain or problematic. The results will alert future researchers to any skewing effect the oil may have on archeological soil or radiocarbon specimens and make land managers aware of any residual threats to archeological sites (e.g. alterations or reductions in protective vegetative cover). The 10 sites selected for monitoring include 5 from the list of 19 sites with evidence of injury attributable to cleanup or vandalism and 5 additional sites that have been oiled, but presently have no documentation of other injury. These 5 sites bring the total number of known injured sites to 24, the number mentioned at the beginning of this proposal.

After completion of the assessment and treatment of previously-known injured sites in 1994 the work will be expanded in 1995 to discover additional injured sites, assess the nature and extent of the injury, and carry out appropriate treatment. The favored approach will be a "find and restore strategy." A problem-oriented research design will be developed to guide this inventory. The search will employ a stratified-random survey methodology to target the effort toward the most likely zones to contain injured archeological sites in need of treatment. Continuation of the oiling assessment and the start of this work will depend on an interim review of the results from the first two years of the project and the express approval from the Trustee Council to proceed.

The results of all project work will be published in both technical and popular formats. As they become available, pertinent findings will be fed into the stewardship, site protection monitoring, and public education projects. The research and restorative actions will follow the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. The Division of Polar Research, National Science Foundation, is recommended as the most appropriate source and coordinator for peer review of the project.

ENVIRONMENTAL COMPLIANCE:

The proposed project is a categorical exclusion from the National Environmental Policy Act but subject to the provisions of the Historic Preservation Act, the Archeological Resources Protection Act, and the Native American Graves and Repatriation Act. The project will be carried out in conformance with the consultative processes and standards demanded by these legislative mandates.

WHEN:

1. January 1 to June 1, 1993--Consultation under the National Historic Preservation Act and the Native American Graves Protection and Repatriation Act; preparation of work plans and research designs.

2. June 1, 1993--Start of field work for restoration assessment and oil monitoring projects.

3. December 30, 1994--Completion of restoration assessment for known injured sites.

4. June 1, 1995--Start of fieldwork for discovery, assessment, and treatment of additional archeological sites.

5. December 30, 1997--Completion of restoration assessments and treatment actions for additional injured sites.

6. December 30, 2002--Completion of oil monitoring project.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-007

Project Source:

Project Title: Archaeological Site Stewardship Program

Project Category: Management Action

Project Type: Archaeology

Lead Agency: U.S. Fish and Wildlife Service

Cooperating Agencies: Alaska Department of Natural Resources, Office of History and Archaeology
U.S. Forest Service
National Park Service

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

INTRODUCTION:

Background and Summary of Injury.--The late prehistoric residents of the Prince William Sound, Kenai Peninsula, Kodiak Island and Alaska Peninsula areas oriented their subsistence activities to marine resources, and large numbers of archaeological sites occur along the coast in the area affected by the *Exxon Valdez* oil spill. Due to tectonic activity in this region, some archaeological sites which were once ı dry land now occur in the intertidal zone, and 25 or more sites were directly oiled or disturbed by ɐanup activities following the spill. In addition to these direct effects on archaeological resources, the spill brought hundreds of people into the spill area for response and damage assessment thereby increasing public knowledge of the locations of archaeological sites. Looting and vandalism of sites in the spill area has increased. Vandalism of archaeological sites is often caused by individuals that are interested in artifacts but that are unaware of the damage caused by removing artifacts or disturbing the site. Vandalism results in the irretrievable loss of information from damaged sites. Vandalized sites cannot be returned to their original condition, and the most effective counter to vandalism is public education and increased oversight of the sites.

Site stewardship is the recruitment, training, coordination and maintenance of a corps of local interested citizens to watch over nearby archaeological sites. Site stewardship programs in Arizona, Arkansas and Texas have successfully reduced the incidence of vandalism of archaeological sites. A stewardship program for the area affected by the *Exxon Valdez* oil spill was initiated in 1992, and this proposed project would continue that program.

Location.--In 1993, stewardship programs will be instituted using residents of Kodiak, Homer and Chenega. In subsequent years, the program will expand to include other communities in the spill area.

WHAT:

Goal.--The goal of the Program is to reduce or eliminate vandalism at archaeological sites in the area affected by the *Exxon Valdez* oil spill.

Objectives.--

1. Recruit and train local residents to protect the archaeological resources in their areas.

2. Obtain agreements with private landowners and agencies with land management responsibilities to participate in the stewardship program.

WHY:

Benefit to Injured Resources/Services.--This proposed project will benefit archaeological sites by preventing their destruction through vandalism. Archaeological sites in the area affected by the *Exxon Valdez* oil spill that were not directly oiled are nevertheless subject to continuing injury related to the spill due to increased public knowledge of the sites. This project will benefit an injured resource by preventing further injury.

Relationship to Restoration Goals.--This proposed project meets the Trustee Council goal of restoring the environment to its pre-spill condition through management action.

HOW:

Methodology.--The stewardship program is based on functioning programs in Arizona and Texas. The program will be managed by the Alaska Department of Natural Resources, Office of History and Archaeology (SOHA) with assistance from the U.S. Fish and Wildlife Service, the U.S. Forest Service, and the National Park Service during the early phase of program development. The SOHA will have ultimate management responsibility for the stewardship program. The SOHA will employ a State Coordinator to coordinate and administer the network of site stewards and steward coordinators. The U.S. Fish and Wildlife Service, U.S. Forest Service and National Park Service will assist in the implementation of the program. These federal agencies will also cooperate with the SOHA in continued operation of the program.

Agencies with land management responsibilities in the spill area, including the U.S. Forest Service, National Park Service and U.S. Fish and Wildlife Service, and private landowners interested in participating in the stewardship program will enter into agreements with the SOHA. The program will employ volunteers to watch assigned sites and report any changes or disturbances to the sites. A local coordinator, also a volunteer, will guide day to day efforts and recruit and train new stewards. Local coordinators will also make recommendations on future actions to land owners and the State Coordinator. The State Coordinator will provide overall direction for the program. Land owners and managers will identify sites for monitoring, help select and train stewards, and provide technical advice and assistance.

Coordination with Other Efforts.--The stewardship program will continue the current stewardship project effort begun in 1992. This program will complement the archaeological site monitoring proposal submitted by the National Park Service. The stewards, with their intensive level of site observations, will be a valuable supplement to patrols by monitoring teams. The monitoring teams will in turn provide

.e professional and legal expertise to act on damage reports from stewards. The stewardship program will also complement the Public Education proposal submitted by the U.S. Forest Service. Stewards could assist in public education outreach program by giving lectures and talking in classrooms in their local areas.

ENVIRONMENTAL COMPLIANCE: This proposed project is a non-intrusive study that appears to qualify for a categorical exclusion from the requirements of the National Environmental Policy Act.

WHEN:

Prepare/print 1993 training materials/handbooks	Jan-February 1993
Develop agreements with landowners and agencies	Winter 1993
Train stewards	March 1993
Stewards in place	Spring/Summer 1993
Compile reports from stewards	Fall 1993
Submit Status Report	January 1994

In subsequent years, additional areas within the spill area will be included in the program. Training materials will be modified as needed.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-008

Project Source:

Project Title: Archaeological Site Patrol and Monitoring

Project Category: Restoration Management Actions

Project Type: Archaeology/Cultural Resources

Lead Agency: National Park Service

Cooperating Agencies: Dept. of Interior, Fish and Wildlife Service; Dept. of Agriculture, Forest Service; Alaska Dept. of Natural Resources

Project Term: Start Date: 5/1/93 (day/month/year) **Finish Date:** 3/1/97 (day/month/year)

INTRODUCTION:

The Exxon Valdez oil spill and associated cleanups have resulted in an increased public knowledge of archaeological resources in the oil spill area. The greater visibility of site locations brought on by oil spill activities has resulted in higher incidence rates of looting and vandalism to these resources (An Evaluation of Archaeological Injury Documentation, Exxon Valdez Oil Spill, NPS, DNR).

The purpose of this project is to ameliorate the impact of these higher rates of archaeological looting and vandalism. This will be accomplished by utilizing agency archaeologists and resource protection personnel who will conduct public contact patrols and archaeological site monitoring along the coastlines in the Exxon Valdez oil spill area. The agency teams will work in their respective areas making contact with the public and informing them of the values of protecting archaeological sites and the federal and state statutes that require this protection. The teams will also monitor selected segments of the coastline for signs of looting or vandalism that may require additional management or law enforcement action.

WHAT:

The goal of this project is to reduce or eliminate archaeological site looting and vandalism through the following measures.

1. Create greater public awareness of the value of archaeological resources and the laws protecting them.

2. Create an agency presence and demonstrate agency interest in archaeological resources to discourage and prevent future vandalism in the oil spill area.

3. Identify areas most vulnerable to looting and vandalism that will require further law enforcement action.

4. Track the geographical and temporal variation in the incidence of looting and vandalism in order to take the appropriate protective measures.

5. Increase the efficiency and effectiveness of archaeological resource protection among the involved agencies.

WHY:

Before the oil spill, archaeological resources were, practically speaking, protected by their unknown locations. Unfortunately, it is impossible to reverse the expanded knowledge of these resources gained by the public as a direct result of the spill and cleanup activities. Therefore, it is necessary to offset this knowledge of the resource with a positive presence by the agencies and additional effort to spread the message that these resources are protected by state and federal laws.

Project Number: 93-008

HOW:

The agency teams will consist minimally of an archaeologist and a resource protection specialist. The interdisciplinary team approach is essential to the success of this project. The teams will make active contact with the public that utilizes the target coastal zones and inform them of the values of protecting archaeological sites and the federal and state laws that require this protection. They will also monitor selected segments of the coastline for signs of looting or vandalism that may require further management or law enforcement action and refer the information to the appropriate agency for action. Site patrol and monitoring will give priority to known problem areas where looting has already occurred or where sites are known to be at risk as identified in the archaeological resource damage assessment study, recently completed.

Standard resource protection and archaeological data collection practices will be employed. Successful programs for cooperative multi-agency patrol and monitoring projects have been developed in the American Southwest, and the National Park Service (NPS) has an incipient program in place in Alaska. Detailed field notes, photographs or video tapes, and all patrol reports, including a log of all public contacts, will be kept by the field teams.

The bulk of the project funding for this component will be distributed among the participating agencies for field personnel salaries, for supplies, and for flight time, fuel, etc., to supplement existing site patrol and monitoring efforts, or establish them where necessary. Augmenting existing agency efforts is the most cost-effective approach. The three federal agencies and the state already have existing patrol capabilities in the oil spill zone. The purpose here is to expand those capabilities to cover the affected archaeological sites. In addition, the NPS has used ARPA law enforcement funds from Washington for the last two years to expand the patrolling capabilities of several seasonal rangers in Katmai National Park to cover archaeological resources.

The technical lead for this component will be the National Park Service which has expertise in this area, including a well-developed archaeological resource protection and training program. An archaeologist with a law enforcement commission will act as project coordinator and the regional law enforcement

specialist will act as a technical advisor to the program. Both will serve as trainers for field personnel.

The overall management of the project will be done by the project coordinator in consultation with the project technical advisor and the agencies. The project coordinator will ensure that there is uniformity among the agencies in carrying out the project, will act as the liaison among agencies, and will recommend the most efficient use of project resources.

The project coordinator will act as the project information officer and maintain all project records, including a copy of all field notes, patrol reports, photographs, and other records or data collected by field personnel. The project coordinator will also consolidate and analyze this information to produce an annual report for the project, and make recommendations for future efforts. Data will be maintained in the files of the project coordinator and will be made available to all participating agencies.

Uniform training for field personnel is essential to the success of this project, and will be conducted by the project coordinator and the technical advisor with input from the agencies. A nationally

recognized expert on archaeological resource protection will be brought from Duluth, Minnesota for the training session. All field personnel must attend the project training, to be held at the beginning of each field season, before they will be allowed to participate in the project. Training will consist of orientation to the project, archaeological resource protection training, resource familiarization, and public education and contact techniques.

To ensure uniformity and comparability of observations and data collection, the project coordinator and the technical advisor will periodically review individual agency operations, including field evaluations. Issues of safety and logistics will be handled by individual agencies.

A plan of operations must be filed by each participating agency for each year. An annual report will be required from each agency, including a status report on the targeted sites. The project coordinator will prepare an annual report for the entire project which compiles and analyzes the data collected by each agency for that year, and make recommendations for the following year's effort.

This project will be coordinated with the archaeological site stewardship program currently administered by the US Fish and Wildlife Service, and with any other archaeological restoration projects approved by the Trustees.

ENVIRONMENTAL COMPLIANCE:

The proposed project is a categorical exclusion from the National Environmental Policy Act.

WHEN:

The duration of the full project will be three to five years, depending on the level of documented site damage.

5/1/93	Agency Operating Plans for 1992 Field Season Due
6/1/93-6/5/93	Field Personnel Training in Anchorage
6/8/93-8/27/93	Field Work
11/16/93	Agency Annual Reports and Copies of Field Data Due
3/1/94	Project Annual Report Due and Distributed to Agencies and Trustees.

Similar schedules would be implemented for following years.

EXXON VALDEZ OIL SPILL PROJECT PROPOSAL

Project Source:

Project Number: 93009

Project Title: Public Information, Education and Interpretation

Project Category: Restoration Management Actions

Project Type: Education

Lead Agency: Department of Agriculture, Forest Service

Cooperating Agencies: Depatment of Interior, National Park Service and Fish and Wildlife Service; and Alaska Department of Fish and Game

Project Term: 1 yr Start Date: 1/1/93 Finish Date: 30/9/97

INTRODUCTION

A. Background on the Resource/Service

This project is to inform, educate and provide interpretive materials and experiences for communities, visitors, commercial and recreation users in the oil spill area and Prince William Sound (PWS) and for South Central Alaskans about the Exxon Valdez Oil Spill and resultant research and restoration projects.

B. Summary of Injury

The oil spill area and PWS communities and commercial and recreational users of the oil spill area all suffered adverse impacts from the spill. In the broader sense all Alaskans and even other Americans felt injured by the degradation of what they believed was one of the more pristine and beautiful areas of Alaska.

EXXON VALDEZ OIL SPILL PROJECT TRUSTEES

Project Number: 93029

Project Source:

Project Title: Prince William Sound Second Growth Management

Project Category: Restoration manipulation and/or enhancement

Project Type: Birds/mammals

Lead Agency: Department of Agriculture, Forest Service

Cooperating Agencies:

Project Term: 5 yrs Start Date: 1/10/93 Finish Date: 9/30/97

INTRODUCTION

The Prince William Sound area has several watersheds on National Forest Lands where timber harvest occurred in the early 1970's. These cuts were made without an understanding of optimum stand structures for wildlife populations. As a result of these harvest practices, succession to old growth will be delayed as much as 75 years. Old growth dependent species such as river otter, marbled murrelet, harlequin duck, and bald eagle are therefore being negatively impacted.

Managing second growth in Alaska's costal rain forest with emphasis for fish and wildlife has been a documented practice since the early 1980's in Southeast Alaska. Proven techniques to advance succession and maintain the understory component have not been applied to Prince William Sound second growth in Prince William Sound.

WHAT

Goal: The purpose of this project is to provide mitigation through habitat enhancement to identified injured wildlife species in Prince William Sound.

Objectives:

1. Maintain understory vegetation components throughout the successional stages of second growth.

2. Increase successional trends in key wildlife habitat areas to develop old growth structure. Approximately 2,500 acres of second growth habitat will be evaluated for enhancement opportunities.

WHY

This project has the potential to improve habitat for harlequin duck, marbled murrelet river otter and bald eagle. These species were proven to be damaged by the Exxon Valdez oil spill. This project falls within the category of habitat protection and acquisition and manipulation of resources since the objective is to rehabilitate habitats for injured species. This project will implement restoration option number 11 (improve or supplement stream and lake habitats) and number 25 (protect or acquire upland forests and watersheds, established or extend buffer zones for nesting birds).

HOW

This project will be accomplished through the following sequence of events:

1. Inventory existing data base.

   This consists of compiling existing data on Prince William Sound second growth, establishing date of harvest, and entering GIS data base.

2. Inventory existing habitat.

   This will be accomplished by low level aerial photography of all second growth sites and field sampling to determine existing vegetation community type and site potential.

3. Define vegetation objectives.

   After the second growth areas have been described, vegetation objectives will be established specific to the targeted species.

4. Site Prescription

   Prescriptions will be developed identifying recommended treatment to meet the vegetation objectives. Treatment options could consist of pre-commercial thinning at varied spacing to maintain understory vegetation throughout the rotation.

5. Environmental Analysis

   An environmental analysis will be conducted prior to a decision as required by the National Environmental Policy Act.

6. Implementation

   If the decision is made to implement the recommended treatment after the Environmental Analysis

this project could be accomplished over the following three years.

ENVIRONMENTAL COMPLIANCE

Given the scope of this project an environmental analysis will be required. This years proposed work is survey and project design work only which is categorically exempt from documentation in an environmental analysis.

WHEN
The following is the proposed scheduled:

Inventory Existing Data Base	January 1 - February 15, 1993
Develop Low Aerial Photography	June 1 - June 15, 1993
Inventory Habitat	June 1 - September 1, 1993
Define Vegetation Objectives	September 1, - 15, 1993
Write Site Prescriptions	September 15 - September 30, 1993
Environmental Analysis	November 1, - March 1, 1994
Implementation of Prescriptions	Contract 1994-1997

VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-030

Project Source:

Project Title: Red Lake Restoration

Project Category: Restoration, Manipulation and/or Enhancement

Project Type: Fish

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies:

Project Term: Start Date: 1/7/93 **Finish Date:** 9/30/97

INTRODUCTION: Red Lake, located on the southwest side of Kodiak Island, has historically been one of the most consistent producers of sockeye salmon for Kodiak's commercial purse seine fishermen. The Department of Fish and Game's annual escapement goal for the system ranges from 200 to 300 thousand. Since 1980, the catch has ranged from 25,000 to 1.5 million with an average of 450,000. This fishery has had an average annual value to fishermen of about $2.2 million.

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

In 1989, as a result of the Exxon-Valdez oil spill, commercial salmon fishing was closed over most of Kodiak Island waters. The closure resulted in an escapement of 768,000 sockeye salmon into Red Lake, a 2.5 fold increase over the maximum desired. Data gathered showed low survival for the 1989 escapement year. Surveys showed low numbers of juveniles in the lake in the fall of 1990; and, in the spring of 1991, reduced number of migrant smolts were observed. This means that very low numbers of sockeye will return as four-, five-, and six-year olds in 1993, 1994, and 1995. It is

anticipated that adult salmon return may be depressed to the extent that the escapement may fall below 150,000. If this happens during one or more of these years, supplemental production would be implemented immediately to restore the population.

If immediate actions are taken, we will have the capability to restore Red Lake sockeye salmon

production. There is serious concern that, as a result of the oil spill, sockeye salmon returns will be so low in 1993 and 1994 that minimum spawning population goals will not be achieved. If this were to happen, the productivity of this lake would be underutilized, and the fishery and economy would be seriously impacted in future years. Immediate action is necessary to guard against this.

Restoration will involve taking a total of six million early run sockeye salmon eggs at Red Lake by August 30 each year. The eggs will be transported and incubated in a module at the Pillar Creek Hatchery in Kodiak. Fry will be reared until emergence and then released into Red Lake in May of each year.

The commercial purse seine fleet will benefit from this project as well as all associated fishing communities on Kodiak Island. The Red Lake sockeye fishery has historically provided a stable, significant source of income for Kodiak fisherman, consequently, restoration of this system is extremely important.

WHAT: The goal of this project is to supplement natural sockeye fry production in Red Lake with fry plants if escapement levels fall below minimum levels.

Project objectives are:

1) Increasing the incubation and rearing capacity of Pillar Creek Hatchery to support additional Red Lake eggs and fry.

2) Collecting six million early run Red Lake sockeye eggs, beginning in 1993 and continuing through 1995, contingent upon Red Lake escapement falling below the minimum escapement goal of 150,000 by August 1.

3) Incubation of six million Red Lake sockeye eggs at Pillar Creek Hatchery with 90% survival from green to eyed eggs.

4) Rearing of approximately 5.4 million Red Lake sockeye fry at Pillar Creek Hatchery to the size of .25 grams with 90% survival.

5) Evaluating freshwater survival and the success of hatchery fry plants, by thermally marking otoliths of fry prior to stocking into Red Lake.

6) Stocking of approximately 4.9 million fed fry (.25 gram) into Red Lake with timing parallel to the period of wild stock recruitment.

7) Producing approximately 146,000 adult red salmon from annual fry plants (3% fry to adult survival).

WHY: The project restoration activity will result in restoration by allowing wild and cultured fry to

enter the lake at the same period. A forecasted survival rate of 3% from fry to adult could result in 146,000 adults returning each year to the Red Lake system.

This project should be funded because immediate actions are needed to restore Red Lake sockeye salmon production if expected damage from the oil spill is realized. This damage is expected to result in weak return in 1993 and 1994, when minimum escapement goals may not be acheived. If this happens, the productivity of the lake would be underutilized and the fishery and economy would be seriously impacted in future years.

HOW: Pillar Creek hatchery will be modified by the addition of an incubation module and 24 Kitoi box incubators to allow receipt of Red Lake eggs. Additional raceways will be installed to short term rear emergent fry. Net pens, frames, seines and other egg take gear will be purchased and staged in Kodiak in July each year, after the initial purchase in 1992. If escapement into Red Lake is below 150,000 by August 1 (beginning in 1993) an egg take will proceed. Eggs will be collected, with a goal of 6,000,000, in August and transported to Pillar Creek Hatchery for incubation. During incubation, between the eyed and hatched stages, eggs will b marked by thermally induce otolith banding. Fry will be reared in aluminum raceways until reaching a weight of.25 grams and then will be transported by float plane for release into Red Lake. Smolt samples will be collected via NRDA #27 smolt enumeration project and checked for marks to determine hatchery fry contribution and project success.

This project will be operated in close association with NRDA Study #27 which monitors the effects of the 1989 overescapement on the productivity of Red Lake. This monitoring will assist with forecasting returns and also in association with the ADF&G weir, will help coordinate this project's restoration activities. Also, Pillar Creek Hatchery enhancement and rehabilitation activities in other areas of Kodiak Island will provide technical assistance to this project.

ENVIRONMENTAL COMPLIANCE: Red Lake lies within the boundaries of the Kodiak National Wildlife Refuge. Other projects of this type on refuge lands have required an environmental analysis (EA) and a "finding of no significant impact." The EA will be completed prior to implementation of this project.

WHEN:

Event	Date Started	Completion
Purchasing incubators, raceways, pipeline, and plumbing	7/92	1/93
Purchasing egg take supplies	1/93	2/93
Annual project status report	11/92	12/92

Preparation of PCH for receiving of eggs; incubator, raceways, and pipeline installation, egg take camp set up, supply ordering	3/93		6/93	
Egg take site preparation		7/93		8/93
Red Lake sockeye egg take and site breakdown	8/93		9/93	
Annual project status report	11/93		12/93	
Red Lake sockeye incubation and rearing		8/93		5/94
Red Lake stocking		5/94		5/94

Repeat above sequence until end of project.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-031

Project Source:

Project Title: **Red Lake Mitigation For Red Salmon Fishery**

Project Category: Restoration, Manipulation and/or Enhancement

Project Type: **Fish**

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies:

Project Term: **Start Date: 1/10/93** **Finish Date: 9/30/96**

INTRODUCTION:

Red Lake, located on the southwest side of Kodiak Island, has historically been one of the most consistent producers of sockeye salmon for Kodiak's commercial purse seine fishermen. The Department of Fish and Game's annual escapement goal for the system ranges from 200 to 300 thousand sockeye salmon. Since 1980, the catch has ranged from 25,000 to 1.5 million with an average of 450,000. This fishery has had an average annual value to fishermen of about $2.2 million and has reached as high as $10 million.

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

In 1989, as a result of the Exxon-Valdez oil spill, commercial salmon fishing was closed over most of Kodiak Island waters. The closure resulted in an escapement of 768,000 sockeye salmon into Red Lake, a 2.5 fold increase over the maximum desired. Data gathered showed low survival for the 1989 escapement year. Surveys showed low numbers of juveniles in the lake in the fall of 1990 and 1991; and in the spring of 1990, 1991, and 1992 reduced numbers of migrant smolts were observed.

The 1989 brood year failure could result in a collapse or weakness of the sockeye return in 1993, 1994, and 1995. Minimum escapements may not be reached resulting in fishery closures and the purse seine fleet being displaced to other fishing areas. Fishing will not return to normal until several years after the numbers of outmigrating smolts have returned to normal. Therefore, if outmigrating smolt numbers are within the normal range in June and July of 1993, it will not be necessary to continue this project, though approved, because adequate numbers of adults for escapement goals and fisheries will be expected to return in the same years as the mitigation fisheries this project would create. Conversely, until outmigration has been demonstrated to have returned to normal, it will be necessary to produce hatchery smolts for a mitigation fisheries.

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

WHAT: The goal of this project is to provide an alternative commercial fishery to mitigate the impact of lost fishing opportunities as a result of possible collapse or weakness of the Red Lake sockeye run in 1996 and beyond.

The objectives of this project are:

1) Modify existing incubation modules at Kitoi Bay Hatchery for receiving Afognak Lake sockeye eggs.

2) Collect 6 million early run sockeye salmon eggs from Afognak Lake and transport them to Kitoi Bay Hatchery.

3) Increase sockeye fry/smolt rearing capabilities at Kitoi Hatchery to accommodate 5 million fry/smolt.

4) Mark 10 - 15% of fry prior to net pen rearing for evaluation of returns, imprinting success and possible straying.

5) Net pen rear fry/smolt in brackish water to a target size of 4-5 grams and release by June 30.

6) Evaluate growth, diet and behavior of age zero smolt releases at Kitoi Bay until migration is complete.

7) Evaluate survival, imprinting and straying of returning adults in 1996 and 1997 by operating weirs at Little Kitoi, Paul's Bay; sampling at Afognak Lake weir; sampling at Little Afognak Lake.

WHY: If immediate actions are taken, alternative commercial sockeye salmon fishing opportunities can be provided beginning in 1996. The focus is to develop alternative fisheries in other areas where returns would be most manageable and wild stocks would be least affected. This proposal will mitigate the impact of the Exxon-Valdez oil spill on future Red Lake commercial sockeye fisheries.

The Trustees should fund this project because immediate action is needed to offset the fishery losses due to overescapement of the 1989 brood adults.

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

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

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

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

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

WHEN: Event	Time	Completion
permitting (FTP, Habitat)	1 month	1/93
Kitoi modifications (incubation, rearing)	2 months	3/93
Egg take preparation and supply orders	1 month	7/93
Egg take at Afognak Lake (6 million eggs)	.5 month	8/93
Incubation of eggs at Kitoi	7 months	3/94
Marking of fry	1.5 months	5/94
Net pen rearing of fry	1.5 months	6/94
Smolt released in Little Kitoi Bay	.5 months	6/94
Adult weirs installed and operated at Little Kitoi and Paul's Bays	4 months	8/97
Report writing		

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-032

Project Source:

Project Title: **Pink and Cold Creek Pink Salmon Restoration**

Project Category: Restoration, Manipulation and/or Enhancement

Project Type: **Fish**

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies:

Project Term: Start Date: 1/10/93 **Finish Date: 9/30/94**

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

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

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

associated fisheries business enhancement.

WHAT: The goal of this project is to increase Pink salmon spawning capability, and overall pink salmon

(and coho) returns, by enhancing fish passage above barriers in Pink and Cold creeks.

The objectives of this project are:

1. Evaluate pink salmon escapement and spawning distribution in Cold and Pink creeks.

2. Bypass barriers in Cold and Pink creeks by installing steeppass sections or cutting channels in substrate.

3. Evaluate fish passage through barrier bypasses by conducting peak spawning surveys.

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

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

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

Project Number: 93-032

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

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

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

regulation:

1) completion of General Waterway/Waterbody application to be submitted to Habitat Division of ADF&G for both Pink and Cold Creeks.

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

3) compliance with any environmental land use regulations imposed by Afognak Natives (land owners) will be strictly adhered to.

WHEN:

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

. roject Number: **93-033**

Project Source: **297-31, 279-15, & 273-02**

Project Title: Harlequin Duck Restoration Monitoring Study in Prince William Sound and and Afognak Oil Spill Areas

Project Category: Restoration Monitoring

Project Type: Birds

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies: National Park Service (NPS); U.S. Fish and Wildlife Service (USFWS), National Oceanic and Atmospheric Administration (NOAA) National Marine Fisheries Service (NMFS) Auke Bay Laboratory; Alaska Department of Natural Resources

Project Term: **Start Date:** 1/10/92 **Finish Date:** 9/30/95

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

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

Damage Assessment studies of Harlequin Ducks through 1992 have been limited to Prince William Sound. Harlequin Ducks reproduced normally in unoiled areas. Using new radio telemetry techniques, ~ne Harlequin nests have been located unoiled PWS on steeply sloping stream banks in old growth

›rest. In contrast, the Harlequin Duck population continued to decline in the PWS oil spill area 1989-91, but remained stable in other areas of PWS. A few broods were found on the periphery of the EVOS area in 1991.

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

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

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

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

OW We will use methodology developed during previous Harlequin Duck studies. The 1993 project

/ill determine whether the reproductive failure extends outside of Prince William Sound in the Afognak Island area. The expanded geographical area will involve less survey intensity per unit area, but will include initial boat surveys for identification of pairs at stream mouths in late spring, followed by trapping of selected stream estuaries. Harlequin females flying to streamside nest sites in early summer will be mist-netted and radio-tagged. Nest sites, broods, and feeding areas will be located by following the radio-tagged hens through the summer nesting and brood-rearing period. Brood count surveys will be conducted in shoreline habitats in late summer in western PWS and selected areas of Afognak Island. Breeding survey results from the oil spill areas will be compared to unoiled control areas on Afognak Island. If nests are located in the Afognak area, habitat characterization work will be conducted at each site. Blood samples will be collected from breeding Harlequins in unoiled areas and from molting Harlequins in oiled areas. Blood and tissue samples may also be taken from collected ducks. Blood samples will be analyzed for normal blood parameters and presence of elevated levels of haptaglobins and interleukins. Tissue samples (fat, liver, bile) from 40 collected ducks from the Prince William Sound and Afognak oil spill areas will be analyzed for presence of petroleum hydrocarbons. Feather samples will be examined for presence of vanadium, a trace metal indicating petroleum exposure. Fecal samples from flightless birds trapped during the molt will be collected to determine presence/absence of petroleum exposure (i.e. through contaminated blue mussels) by means of florescence testing. The Harlequin diet will be studied by examination of gullet contents of Harlequin carcasses from the EVOS bird morgue in Anchorage. This project will coordinate logistics with other projects, particularly 93051. It may be able to effect transportation/charter cost savings and some information exchange may be possible (93051 addresses multi-species habitat needs to be onsidered for logging moratoria and land purchases). However, there is no financial or operational verlap with 93-051.

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

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93034

Project Source:

Project Title: Pigeon Guillemot Colony Survey

Project Category: Habitat Protection and Acquisition

Project Type: Birds

Lead Agency: Department of the Interior - Fish and Wildlife Service

Cooperating Agencies: None

Project Term: **Start Date:** 1 January 1993 **Finish Date:** 31 December 1993

INTRODUCTION

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

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

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

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

Location.--This project will be conducted in PWS with efforts focused primarily in the western sound.

WHAT:

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

Objectives.--

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

WHY:

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

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

HOW:

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

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

NVIRONMENTAL COMPLIANCE:

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

WHEN:

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

roject Number: 93035

Project Source:

Project Title: Potential Impacts of Oiled Mussel Beds on Higher Organisms: Contamination of Black Oystercatchers Breeding on Persistently Oiled Sites in Prince William Sound

Project Category: Restoration Monitoring/Restoration Manipulation

Project Type: Birds

Lead Agency: Department of the Interior - Fish and Wildlife Service

Cooperating Agencies: None

Project Term: **Start Date:** 1/1/93 **Finish Date:** 3/15/94

INTRODUCTION:

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

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

Summary of Injury.--Oil from the *Exxon Valdez* contaminated rocky shorelines used by black oystercatchers for feeding and nesting. Based on initial studies in PWS at Green Island, the oiling affected black oystercatchers by reducing the number of breeding pairs and by reducing egg volume. Subsequent studies demonstrated that oystercatcher chicks raised on oiled beaches, despite being delivered a larger biomass of food, grew slower than chicks raised on unoiled beaches. Based on studies ith captive birds, ingestion of oil can decrease growth because energy that would otherwise be used ır growth is used to fuel the metabolic processes that detoxify oil. The reduced growth rates of chicks

ıised at sites with persistent oil contamination is still occurring, suggesting continuing injury due to the resence of *Exxon Valdez* oil in rocky intertidal habitats.

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

WHAT:

Goal.--The goal of this study is to determine whether black oystercatchers breeding on shorelines with persistent oil contamination in Prince William Sound are affected by their use of these habitats. This study will determine if there is a link between use of oiled mussel beds by oystercatchers and their reproductive success, as evidenced by chick growth rates and recruitment. This project will only be undertaken if the review of the results of the 1992 work indicate a need for further work on this species.

Objectives.--

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

WHY:

Benefit to Injured Resources.--This study will be beneficial to the restoration of black oystercatchers because the study will determine whether continuing injury or recovery is occurring at oiled sites. If ıcovery is not occurring, the study is designed to reveal whether a cause of the continuing injury to oystercatchers is use of oiled mussel beds for feeding. This study will identify specific mussel beds and their characteristics which result in the continuing injury to oystercatchers. These data could be used to identify sites needing additional treatment. Treatment of such sites will eventually benefit oystercatchers by returning their foraging areas to a normal condition.

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

HOW:

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

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

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

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

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

ENVIRONMENTAL COMPLIANCE:

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

WHEN:

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93036

Project Source:

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

Project Category: Restoration monitoring and restoration manipulation

Project Type: Coastal habitat

Lead Agency: National Oceanic & Atmospheric Admin.

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

Project Term: **Start Date:** 1 Jan 1993 **Finish Date:** 31 Dec 1997
This is a multi-year program.

INTRODUCTION:

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

Preliminary analytical data indicate total aromatic hydrocarbons concentrations as high as 470 ppm dry weight in sediments and 5.5 ppm dry weight in mussels. Natural recovery of oiled mussel beds appears to be minimal.

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

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

WHAT:

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

B. Objectives

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

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

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

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

WHY:

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

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

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

HOW:

A. Methodology--Sampling of mussels and sediments for petroleum hydrocarbons will follow protocol established by NOAA and the NRDA process. NOAA's Auke Bay Lab has successfully established a fast screening method (UV Fluorescence) for sediment hydrocarbons. Using this technique, we have documented that hydrocarbon distribution within an heavily oiled mussel bed appears to be patchy and probably related to grain size of the sediment. Rapid turn around of hydrocarbon data allows targeting manipulative areas in a timely manner. Most sediment

samples will be analyzed using this method and only selected sediment samples (mostly for method verification) and mussel samples (based on UV levels found at particular sites) will be analyzed by gas chromatography/mass spectroscopy.

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

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

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

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

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

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

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

Field work on manipulated sites is scheduled to occur during May with follow up evaluation at 30 days and at the end of the field season. Resampling of oiled mussel sites already identified and any new sites proposed by other agency field personnel will be sampled at a suitable low tide series - probably in late June. Some of this site sampling may be coordinated with the other trips.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93037 & 93055

Project Source:

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

Project Category: Restoration Monitoring

Project Type:

Lead Agency: National Oceanic & Atmospheric Admin.

Cooperating Agencies: Dept. of Agriculture, Forest Service

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

INTRODUCTION:

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

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

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

WHAT:

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

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

monitoring activities.

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

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

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

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

WHEN:

Schedule	Events
1 Jan 1993 to 31 Mar 1993	Contract negoiation
1 Apr 1993 to 15 Apr 1993	Select contractor
16 Apr 1993 to 30 May 1993	Prepare for field
1 Jun 1993 to 15 Jul 1993	Conduct field studies

16 Jul 1993 to 30 Sep 1993	Data entry/sorting
1 Oct 1993 to Feb 28 1994	Data analysis and final report

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93038

Project Source:

Project Title: Shoreline Assessment

Project Category: Restoration Monitoring

Project Type: Coastal Habitat

Lead Agency: Alaska Department of Environmental Conservation

Cooperating Agencies: Trustee Agencies

Project Term: **Start Date:** 01-Jan-93 **Finish Date:** 30-Sept-93

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

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

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

September 8, 1992

WHAT: The overall purpose of the project is to ensure that shorelines have recovered sufficiently to facilitate normal shoreline activities. The project objectives are to assess the shoreline hydrocarbon concentrations and, where appropriate, to carry out necessary treatment either during the survey or following the survey using local work crews to perform the identified work.

The shoreline assessment will utilize the process developed and refined since the 1989 spill:
-survey shorelines for the presence of Exxon Valdez hydrocarbons.
-determine if resource uses are affected by hydrocarbons.
-perform light duty manual treatment to restore resource use if necessary and feasible.
-write work orders for local crews to treat the shoreline if necessary.
-document field activities.

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

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

HOW: The Alaska Department of Environmental Conservation, in conjunction with the other Trustee Agencies and in consultation with the U. S. Coast Guard, will review the 1992 shoreline survey information and produce a list of subdivisions to be surveyed in 1993. This list will then be circulated to subsistence users by Project 93017 (Subsistence) and to land owners and resource managers to identify additional sites to be included on the 1993 survey. Agency personnel will review the proposed survey list and ensure that oiling conditions at each segment warrant an assessment. The survey list will be prioritized based on resources affected and projected oil concentrations. For planning purposes, we have assumed that 80 sites or less will be recommended for survey. After a final list is developed, the survey list will be sent to land and resource agencies for their approval and clearance to assess the sites.

Phase 1 is the physical survey of the shorelines. Agency technical experts and the upland owners will assess the shoreline segments and document oiling conditions. The survey team will be berthed on a vessel and use skiffs to access the shoreline. Float planes will provide logistics support. Previous Exxon Valdez surveys have used these logistics as the most cost effective and time efficient support structure. Agency representatives will be chosen for their

environmental and habitat experience. Each person will have extensive Exxon Valdez spill experience. Surveys will be conducted daily during both low tide windows with appropriate weather and light conditions. Field information will be recorded on forms previously generated during Exxon Valdez surveys to facilitate comparison and familiarity of the existing databases.

Phase 2 is the restoration of resources and services, if necessary. Agency personnel with input from the landowner will determine if treatment is necessary based on established State and Federal standards. Such a determination would include consideration of the resources impacted by the oil, the area and concentration of remaining oil, the cost effectiveness and technical feasibility to treat the oil, the services such as subsistence provided by the shoreline segment, and a reasonable expectation that the treatment will not cause more damage than allowing the oil to remain in place. Such a determination would be made by the Agencies in consultation with the Chief Scientist. The State On-Scene Coordinator will resolve disagreements between Agencies. Any light duty restoration work that is determined to be necessary would be completed during and after the survey by the surveyors which has proven to be the most cost effective method of treatment. Additional restoration treatment would be identified with work orders and the treatment will be performed using local work crews. Necessary treatment would usually consist of hand labor using shovels, rakes, and bags. A determination of appropriate restoration activities, if any, to be done in oiled mussel beds would be based upon results from the 1992 mussel bed study (R-103), the 1993 spring survey of project 93036 (Monitoring of Oiled Mussel Beds), and other completed and ongoing damage assessment and restoration studies. Any treatment work done in oiled mussel beds will be conducted in conjunction with Project 93036 to ensure appropriate treatment methods are used and to monitor the effectiveness of treatment.

The need for shoreline treatment work, if any, in 1993 can not be determined until the 1993 shoreline assessment is completed and the results of several damage assessment and restoration studies become available this winter and next spring. Because of the necessity of preplanning logistics support, we will assume limited treatment work will be found to be necessary. If treatment is found not to be necessary, the logistics support will not be used, and the money will be returned to the Trustee Council for use in other restoration activities. If treatment is found to be necessary at a level greater than initially authorized, we will request additional funds from the Trustee Council to expand the effort.

Surveyors and work crews will be required to attend Hazwoper training.

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

ENVIRONMENTAL COMPLIANCE: As in prior years, permits and notifications will be required by several permitting agencies. All permits will be obtained prior to commencement of field work.

WHEN: The duration of this project will be determined by yearly surveys of contaminated sites. The project will be recommended for termination as soon as conditions warrant. Funds

expended in 1993 will be proportional to the amount of restoration work necessary. Unexpended funds will be returned for use on other projects in later years. If work is necessary in future years, milestones would be similar for each year. Costs would vary in future years due to the size of the survey and type of restoration activities.

January 15-February 15, 1993. Solicit input from landowners and resource agencies on sites to be surveyed.
March 1. Produce final list of survey sites for Trustees.
March 7. Submit request for bids for vessel and float plane.
March 30. Receive approvals from land and resource agencies to access shoreline for survey and restoration activities.
April 15. Secure contracts for vessel and float plane.
May 15. Surveyors, landowner representatives, and work crews receive Hazwoper training.
June 1-July 15. Perform survey.
August 15. Complete restoration activities, if any.
September 30. Complete report and documentation.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-039

Project Source:

Project Title: HERRING BAY EXPERIMENTAL AND MONITORING STUDIES

Project Category: Restoration Manipulation and Enhancement, and Restoration Monitoring

Project Type: Fish

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies:

Project Term: 4 yrs **Start Date:** 1/1/93 **Finish Date:** 9/30/96

INTRODUCTION

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

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

intertidal community structure in Alaska than at lower latitudes.

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

WHAT

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

Objectives.

1. Quantify recruitment rates, survivorship, and population dynamics of barnacles and other sessile invertebrate species on oiled, oiled and cleaned, and non-oiled substrates and at matched oiled and non-oiled sites.

2. Determine the recovery rate of important community members dependent upon other species reduced or eliminated by the spill, i.e., second-order impacts. And determine the recovery rates of species with poor dispersal capabilities, e.g., the predators *Nucella* and *Leptasterias*.

3. Quantify the population structure and population dynamics of *Fucus* in oiled, oiled-cleaned, and control sites to monitor and to project recovery rates, especially in the upper intertidal zone areas denuded by the oil spill/clean-up activities.

4. Develop techniques for restoring *Fucus* by reducing heat and desiccation stress with a biodegradable substratum.

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

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

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

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

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

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

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

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93040 & 93054

Project Source:

Project Title: Longterm Ecological Recovery Monitoring Program

Project Category: Restoration monitoring/Technical Support

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

Lead Agency: National Oceanic & Atmospheric Admin.

Cooperating Agencies:

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

INTRODUCTION:

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

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

Based on data from 1990 and 1991, NOAA's Hazardous Materials Response and Assessment

Division (HMRAD) scientists predict that recovery of various populations of shoreline organisms in Prince William Sound may take from three to 15 years. Some populations show no signs of recovery and other populations are continuing to decline.

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

WHAT:

Complete a 10-year (1990-2000) shoreline ecosystem, chemical and geomorphology monitoring program in Prince William Sound in order to: (1) determine the extent to which past treatment has enhanced or delayed recovery of abundance, biodiversity and population structure of inter-tidal communities and sub-tidal eelgrass beds at representative oiled and treated sites and (2) help the Trustees determine the need for specific additional restoration actions to enhance recovery of these ecosystems and reduce contamination of shellfish and other living resources. Develop a data base that contributes to the overall understanding of ecological processes that can contribute to rational restoration and treatment decision-making in the future. Provide a scientific basis for oil spill treatment and restoration intervention that enhances recovery of natural shoreline ecosystems; forecast if and when shoreline ecosystems will return to natural or pre-spill conditions.

Objectives:

(1) Longterm. Conduct major surveys in 1994, 1997 and 2000 (NOAA HMRAD Years 5, 8, and 10). Conduct scaled-down surveys and complete data analysis and reporting in 1993, 95, 96, 98, and 99.

(2) Nearterm. Complete analyses of samples collected in 1991, 92 and 93. Conduct a 1993 field survey. Complete a 1993 integrative report. Provide a preliminary forecast of recovery and interim recommendations for (a) shoreline treatment, (b) Shoreline treatment assessment strategies and techniques, (c) Restoration alternatives, and (d) detailed 1994 full-scale survey.

From a scientific point of view, the primary objective is to test reasonable hypotheses about: 1) the rates and directions of recovery of biological communities and selected populations in those communities and, 2) the long-term impacts and benefits of high-pressure hot-water washing to oil reduction and marine community health at different types of shorelines.

WHY:

Benefit to Injured resources: This project will provide a major part of the information needed to determine what, if any, actions are needed. This information will include (1) rates of recovery of shoreline communities, (2) rates of decrease of hydrocarbon contamination in selected resources (mussels, clams and sediments) and (3) forecasts of expected changes.

Relationship to Restoration Goals: Restoration includes several general options for action: (1) do nothing (nature is handling the problem), (2) take action to enhance biological recovery, and (3) take action to increase reduction of toxic oil components. In all cases, monitoring is required before, during and following the actions to document their efficacy or failure. The "Do nothing"

alternative is a wise choice if the rates of return to natural or reference conditions are acceptable. However, it is possible that at some sites and conditions, ecosystems and oiling conditions are not recovering or doing so too slowly. Biological recovery might then be enhanced by manipulation of shoreline exposure or substrate and/or by planting certain predators or grazers. To correct unacceptable chemical contamination, additional levels of manual or biological treatment may be appropriate. Any action, and its possible consequences, can be discussed and debated once there is a data base (showing rates) for making such judgements.

HOW:

Survey design: The surveys, which began in 1990, will continue to be conducted at approximately 35-40 sites distributed according to two major categories of variables: three shoreline types (mixed-soft, boulder-cobble, and rocky) and three treatment categories (unoiled, oiled, untreated with high-pressure hot-water washing). There is a minimum of three sites per each combination of treatment and shoreline type. Each site generally includes biological and chemical surveys at three elevations (upper, mid- and low intertidal). At each elevation, the abundance and cover of plants and animals are measured in 5 (upper) or 10 (mid, low) permanent random 0.25 sq m quads. Infauna are sampled from five random 15 cm cores along each mid and low transect. Composites of surface sediment are collected at each elevation, and of mussels and clams from each site as appropriate or available. These sites are surveyed through time. Sampling has been at least annual, 1990-1992, but the frequency of sampling the full survey grid will decrease with major surveys to be conducted in 1994, 1997 and 2000. Scaled-down, focused surveys will be conducted in the intervening years.

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

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

Agencies that have previously sponsored this program have either ceased sponsorship (USCG

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

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

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

ENVIRONMENTAL COMPLIANCE:

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

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

WHEN:

Near-term (FY93-94):

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

Longterm (FY 95-2001):

1995-1996, Limited annual surveys and annual reports. 1997, Full scale survey and annual report.
1998-1999, Limited annual surveys and annual reports. 2000, Full scale survey and annual report.
2001,Complete synthesis report.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93041

Project Source:

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

Project Category: Restoration Monitoring

Project Type: Monitoring

Lead Agency: National Oceanic & Atmospheric Admin.

Cooperating Agencies: AK Dept. Fish & Game, AK Dept. Environmental Conservation, AK Dept. Natural Resources, US Agriculture Forest Service, US Interior Fish & Wildlife Service, US Interior National Park Service

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

INTRODUCTION:

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

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

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

WHAT:

A. Goal: This project will establish the design of the monitoring component of the Restoration Plan. The goal is to develop a comprehensive and integrated restoration monitoring program that will follow the progress of natural recovery, evaluate the effectiveness of restoration activities, and establish an ecological baseline from which future disturbances can be evaluated.

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

B. Objectives: This program will assist the Trustees in various organizational and coordination activities in support of developing a comprehensive, interdisciplinary and integrated program of restoration monitoring aimed at:

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

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

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

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

WHY:

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

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[1] Environmental Protection Agency pass-through money in 1991.

HOW:

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

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

1) what the bounds (magnitude) of the monitoring effort will be;

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

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

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

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

6) cost estimates for each monitoring component;

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

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

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

reviewers to produce definitive monitoring protocols. After completion of a Draft Restoration Monitoring Plan, a program of peer review will be organized and implemented. Subsequently, the draft plan will be issued for public review and comment.
It is proposed in Phase 2, that NOAA/NMFS will assist the Trustees in various organizational and coordination activities pursuant to developing the Draft Final Restoration Monitoring Plan. NOAA/NMFS will design and prepare the RFP to solicit services of a consultant to provide technical expertise. NOAA/NMFS also will design procedures for evaluating the resulting technical proposals and chair a proposal review committee to select a consultant. NOAA/NMFS with the assistance of the consultant also will design and implement a workshop to develop a framework for detailed monitoring protocols, a data management system, a QA/QC program, costs, and a review strategy, etc.

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

Phase 3: Following development of the Restoration Monitoring Plan, 1994 and beyond will be devoted to Phase 3 - monitoring and management, including audits, annual reviews, data management, and reports.

ENVIRONMENTAL COMPLIANCE:
This activity should fall under a categorical exclusion within NEPA because this proposed project is essentially a planning exercise. This does not, however, obviate the responsibility for each Trustee agency to conduct additional NEPA reviews as various components of the comprehensive and integrated monitoring plan are implemented in Phase 3.

WHEN:
Phase 1 planning begins 1 September 1992 and will essentially be complete 1 February 1993. Phase 2 planning which is the focus of this proposal will begin 1 February 1993 and essentially be complete 30 September 1993. Phase 3, a fully expanded and integrated monitoring program, will be implemented in the 1994 field season and will continue for the life of the Restoration Monitoring Program (FY-95 thru FY-2004).

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93042

Project Source:

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

Project Category: Restoration Monitoring

Project Type: Marine Mammals

Lead Agency: National Oceanic & Atmospheric Admin.

Cooperating Agencies:

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

INTRODUCTION:

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

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

One of the Prince William Sound pods, AB pod, had 36 whales when last sighted before the spill in September 1988. When sighted on March 31, 1989, seven days after the spill, seven individuals were missing. Six additional whales were missing from AB pod in 1990. Assuming that whales missing for two consecutive years are dead, the mortality rates for the AB pod were 19.4 percent in 1988-1989 and 20.7 percent in 1990-1991. The average annual mortality in AB pod in 1984 to 1988 was 6.1 percent. An additional whale was missing in 1991, but a calf was also born into the pod. The approximate calving interval of killer whales is four years, so some long-term effects may not be obvious for many years.

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

Killer whales, which may have died as a result of the oil spill, probably would have sunk and not been found by researchers. So, it has not been possible to directly link the missing whales of AB pod with the Exxon Valdez oil spill.

WHAT:

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

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

2. Test the hypothesis that pre- and post-spill killer whale pod structure and integrity within AB pod have remained constant.

3. Determine killer whale reproductive rates and trends in abundance for AB pod within Prince William Sound.

WHY:

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

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

HOW:

1. Personnel from the National Marine Mammal Laboratory (NMML) will develop and coordinate all killer whale research activities with this monitoring study. NMML has had extensive involvement in all phases of this research since 1989 and will provide the needed scientific continuity required for this research. Field studies will be conducted by NOAA and contract personnel who have recognized expertise in the study areas of concern. A shore-based

camp (equipped with a suitable small boat for whale identification work) will be used in Prince William Sound to conduct photo-identification studies on killer whales from July to September 1993. Study areas will be similar to those worked when assessing injury to killer whales from 1989 through 1991. The camp would be fully self-contained with necessary items for safety and staffed by at least two biologists. For consistency in data collection, key personnel remain in the field throughout the study period.

Weather permitting, field personnel will spend an average of 8 to 10 hours per day conducting boat surveys searching for AB pod. When encountered, other pods of killer whales should be photographed as well. Specific areas, known for whale concentrations, are investigated first. However, if reports of whales are received from other sources, those areas are examined. If AB pod is not located in "known" areas and opportunistic sighting reports are not available; a general search pattern is developed and implemented. Travel routes typically taken by AB pod will be surveyed. When whales are sighted, researchers stop further search efforts and approach the whales to collect photo-identification information. When whales are encountered, researchers select a vessel course and speed to approximate the animals' course and speed to facilitate optimal photographic positioning.

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

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

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

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

WHEN:

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93043, 93044

roject Source:

Project Title: Sea Otter Population Demographics and Habitat Use in Areas Affected by the *Exxon Valdez* Oil Spill

Project Category: Restoration Monitoring/Restoration Habitat Protection

Project Type: Marine Mammals

Lead Agency: Department of the Interior - Fish and Wildlife Service

Cooperating Agencies: None

Project Term: **Start Date:** 1 April 1993 **Finish Date:** 31 March 1994

INTRODUCTION:

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

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

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

WHAT:

Goals.--The overall goal of this project is to restore sea otter populations affected by the Exxon Valdez oil spill by determining what is limiting their recovery and identifying areas with high value for sea otter habitat within Prince William Sound for possible protection. Results from 1991 and 1992 preliminary udies on survey techniques will be evaluated prior to initiating 1993 surveys.

Objectives.--

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

WHY:

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

HOW:

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

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

The habitat evaluation component of the project will 1) utilize data from a 1992-93 USFWS juvenile survival study to develop a data base on sea otter movements and patterns of habitat use, 2) integrate this information with other sea otter data on distribution and abundance (pre- and post-spill), and 3) evaluate available data on commercial, recreational, and subsistence uses of PWS. Continuing efforts (planned for 1994-95) will utilize the data base compiled on habitat use patterns to identify and evaluate potential areas of high habitat value in PWS for protection.

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

ENVIRONMENTAL COMPLIANCE:

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

WHEN:

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

Milestones

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93045

Project Source:

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

Project Category: Restoration Monitoring

Project Type: Birds, Marine Mammals (Sea Otters)

Lead Agency: Department of the Interior - Fish and Wildlife Service

Cooperating Agencies: None

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

INTRODUCTION:

Background.--The U.S. Fish and Wildlife Service conducted boat surveys of marine bird and sea otter populations in Prince William Sound in the early 1970s, the mid-1980s and in 1989, 1990 and 1991 following the *Exxon Valdez* oil spill. These surveys documented overall declines in Prince William Sound marine bird populations between 1972-1973 and the years after the spill for grebes, cormorants, northern pintail, harlequin duck, oldsquaw, scoters, goldeneyes, bufflehead, black oystercatcher, onaparte's gull, black-legged kittiwake, arctic tern, pigeon guillemot, marbled murrelet, Kittlitz's murrelet, and northwestern crow. For five of these species or groups--cormorants, harlequin duck, black oystercatcher, pigeon guillemot and northwestern crow--populations declined more in the oiled area than in the non-oiled area, suggesting an oil spill effect. Specific studies of three of these species--harlequin duck, black oystercatcher and pigeon guillemot--have corroborated the population changes found by the survey project. In addition, these studies have investigated how the reproduction and foraging ecology of these species have been affected by the spill. These studies have also examined hydrocarbon contamination in these species. Links between the oil spill and effects on these species are still being investigated.

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

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

pcation.--This study will be conducted in Prince William Sound. The entire sound, including oiled and noiled areas, will compose the study area.

WHAT:

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

Objectives.--

1. To determine distributions and estimate abundances, with 95% confidence limits, of marine birds and sea otters in Prince William during summer and winter.

2. To estimate trends in populations of marine bird species whose populations declined more in oiled areas than in unoiled areas of Prince William Sound since the early 1970s, specifically cormorants, harlequin ducks, black oystercatchers, and pigeon guillemots.

3. To support restoration studies on harlequin ducks, black oystercatchers, pigeon guillemots, marbled murrelets, other marine birds and sea otters by providing data on population changes, distribution and habitat use of Prince William Sound populations.

WHY:

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

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

HOW:

Methodology.--Boat surveys will be conducted using methods developed by NRDA Bird Study 2. Surveys will be conducted in March (winter) and July (summer) of each year. Surveys will be conducted using three 25-foot boats each staffed by an operator and two crew members. All three will serve as observers. Observers will record all birds and mammals within 100 m of each side of the boat within survey transects, and whether the animal is in the water, on land or in the air. The survey window will extend approximately 40-50 m ahead of and 100 m above the moving boat, but will be extended for animals that exhibit strong avoidance behavior when the boat is more than 50 m away (e.g. scoters, murrelets, harlequin ducks, harbor seals). Surveys will be conducted only when seas are less than two feet. Date and time of survey, and environmental variables including wind velocity and direction, air and water temperature, weather, observation conditions, sea state, tide, presence of oil, and presence of human activity will be recorded for each transect.

A stratified random sampling design using shoreline, coastal/pelagic and pelagic strata will be used. The current design is powerful enough to detect small population changes (e.g. 15%) for some species. Data collected previously will be used to improve the design for other species, possibly lowering costs at the same time. The size of individual blocks in pelagic and coastal/pelagic strata will be decreased, and blocks reselected, to decrease variances. Such alteration will not affect our ability to compare population estimates among years.

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

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

ENVIRONMENTAL COMPLIANCE: This study relies on observations from boats and is a non-intrusive study. Based on a review of the CEQ regulation 40 CFR 1500-1508, this study appears to be categorically exempt from the requirements of NEPA in accordance with 40 CFR 1508.4.

WHEN:

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

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-046

Project Source:

Project Title: Habitat Use, Behavior, and Monitoring of Harbor Seals in Prince William Sound, Alaska

Project Category: Restoration Monitoring, Habitat Protection

Project Type: Marine Mammals

Lead Agency: Alaska Department of Fish and Game

Cooperating Agencies: National Marine Fisheries Service (NMFS)

Project Term: 3 yrs **Start Date:** 1/10/92 **Finish Date:** 9/30/95

INTRODUCTION: Harbor seals (Phoca vitulina) occur year-round in Prince William Sound (PWS) where they often haul out on rocks, reefs, beaches, and glacial ice. They pup, breed, molt, and feed in the Sound. During extensive surveys of PWS in 1991, 2,500-3,000 harbor seals were counted on haulouts. Another 1,700 were counted in the Copper River Delta and Orca Inlet. This under-estimates the population since some seals were in the water and some small haulouts were not surveyed. From 1984 - 1988, harbor seal numbers at trend sites in PWS declined by 43% for unknown causes. The decline continued in 1989-1990, exacerbated in oiled areas by the Exxon Valdez oil spill (EVOS); 1990 counts were 57% lower than in 1984. Following the oil spill, counts of harbor seals at oiled trend count sites declined by 35%, compared to 13% at unoiled sites, indicating a reduction of about 20% at oiled haulouts. It is likely that over 200 harbor seals were killed by the EVOS in PWS. Although molting surveys in 1991 suggested that numbers might be increasing, pupping counts were 10% lower in 1992 than in 1991. Whether there are long-term effects is unknown.

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

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

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

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

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

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

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

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

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

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

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

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

WHEN: This project will be conducted during 1993 and is proposed for 1994 also, with final report submission in either 1994 or 1995 depending upon whether the second year of field effort is conducted. Aerial surveys will be conducted during June and August/September of each year. Each survey period will be 7-14 days, depending on weather and tides. One of the investigators will visit Chenega Bay and Tatitlek once a year to discuss survey results with residents. Satellite tags will be attached during 10-14 day periods in May and September of each year. Because a lead time of 3-6 months is required to obtain PTTs, we will have to order PTTs by November of 1992 and 1993. Satellite data acquisition costs must be prepaid to Service ARGOS by February of each year. Data are received monthly and preliminary analysis will begin as soon as data diskettes are received. Final analyses cannot be completed until the PTTs have ceased to function (April-June 1995). A report of field activities will be submitted in letter form within 30 days following any field activity. Annual progress reports will be submitted by 31 December 1993 and 1994. A final report will be submitted by 30 September 1995. Results will be prepared for publication in a peer-reviewed journal.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93047 & 93056

Project Source:

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

Project Category: Restoration monitoring

Project Type: Subtidal

Lead Agency: National Oceanic & Atmomspheric Admin.

Cooperating Agencies: AK Dept. Fish & Game, AK Dept. Environmental Conservation

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

INTRODUCTION:

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

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

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

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

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

Persistence of hydrocarbons and their impacts on associated species were not examined in 1992,

and the current status of recovery is unknown.

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

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

WHAT:

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

B. Objectives:

1. (NOAA) a. Determine Hydrocarbons concentration and composition in subtidal sediments in PWS by GC-MS (6 depths; 10 sites).

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

2. (ADEC) Measure the numbers of hydrocarbon-degrading microorganisms and their activity as an indicator of persistence of biodegradable oil in PWS sediments.

3. (ADFG) Determine impacts and recovery of shallow eelgrass communities in western PWS that were impacted by the spill.

4. (ADFG) Determine changes in exposure of fishes to hydrocarbons by monitoring bile, MFO activity and histopathogical lesions in Rockfish.

5. (NOAA) Determine changes in exposure of fishes to hydrocarbons by monitoring bile, MFO activity and histopathogical lesions in near-shore bottom fish.

WHY:

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

Management of species and habitats may be influenced by the level of recovery (e.g. no contamination or detectable responses would permit higher rates of harvest for target species). Information on rates of recovery of contaminated habitats and species is needed to protect those

habitats and species. It is important to measure oil exposure as recovery proceeds until the environment fully recovers. This project is the only subtidal monitoring study.

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

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

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

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

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

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

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

Note: Because the summer field season occurs in the fourth quarter of the fiscal year, much of the sample analysis will fall in the first two quarters of the next fiscal year.

EXXON VALDEZ OIL SPILL PROJECT PROPOSAL

Project Number: 93048

Project Source:

Project Title: Communication System for the Oil Spill Area

Project Category: Technical Support

Project Type: Services

Lead Agency: USDA-Forest Service

Cooperating Agencies:

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

INTRODUCTION

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

Plans are for a communications satellite to be in place within 305 years. At that timne cellular phone service in the spill area will cost only equipment purchase and service charges.

EXXON VALDEZ OIL SPILL BRIEF PROJECT DESCRIPTION

Project Number: 93050

Project Source:

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

Project Category: Technical Support

Lead Agency: State of Alaska Department of Natural Resources

Cooperating Agencies:

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

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

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

WHAT:
The goal of this project is to identify sources of existing information pertinent to the

Exxon Valdez Oil Spill Restoration Process. Specific objectives include:

* Identify location and source of damage assessment studies and update the existing document to reflect new information.

* Identify the sources and locations of maps, management plans, and other resource documents pertaining to land status, public resources, land use patterns, ownership, existing and proposed land use, vegetation, fish and wildlife populations, habitat, recreational value, commercial resources and cultural resources.

* Produce a selected bibliography identifying the source and location of reports, maps, scientific literature, management plans and studies relevant to the restoration process.

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

Project Number: 93050

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

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

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

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93051

Project Source: Habitat Protection Work Group

Project Title: Habitat Protection Information for Anadromous Streams and Marbled Murrelets

Project Category: Habitat Protection and Acquisition

Project Type: Survey

Lead Agency: Department of Agriculture, Forest Service

Cooperating Agencies: Alaska Department of Fish and Game; Department of Interior, Fish and Wildlife Service

Project Term: Start Date: 10/1/92 **Finish Date:** 9/30/94

INTRODUCTION

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

This project will encompass lands throughout the spill-affected area.

WHAT

This project has two components: 1) Murrelet nesting habitat assessment and; 2) Stream habitat assessment.

1) Murrelet Nesting Assessment

The purpose of this sub-project is to help restore murrelet populations injured due to the *Exxon Valdez* oil spill by providing information that could be used to protect, through acquisition or other means, murrelet nesting habitat. This sub-project will further characterize the nesting habitat of marbled and Kittlitz's murrelets in the spill-affected area. Two objectives will be implemented to achieve this goal:

a. Determine habitat features that are reliable indicators of high density murrelet nesting areas in the spill-affected area.

b. Determine feasibility of using radio telemetry to determine nesting habitat of murrelets in the spill-affected area.

2) Stream Habitat Assessment

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

The project is composed of two sub-projects:

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

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

WHY

Marbled murrelets and anadromous fish, were injured by the oil spill. Murelets nest in trees throughout the spill area but little is know about their nesting requirements. Work conducted in 1992 is providing some information on nesting requirements but additional information is needed before nesting habitat can be reliably determined. Any habitat protection applied to uplands for murrelets would be dependent on the ability to accurately estimate the quality and quantity of nesting habitat.

Anadromous fish, such as pink salmon were also injured by the oil spill. The surveying portion of the project will locate and map new anadromous streams within candidate lands that may require habitat protection. The stream classification study will provide a GIS based tool that will allow comparative evaluations of streams throughout the spill area. This component will also provide a level of information that can be expanded upon through additional field work should such information become necessary.

HOW

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

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

Streams within candidate private lands will be walked to determine the extent of anadromous fish habitat. Concurrent with the streams walks, information on channel types will be collected and entered into the stream classification study.

The stream classification study will use existing air photographs to classify streams within the spill area. Selected sites will be surveyed during the field season to verify and correct the maps. All the maps will

be placed into an ARC-INFO based GIS.

ENVIRONMENTAL COMPLIANCE

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

WHEN

Several of the planned project components are continuing studies previously funded by the Trustee Council. The general timelines for the individual components are as follows:

1. Stream habitat assessment: Present - September, 1994.

2. Murrelet nesting habitat assessment: Present - September, 1994

3. Stream channel typing: January - September, 1994

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93053

Project Source:

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

Project Category: Technical Support

Lead Agency: National Oceanic & Atmospheric Admin.

Cooperating Agencies:

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

INTRODUCTION:

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

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

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

WHAT:

A. Goal: This project will support the measurement of other restoration projects performances

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

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

WHY:

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

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

HOW:

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

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

ENVIRONMENTAL COMPLIANCE:

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

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

WHEN:

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

EXXON VALDEZ OIL SPILL BRIEF PROJECT DESCRIPTION

Project Number: 93057

Project Source:

Project Title: DAMAGE ASSESSMENT GIS

Project Category: Technical Support

Lead Agency: AK Dept. of Natural Resources

Cooperating Agencies: None (USF&WS considered separately)

Project Term: 7.0 mos Start Date: 1-Mar-93 (day/mon/yr) **Finish Date: 30-Sept-93** (day/mon/yr)

INTRO: Background: This project provides a baseline information repository (shoreline, oiling, Environmental Sensitivity Index, shore type, ownership, salmon streams, bathymetry data) for statistical analysis and mapping in support of damage assessment projects scheduled for completion during this last budget period, and for final database and product documentation, repository storage, and distribution and dissemination.

WHAT: Goal: Complete statistical analysis and GIS mapping support for existing damage assessment studies, and provide a quality controlled and documented database of baseline information for restoration study use and data publication.

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

WHY: Benefits: Completing the damage assessment database of baseline information will provide restoration studies with information relevant to their projects: current ownership and designated use status, oiled areas, oiling change over time, beach treatment areas, geographic links to injury determinations, baseline information critical to habitat acquisition objectives.

HOW: Methodology: Complete major documentation project to prepare data layers for final publication. Quality control newly acquired data, and produce statistical reports and maps for the shoreline assessment study, against spring 91 and spring 92 data. Acquire current ownership data from various sources (BLM, DNR, USFS), synthesize data, produce most current land status maps, and distribute to damage assessment and restoration studies.

ENVIRONMENTAL COMPLIANCE:

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

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93059

Project Source: Habitat Protection Work Group

Project Title: Habitat Identification Workshop

Project Category: Habitat/Land Protection

Project Type: Technical Services

Lead Agency: Department of Agriculture, Forest Service

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

Project Term: **Start Date:** 1/10/92 **Finish Date:** 9/30/93

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

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

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

WHY:
The Habitat Protection and Acquisition option is but one of a number of restoration tools being considered in the draft Restoration Plan scheduled for release for public review and comment in February, 1993. A final Restoration plan is expected in May, 1993. In the interim, protection of key parcels of non-public lands which contain critical habitats is needed to

ensure that the Habitat Protection and Acquisition option is not foreclosed by events preceeding Trustee Council adoption and implementation of a final Restoration Plan.

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

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

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

ENVIRONMENTAL COMPLIANCE:
This project, which is initial data gathering, is categorically excluded from formal documentation in an environmental impact statement or environmental analysis.

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93060

Project Title: Accelerated Data Acquisition

Project Category: Habitat Protection

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

Cooperating Agencies: Alaska Department of Environmental Conservation, Depatment of Interior, Alaska Department of Natural Reources, National Oceanic and Atmospheric Administration and Alaska Department of Fish and Game.

Project Term: Start Date: 10/1, 1992 to 9/30, 1993

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

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

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

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

DATA BASE CHARACTERISTICS

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

DATA BASE "LAYERS"	SOURCE
Line graph (shoreline corrected post-earthquake)	DNR
Cities, towns, villages, roads	DNR (update with current
Land ownership (surface and subsurface; 2.5 acre resolution outside of built up areas)	DNR, FS, FWS, BLM, NPS
Hydrography	DNR, FS, USGS,FWS (remote sensing update)
Hypsography (elevation)	USGS, FS, DNR
Vegetation	FS (update with remote sensing and ground truthing)
Anadromous streams	DFG (digital point data for all) FS (digital line data for Big Is.) DNR (digital line data for some PWS and Kenai areas)
Wildlife habitat (location data i.e. points and polygons, and habitat modeling)	FWS,DFG,FS,NPS, NMFS
Shoreline oiling	DNR, DEC
Management boundaries, conservation units	DNR, FS, FWS, NPS
Easements	BLM, FS, DNR, FWS, NPS
Land use activities	DFG, COE, DNR, DEC, DGC
Bathymetry	DNR

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

WHEN:
The project will start October 1, 1992 and be completed by January 31, 1993.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93061

Project Source: Habitat Protection Work Group

Project Title: New Data Acquisition

Project Category: land/habitat protection

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

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

Project Term: Start Date: 1/1/93 End Date: 9/30/93

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

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

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

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

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

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

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

EXXON VALDEZ OIL SPILL BRIEF PROJECT DESCRIPTION

Project Number: 93062

Project Source:

Project Title: RESTORATION GIS

Project Category: Technical Support

Lead Agency: AK Dept. of Natural Resources

Cooperating Agencies: None (USF&WS considered separately)

Project Term: 7.0 mos Start Date: 1-Mar-93 (day/mon/yr) **Finish Date: 30-Sept-93** (day/mon/yr)

INTRO: Background: ADNR is currently a major repository for EVOS damage assessment GIS data, most of which is highly relevant to restoration analysis and planning. ADNR GIS provides the most comprehensive, automated land status ownership data available. ADNR also has extensive experience dealing with the various land status implications that result from state and native selection rights, inholdings and access, and entitlement rights such as navigability and tidelands. ADNR GIS also has extensive experience providing the multi-thematic GIS analysis and mapping that will be required as habitat protection and acquisition becomes a central focus of the Restoration Team.

WHAT: Goal: Provide statistical and spatial analysis, and GIS mapping support for approved restoration projects. Products will be map series, data transmittal, and online query support. Consistent, current, and quality control repository services will be provided for this comprehensive geographic database.

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

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

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

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

Additional approved Restoration projects that have high GIS potential are:
Restoration of Second Growth Habitat for Wildlife in PWS
Harlequin Duck Restoration and Monitoring Study
Natural Recovery of Oiled and Treated Shoreline
Mussels and Sediments
Develop Harvest to Aid Restoration of Injured Terrestrial Mammals and Sea ducks

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

ENVIRONMENTAL COMPLIANCE:

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

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

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93-063

Project Source:

Project Title: SURVEY AND EVALUATION OF INSTREAM HABITAT AND STOCK RESTORATION TECHNIQUES FOR ANADROMOUS FISH

Project Category: Restoration Manipulation and Enhancement

Lead Agency: Alaska Department of Fish and Game (ADFG)

Cooperating Agencies: U.S. Forest Service (USFS)

Project Term:	**Start Date:**	**Finish Date:**
	March 1, 1993	October 31, 1993

INTRODUCTION:

This project will develop project designs for appropriate and cost-effective salmon spawning habitat restoration and enhancement projects. The Exxon Valdez oil spill severely damaged wild pink and chum salmon populations. Various amounts of oil were deposited in intertidal spawning habitats in Prince William Sound (PWS) where up to 75% of the spawning occurs. Salmon eggs deposited in 1989 and all subsequent years have been contaminated and direct egg mortality has been documented. Recently detected genetic damages resulting from oil contamination in spawning beds may further reduce the productivity and fitness of wild salmon populations for many years to come. This project will be undertaken in PWS where a significant portion of the spawning habitat was damaged. The benefits of the project will be realized in the communities of Whittier, Valdez, and Cordova which support the commercial fishing industry in the region.

WHAT:

The goal of this project is to develop proposals and designs for appropriate and cost-effective instream habitat and stock restoration projects. The following objectives will be achieved:

1. Review existing literature and databases, determine preliminary restoration techniques for specific sites, and identify sites where field studies are needed,
2. Conduct field studies at specific sites to collect data needed to evaluate restoration techniques,
3. Compile available data and select the most appropriate fish restoration projects,
4. Collect additional field data if necessary to develop project design and cost estimates, and write proposals for specific projects, and
5. Estimate the total area of anadromous fish spawning habitat that was oiled in PWS.

WHY:

his is an ongoing project currently evaluating various sites in PWS for application of established spawning habitat restoration and enhancement techniques. The project is essential to responsibly develop project proposals and designs to restore and replace damaged salmon spawning habitat. The project was initially funded in September, 1991 near the end of the field season in PWS. Field activities in 1991 focused on evaluation of 41 sites for construction of fish passes and fry weirs. Field activities in 1992 are focused on evaluation of 15 sites for construction of spawning channels. The ADFG is currently installing standpipes and water temperature/level recorders at these sites to obtain data on groundwater stability and water temperatures. The equipment must be in place throughout the winter to determine minimum temperatures and water levels at each site. Additional funds in FY93 are essential to retrieve the equipment being placed in the field now, analyze data, and prepare project designs.

HOW:

Fifteen potential spawning channel sites have been identified in PWS (Willette and Carpenter 1991). Standpipes and electronic water temperature/level recorders are currently being installed at these sites to evaluate groundwater stability and temperature. This equipment must be retrieved from the field in FY93. Data obtained from electronic water temperature/level recorders will be analyzed to evaluate groundwater stability and the probable rate of intragravel flow at potential spawning channel sites. The rate of intragravel flow is an important variable affecting egg-to-fry survival in salmon spawning beds (McNeil 1966).

ata collected from field surveys conducted in FY92 (Willette and Carpenter 1991) will be evaluated in FY93 along with data describing groundwater characteristics. Criteria outlined by Bonnell (1991) will be used to evaluate the suitability of specific sites for the construction of spawning channels. In addition, the estimated increase in fish production and the benefit/cost ratio of the proposed project will be considered. Additional field work may be required to collect engineering data needed to develop detailed project designs. All restoration survey efforts will be coordinated with local landowners and governments.

Literature Cited

Bonnell, R.G. 1991. Construction, operation, and evaluation of groundwater-fed side channels for chum salmon in British Columbia. In: Proceedings of the Fisheries Bioengineering Symposium, American Fisheries Society Symposium no. 10, pp. 109-124.

McNeil, W.J. 1966. Distribution of spawning pink salmon in Sashin Creek, Southeastern Alaska, and survival of their progeny. USFWS, Spec. Sci. Rpt.-Fisheries NO. 538.

Willette, T.M. and G. Carpenter. 1991. Survey and evaluation of instream habitat and stock restoration techniques for anadromous fish. Draft Status Report to the Exxon Valdez Oil Spill Trustees Council, 34p.

illette, T.M. and G. Carpenter. 1991. Survey and evaluation of instream habitat and stock restoration

techniques for anadromous fish. Detailed Study Plan (Oil Year 4). Submitted to Exxon Valdez Oil Spill Trustees Council, 12p.

ENVIRONMENTAL COMPLIANCE:

The project qualifies for a categorical exclusion under the National Environmental Policy Act, because it does not involve any significant manipulation of biological resources or their habitats.

WHEN:

This project will continue for five months in FY93. This will allow project staff sufficient time to retrieve equipment placed in the field in FY92, analyze data, collect additional engineering design data if necessary, and prepare detailed project proposals (Table 1).

Table 1: Summary of project activities in FY93.

Date	Activity
June	Retrieve standpipes and electronic water temperature/level recorders from 15 sites.
uly	Compile and evaluate data, select sites for development of detailed project proposals.
ugust	Collect additional engineering data if necessary for project design.
Sept-Oct	Prepare detailed project proposals including engineering designs.

EXXON VALDEZ OIL SPILL PROJECT DESCRIPTION

Project Number: 93064

Project Source: Habitat Protection Work Group

Project Title: Imminent Threat Habitat Protection

Project Category: Habitat/Land Protection

Project Type: Habitat Protection

Lead Agency: Department of Agriculture, Forest Service

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

Project Term: **Start Date:** 1/10/92 **Finish Date:** 9/30/93

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

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

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

WHY:
The Habitat Protection and Acquisition option is but one of a number of restoration tools being considered in the draft Restoration Plan scheduled for release for public review and comment in February, 1993. A final Restoration plan is expected in May, 1993. In the interim, protection of key parcels of non-public lands which contain critical habitats is needed to

ensure that the Habitat Protection and Acquisition option is not foreclosed by events preceeding Trustee Council adoption and implementation of a final Restoration Plan.

HOW:

1. BY NOVEMBER 1, 1992 - The Habitat Protection and Acquisition workgroup, in cooperation with The Nature Conservancy, will conduct and document a series of workshops to be attended by scientists and other resource specialists for the purpose of (1) assessing the rate and degree of recovery of resources and services injured by the oil spill, and (2) identifying and characterizing the habitats associated with the recovery of injured resources or services. This task is part of Project 93059.

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

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

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

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

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

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

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

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

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

MEMORANDUM State of Alaska

DEPARTMENT OF ENVIRONMENTAL CONSERVATION
OIL SPILL RESTORATION OFFICE

TO: Trustee Council DATE: September 9, 1992

FROM: Bob Loeffler TELE: 278-8012
Acting Chair, RPWG FAX: 276-7178

SUBJECT: For review: Draft Restoration Plan Issues and Annotated Outline

Issues. The Restoration Planning Working Group completed the enclosed issues for the Draft Restoration Plan. The eleven issues are the product of our evaluation of public and agency comments on the *Restoration Framework, Volume I,* and comments from the Restoration Team. The issues presented here are specifically for guiding the Restoration Plan. Those developed by the EIS contractor will most certainly be similar but may not be identical to those used for the Restoration Plan. We assume that those issues will be forwarded separately.

Annotated Outline. An annotated outline of the Draft Restoration Plan is attached. The outline was developed by the Restoration Planning Working Group with comments from the Restoration Team. We expect that the Draft Restoration Plan will be a stand-alone document, easily accessible to the public, and that the Draft EIS will accompany it for public review. If you have any questions, members of the Restoration Planning Working Group will be available at the Trustee Council Meeting.

ISSUE STATEMENTS FOR THE DRAFT RESTORATION PLAN

1. Injured resources and services vary in level of injury, rate of recovery, location, and value to ecosystem and humans. What priority or weight should be given to these factors in determining priorities for restoration options?

2. What level of information, either from new or continuing damage assessment studies, including socio-economic studies, is necessary to evaluate the need for and effectiveness of present and future restoration?

3. What level of monitoring or research is appropriate to determine the rate of recovery, health, and management of injured species, ecosystems, and services?

4. How will habitat protection mechanisms (such as special management designations, land acquisition and others) for public and private land and water be integrated into an overall restoration program?

5. What information should be distributed to the public and how should it be disseminated?

6. If there is a need for scientific, recreational or other facilities, where, how, and when should they be constructed?

7. What are the effects of restoration activities on local economies and subsistence?

8. What are the appropriate restoration strategies for restoring or enhancing both injured and non-injured resources and services?

9. What are the opportunities and appropriateness for long-term funding of programs through endowments?

10. How will restoration funds be managed and allocated?

11. Should restoration activities be evaluated concurrently or hierarchically?

END

September 01, 1992

Draft Annotated Outline
DRAFT RESTORATION PLAN

9/1/92

i. Cover Letter

ii. Comment Sheet

iii. Table of Contents

iv. Executive Summary

I. Introduction

A. Purpose of document

Presents the proposed action (see Restoration Framework, page 1) and explains the function of the Draft Restoration Plan as providing overall direction for the restoration process and guidance for implementation of annual work plans, including all anticipated annual and periodic activities. Explains the relationship among alternatives, options and restoration projects and types of actions to implement them.

B. Background

Summarizes the history of the oil spill, including the cleanup; pre-settlement NRDA program; A summary of Trustee Activity since the settlement, including the role of the U.S. District Court of Alaska; criminal and civil settlements; and the EVOS trustee organization and administration. Presents the number and nature of the public's comments received on the Restoration Framework and how they were used.

C. Spending guidelines for EVOS settlement

1. Civil settlement

Summarizes guidelines for spending civil settlement money. Includes a description of the decision-making process for expenditures.

2. Criminal settlements (state and federal)

Summarizes state and federal guidelines for spending criminal settlement money. Explains relationship to civil settlement guidelines.

D. Relationship to Draft Environmental Impact Statement

Following a brief outline of the NEPA process, the relationship of the Draft Environmental Impact Statement (DEIS) to the Draft Restoration Plan will be explained. Explains that the DEIS will be programmatic in nature and the impacts of the preferred restoration alternative will be presented and compared with those of all other restoration alternatives.

III. Injured Resources and Services

A. Criteria for selecting injured resources and services

Injury criteria will be listed and briefly explained. Any changes from those in the Restoration Framework will be explained.

B. How criteria are applied

The decision-making process for applying the injury criteria will be explained.

C. Conclusions: List of resources and services injured: tables/graphics of resources and services that meet the injury criteria

Presents summary of information on the range of injuries from the ecosystem level to individual resources and services as we now understand it. Injuries will be explained in terms of injured life history stages or user groups, the geography of the injury, and the status and prospects for natural recovery.

IV. Restoration Options

A. Explanation of restoration options

Briefly explains restoration options: their origins, the evolution of these public and professional ideas into options and the central importance of them to the plan.

B. Evaluate restoration options

1. Criteria for evaluating restoration options

Identifies and defines criteria that are used in evaluating and ranking candidate restoration options. Explains any changes from Restoration Framework.

2. How criteria are applied

Describes the process used in ranking options (as high, medium, or low) for each criteria. Includes a description of the process used to generate candidate restoration alternatives.

C. Evaluate habitat protection and acquisition options

1. Criteria for screening habitat protection and acquisition options

Identifies and defines threshold and other criteria.

2. How the criteria will be applied in the process of screening habitat protection and acquisition projects

Describes the evaluation process that will be used in identifying and prioritizing habitat for protection and acquisition. Includes description of imminent threat analysis for determining whether accelerated protection is required due to immediate threats to restoration potential.

V. Restoration Plan Alternatives

Indicates that this section presents a range of restoration alternatives. It explains that while a preferred alternative is presented, clearly no final decision will be made as to the selection of a preferred alternative until the public has had opportunity to comment and the Trustees can take full consideration of the public's opinion. The reason for presenting a preferred alternative at this time is the Trustee's desire to indicate direction at this point in the process and to facilitate compliance with the National Environmental Policy Act of 1969, as amended, i.e., simultaneous publication of the Draft Environmental Impact Statement.

A. Description of alternatives

3 - 5 Alternatives will be presented.

1. No action alternative (natural recovery)

Describes the scope and nature of the no action alternative. Explains reliance on natural processes and the limited activities that would occur. Distinguishes between these and the more

active restoration options presented in other alternatives.

2. Other alternative

Describes the scope and nature of one of the other alternatives (not including the preferred alternative). Presents a summary of the options included in the alternative and considers the following: responsiveness to recognized injuries and the proposed action, timing of implementation, geographic scope of application, and relative amounts of funding required for option categories presented in the alternative (e.g., management of human uses, habitat protection, etc.).

3. Preferred alternative

Describes the scope and nature of the preferred alternative. Presents a summary of the options included and considers the following: responsiveness of the alternative to recognized injuries and the proposed action, timing of implementation, geographic scope of application, and relative amounts of funding required for option categories (e.g., management of human uses, habitat acquisition and protection, etc.).

4. Other alternative

See annotation for V.A.2.

5. Other alternative

See annotation for V.A.2.

B. Comparison of alternatives

Describes the significant differences between the alternatives so the public can readily see the choices presented.

VI. Implementation Process for Life of the Settlement

A. Development of annual budget and work plans (i.e., selection of projects/studies for a given year legal compliance etc...)

Describes the process and timeline the Trustee Council will follow in prioritizing annual research and restoration needs.

B. Operations/Administration

How the Trustee Council, staff, etc. will operate the restoration program. This will include an organization chart/flow diagram of how restoration program will operate.

C. Funding mechanisms

1. Current mechanism

Describes the current funding mechanism (court registry account). Explains how the process functions and its effects on the nature, extent and future of the restoration program.

2. Endowment

Describes the various approaches to endowments that could be suitable for the restoration program. Explains how endowments could function and affect the nature, extent and future of the restoration program.

D. Monitoring/Evaluation

Presents elements of an integrated, long-term monitoring program designed to follow the rate of recovery of injured resources and services and to evaluate the effectiveness of restoration activities. Also presents an evaluation process to determine if plans, projects and related activities have been implemented as designed.

E. Public participation/Public education

Describes how the Trustee Council will continue to provide for meaningful public involvement over the life of the settlement. This will include information about the Public Advisory Group (i.e., the process used to establish it and any accomplishments to date) and all other efforts by Trustee Council staff to accomplish this goal.

Explains what actions the Trustee Council will take to provide for an appropriate level of public education about the restoration program. Although this is related to public participation efforts, it differs in that the Trustee Council will generate educational products relating to restoration. Educational efforts may, in part, take the form of annual work plan projects.

F. Amendments to the final Restoration Plan

Describes the process for amending the final plan.

Appendices

A. Restoration options

Summarizes all options and suboptions. The descriptions will be more detailed than those in the Restoration Framework.

B. Charter of the Public Advisory Group

Copy of the Public Advisory Group charter

List of PAG principal interests

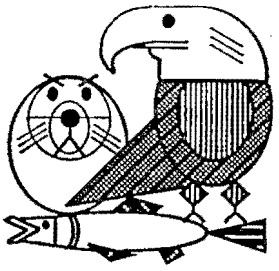
List of current PAG members and their affiliation

C. List of other publications

(i.e., 1990 Progress Report, etc...)

D. Court settlement documents

Exxon Valdez Oil Spill Trustee Council
Restoration Office
645 "G" Street, Anchorage, AK 99501
Phone: (907) 278-8012 Fax: (907) 276-7178



BUDGET DETAIL TO FOLLOW UNDER

SEPARATE COVER

11.1.102

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
FINANCIAL OPERATING PROCEDURES

Attached are the Exxon Valdez Oil Spill Trustee Council Financial Operating Procedures. The affixed pages shall constitute the initial procedures for financial management to ensure coordination and cooperation among the Trustee Council members. Approved by the members of the Trustee Council.

_____ Date_____

CHARLES E. COLE
Attorney General
State of Alaska

_____ Date_____

MICHAEL A. BARTON
Regional Forester
Alaska Region - USDA Forest Service

_____ Date_____

CARL L. ROSIER
Commissioner
Alaska Department of Fish and Game

_____ Date_____

CURTIS V. MCVEE
Special Assistant to the Secretary
U.S. Department of the Interior

_____ Date_____

JOHN A. SANDOR
Commissioner
Alaska Department of Environment Conservation

_____ Date_____

STEVEN PENNOYER
Director, Alaska Region
National Marine Fisheries Service

EXXON VALDEZ OIL SPILL RESTORATION PROGRAM

FINANCIAL OPERATING PROCEDURES

PREFACE

The objective of the Financial Operating Procedures is to ensure public trust and accountability while maximizing the Trustees' ability to use Exxon settlement funds for approved restoration activities. A flow chart of the Financial Operating Procedures is included as Appendix A. The principles and processes stated herein are based on the authorities conveyed by the Exxon Valdez Consent Decrees and all memoranda of agreement between the State and Federal governments. Financial management of Exxon settlement funds will be accomplished based on the following principles:

Maximum use will be made of existing agency administrative structures. Each of the Trustee agencies has established administrative personnel and financial management systems that will be used to the maximum extent possible. In addition to these procedures, activities carried out by a State or Federal agency will be conducted in accordance with existing agency operating procedures. Detailed Federal procedures are contained in Appendix F.

Federal and State agencies will use their administrative structures and process in support of the Administrative Director's office. These administrative services include such functions as contracting for office space, personnel services, payment of utilities, purchasing, and so on. Memoranda of agreement will be established, as necessary, between State and Federal agencies to ensure support is provided without interruption to the office of the Administrative Director. Additional memoranda for other purposes will be negotiated when necessary.

General administration expenses will be kept to a minimum and applied in a consistent manner by the Trustee agencies.

ANNUAL BUDGET

The Trustee Council will annually prepare and approve a current-year budget based on the Federal fiscal year (October 1-September 30). It is recognized that the 1992 expenditure work plan is a transition to the federal fiscal year; it is intended that budget decisions will conform to the federal fiscal year beginning October 1, 1992.

The following constitutes the annual Trustee Council expenditure work plan:

a) A budget for the office of the Administrative Director that includes salaries, benefits, travel, office space, supplies and materials, contractual services, utilities, general administration expenses, and such other items as may be necessary for the efficient operation of the Trustee Council, and the Restoration Team and its working groups. The proposed budget will be presented on the same budget forms as those used by any other project (for example, Forms 2A and 2B, shown in Appendix B).

b) A budget for the Restoration Team and all working groups will be presented as one project. Under that project, the Restoration Team and each standing working group will be budgeted as sub-projects. Each sub-project will show the cost of personnel, travel, contractual services, commodities, equipment, and general administration expenses. Authorized personnel will be

identified by position title, the number of months budgeted, and the total salary and benefit costs for those months budgeted. In addition, a budget for the Finance Committee will be prepared separate from the Restoration Team and its working groups. The proposed budgets will be presented on the same budget forms as those used by any other project (shown in Appendix B).

c) A budget for each field project will be summarized on budget forms shown in Appendix B.

While some projects may be completed in one year, others require funding over multiple years. Information must be provided on budget forms showing total estimated costs for completing the project. Expenditures are authorized by the Trustee Council annually. Funding a project for one year does not obligate the Trustee Council to provide funding for the same project in future years.

Instructions will be prepared by the Finance Committee for distribution to State and Federal agencies involved in developing project budgets explaining how to complete the budget forms. These forms are intended to collect information necessary for the Trustee Council and staff members to evaluate all funding proposals, and to meet standards of accountability customary to the State and Federal governments during and after implementation of the proposed project.

CALCULATION OF PROJECT COSTS

Proposals for expenditure made to the Trustee Council will be presented on the budget forms established by the Finance Committee, including budgets for the Administrative Director, the Restoration Team and its working groups, and all other projects.

General administration costs may be included for all separate budgets funded through the Trustee Council. There are two types of general administration costs that may be incorporated into project budgets:

1. 15 percent of each project's direct personnel cost. If, for a Trustee agency, the percentages indicated in this paragraph and (2) immediately below are applied to all approved projects for that agency and do not result in a total of $50,000, then the agency may choose to receive $50,000. In this case, the agency would budget the 15% for all approved projects but receive additional funds in a separate budget to reach $50,000.

2. Up to 7 percent of the first $250,000 of each project's contract costs, plus 2 percent of project contract costs in excess of $250,000.

These general administration funds are intended to pay indirect costs, such as office space, office utilities, fixed telephone charges, and all normal agency services for administering procurement, personnel, payroll, accounting, auditing and so on. A rate is used because measuring specific use of these services is expensive.

The $50,000 minimum is an amount negotiated among the six Trustee agencies, determined to be the base level of support for a Trustee agency regardless of the number of projects or other funding the agency may be allocated by the Trustee Council. The rates for contracts relate to the costs for monitoring and supervising contractors, a cost that does not increase proportionally with the size of the contract. These rates are somewhat less than normal for Federal agencies.

In addition, project budgets may include proposed expenditures in specific line items: personnel, travel, contractual,

commodities/supplies, equipment and capital outlay. The Trustee Council may provide funds for such expenses if they are directly tied to the execution of the project and are costs that would not otherwise be incurred by the agency. All budgets, including those for the Restoration Team and its working groups, may have such costs. The Restoration Team will evaluate each budget proposal to determine if the expenditures listed in the specific line items are acceptable in nature and amount.

ANNUAL BUDGET FORMULATION PROCESS

Formal proposals for funding must be made in the following manner. Forms 2A and 2B must be used to describe the costs associated with a proposed project. If more than one agency is involved, or if there are distinct sub-projects (such as working groups associated with the Restoration Team), then a 2A form must be used (excluding the detailed position information) to summarize the project costs, and the 3A and 3B form must be used to describe the portion of the project assigned to each agency or to each sub-project. Such detail is essential for financial accountability.

The standards and format for justifying a project are the responsibility of the Restoration Team, working in conjunction with the Finance Committee. Such information must be attached behind the budget forms. Project plans supporting project budgets should include appropriate measures of performance to ensure intended results are achieved.

Each agency shall prepare budget documents for all spending for which it will be responsible. This includes projects or sub-projects related to field projects; the Administrative Director and associated staff, and any means for providing support for the Administrative Director or the Trustee Council; the Restoration Team and its working groups; and the Finance Committee. These rules also apply when a project is proposed by a member of the public.

Prior to the presentation of the proposed projects to the Trustee Council, the Financial Committee will review them. This review will include an evaluation of compliance with these Financial Operating Procedures, and will be limited to the budget and fiscal management aspects of the proposed projects. The Finance Committee may submit its written comments and recommendations to both the Restoration Team and the Trustee Council.

In a public meeting, annually, the Trustee Council will consider projects proposed for funding and issue a proposed work plan for public review and comment. After the expiration of the period for public review and comment, the Trustee Council, in open session and with opportunity for comment, will review the proposed work plan and may make such changes in it as the Trustee Council deems appropriate. The Trustee Council will annually approve a final work plan.

Upon final approval of the budget by the Trustee Council, approved budget documents will be available to the public through the offices of the Administrative Director. Approved budget information will also be available through review and notification procedures adopted by the Sate and Federal governments.

BUDGET IMPLEMENTATION

Both the State and Federal governments allow for certain adjustments in funding amounts during the budget period. The Trustee Council agrees that a certain amount of funding flexibility is necessary when projects are being carried out, and that limited amount of funding transfers

between projects may be appropriate. The rules governing transfers are as follows:

a) The Trustee Council authorizes agencies to transfer funds between projects up to the cumulative amount of $25,000 or up to 10% of the annual spending level for each affected project, whichever is less. Calculation of these limits is based on the amounts authorized by the Trustee Council. The limits on funding transfers are set with the understanding that such transfers will not alter the underlying scope or objectives of the project, and apply to both increasing and decreasing project funding. In addition, it is the responsibility of each agency, for future verification and audit, to record authorization to make such transfers and the purpose of each funding change.

For multi-agency projects, the concurrence of the lead agency must be obtained before moving funding into or out of a sub-project. Funding may be moved among the three State agencies and the three Federal agencies, and between State and Federal agencies, according to the limits shown above, if agencies responsible for projects gaining and losing funds agree to the transfer, Changes in authorized funding for each project must be reported on the next quarterly expenditure report, using Form 4, shown in Appendix B.

b) The Trustee Council may approve transfers in amounts greater than that authorized in a) above, without public notification other than a general agenda item in its public meetings, so long as such transfers do not change the scope or objectives of the projects. Transfers are subject to current State or Federal financial operating procedures and laws. Agencies must send requests for such transfers, using Form 5, shown in Appendix B, to the Administrative Director for submission to the next Trustee Council meeting. Approval must be obtained before the transfer is made.

c) The Trustee Council may increase or decrease the funding for an approved project that changes the scope or objective of the project, create a new project, or terminate an approved project during the budget year only after public notification of the proposed changes prior to the meeting. Such decisions by the Trustee Council will be made in a public meeting after giving the public an opportunity to comment on proposed changes, both at the meeting and through written comments submitted prior to the meeting. Public notification of the meeting will include a brief description of the project and the proposed change.

d) Project managers may transfer, within a single project, budgeted funds between object classes (such as personnel, travel, and contractual costs), and may change detailed items of expenditure, including specific personnel, to accommodate circumstances encountered during budget implementation. Such transfers are reported by agencies in the quarterly expenditure reports, simply by recording expenditures in the object classes where each expenditure was actually made. However, agencies may be subject to normal budget and administrative procedures regarding transfers established by the State or Federal government.

TRANSFER OF EXXON SETTLEMENT FUNDS FROM THE COURT REGISTRY

Upon completion of public review and comment on the proposed annual work plan, the Federal members of the Trustee Council shall submit to their Departments, through normal channels, the Federal portion of the budget

then agreed upon by the Trustee Council for appropriate review and approval. It is expected that such review, including that of the Office of Management and Budget, will be completed within 30 days of receipt in Washington. Similarly, with respect to the State portion of the budget, State members of the Trustee Council will take appropriate action to comply with State requirements. Upon notification of Federal Executive Branch approval of the Federal portion of the budget and similar notification from the State Executive Branch, the Trustee Council will request the State of Alaska Department of Law and the U.S. Department of Justice to petition the Court for release of settlement funds (See Appendix E) and the transfer of these funds, respectively, to the U.S. Department of the Interior Natural Resource Damage Assessment and Restoration (NRDA&R) Fund and to an account designated by the State of Alaska.

If the review process of either government results, in the opinion of one government, in an undue delay in filing a petition with the Court which would adversely impact it, the Trustee Council will, upon written request of the concerned government, provide appropriate consent for a joint petition to the Court for funds to be used for the activities identified in the budget approved by the Trustee Council for that concerned government.

When calculating the amount of funds requested from the Court, interest previously earned from settlement funds held by the Federal and State governments and unobligated balances will be subtracted from the spending plans approved by the Trustee Council.

ACCOUNTING AND REPORTING

Trustee agencies will maintain accountability for the expenditure of Exxon settlement funds using generally accepted accounting principles and Federal and State accounting procedures. As a minimum, these procedures will identify expenditures as approved in the annual work plan with supporting documentation. State and Federal agencies shall account separately for their respective portion of each project.

Within thirty days following the end of each calendar quarter, State and Federal agencies will report expenditures and obligations recorded at the end of the quarter to the Administrative Director. Agencies will submit expenditure/obligation reports (Form 4, shown in Appendix B) to the Administrative Director's office (where multi-agency or multi-subprojects will be consolidated) for review by the Finance Committee. Following review and approval by the Finance Committee, the Administrative Director will submit this information to the Trustee Council at its next meeting. The first report should be for the quarter ending September 30, 1992.

By November 30 of each year, agencies will report to the Administrative Director expenditures/obligations for the twelve month period ending September 30. The expenditure report should be generated from normal computerized accounting reports and must include at least the same level of detail as provided on the budget forms 2A and 2B. This requirement is in addition to the audit requirements described below. If an agency is responsible for a portion of a project, it will report on the sub-project assigned to it.

The Administrative Director, with assistance of the Restoration Team and the Finance Committee, will submit to the Trustee Council, by December 31, an annual accomplishment and expenditure report; reports of cash balances as of September 30 of the NRDA&R Fund, Federal agency and equivalent State accounts; and interest earned for the Federal fiscal year from funds contained within those accounts. In addition, the

Finance Committee will report the September 30 balance of the Federal/State of Alaska Joint Fund held by the Registry of the Court.

The Federal government will adopt internal rules governing the information required to transfer cash received from the Court Registry, through the NRDA&R Fund, to Federal agencies incurring expenditures. The estimated expenditures will provide the basis for transfer of Exxon settlement funds from the NRDA&R Fund to the appropriate agency accounts. Money held in the NRDA&R Fund will earn, and retain, interest.

State agencies, operating under a unified accounting system, will draw from the account containing funds transferred from the Court Registry. Quarterly disbursements will not be necessary, and all unexpended funds received from the court will earn interest and be retained in the fund established to account for the settlement funds.

AUDITS

Accountability for the expenditure of settlement funds is of critical importance to maintaining public trust and confidence. Each Federal agency and the State of Alaska have Federally and State-approved audit functions, respectively. Periodic audits of Exxon settlement expenditures and financial controls will be conducted in accordance with established policy. The Finance Committee will report to the Trustee Council an annual schedule of audits, and any complaints by auditors of lack of cooperation from agencies being audited. The Finance Committee will recommend audits be performed by private accounting firms, when necessary. Further, the Finance Committee will review completed audits to bring significant issues, or the absence of such issues, to the attention of the Trustee Council. The Finance Committee will deliver at least one copy of all completed audits to the Administrative Director's office, which will be available to the public. Additional Federal procedures are contained in Appendix F.

MANAGEMENT OF EQUIPMENT

Generally, all equipment purchased with Exxon Valdez settlement funds, at a cost of $500 or more, and other sensitive items as defined by State and Federal procedures, will be used for purposes directed by the Trustee Council.

Agencies shall use normal agency procedures for identifying equipment. By December 31 of each year, agencies must report to the Administrative Director all such equipment which is still functioning or has value. Agencies must also report all such equipment which during the previous fiscal year ceased to function or have value. These pieces of equipment need not be reported in future years.

Pending legal consultation, additional detailed provisions governing the use and disposal of such equipment will be forthcoming.

FINANCE COMMITTEE CHARTER

Membership is composed of three State representatives, three Federal representatives, and the Administrative Director (ex officio). A representative is appointed by each Trustee Council member.

The Finance Committee reports to the Trustee Council. The Finance Committee is to develop necessary financial procedures, enforce adherence to those procedures adopted by the Trustee Council, and ensure that specific actions of the Administrative Director, Restoration Team and its working groups, and State and Federal agencies conducting activities funded through the Trustee Council, meet or exceed financial

management standards for accountability, efficiency and effectiveness. Such standards may be customary or specifically established by the Trustee Council, but must be sufficient to maintain public trust.

It is in the best interest of the Trustee Council that the Finance Committee, though independent of the Restoration Team, work cooperatively with the Restoration Team. The Restoration Team, whenever appropriate, will be informed of Finance Committee concerns and will be involved in remedying conditions giving rise to those concerns.

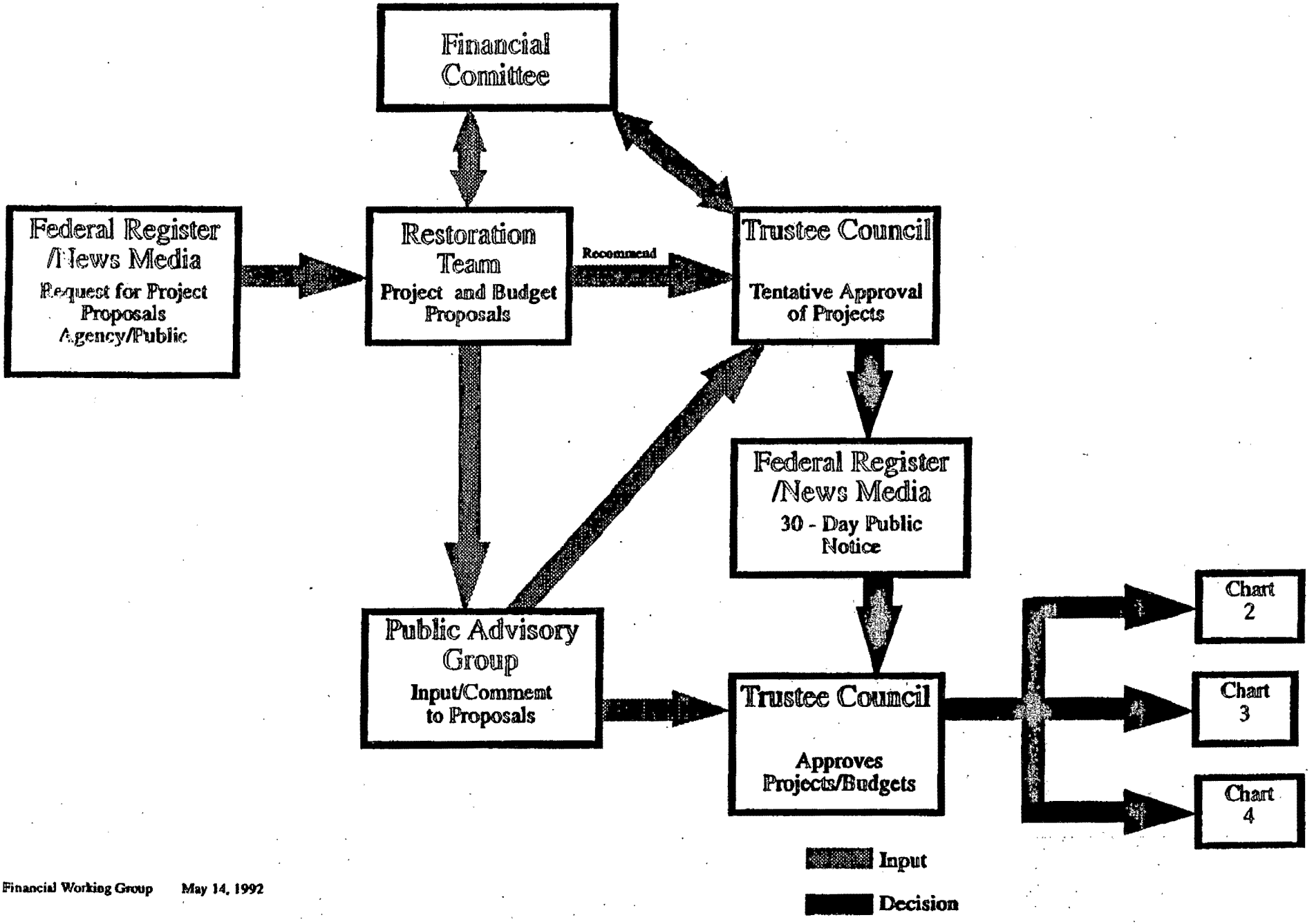
The Finance Committee is responsible for reporting directly to the Trustee Council on the following issues:

	Issue	When
1.	Recommend audits for scheduling, present a schedule of audits, report presence or absence of problems warranting Trustee Council attention.	Annually, by December 31
2.	Ensure the proposed annual budget, information and documentation are reasonably complete, and agencies can reasonably carry out financial management of the project.	Annually, at the same time as the Restoration Team presents the proposed budget.
3.	Ensure expenditure reporting is occurring as required, and there are no obvious discrepancies or difficulties with project implementation.	Quarterly, and annually
4.	Report interest earned in NRDA&R Fund and State accounts.	Annually, by Dec. 31, and when funds are requested from the Court.
5.	Propose amounts agencies should be reimbursed for past oil spill related costs, and required documentation on those costs.	1992

11.1.10 L

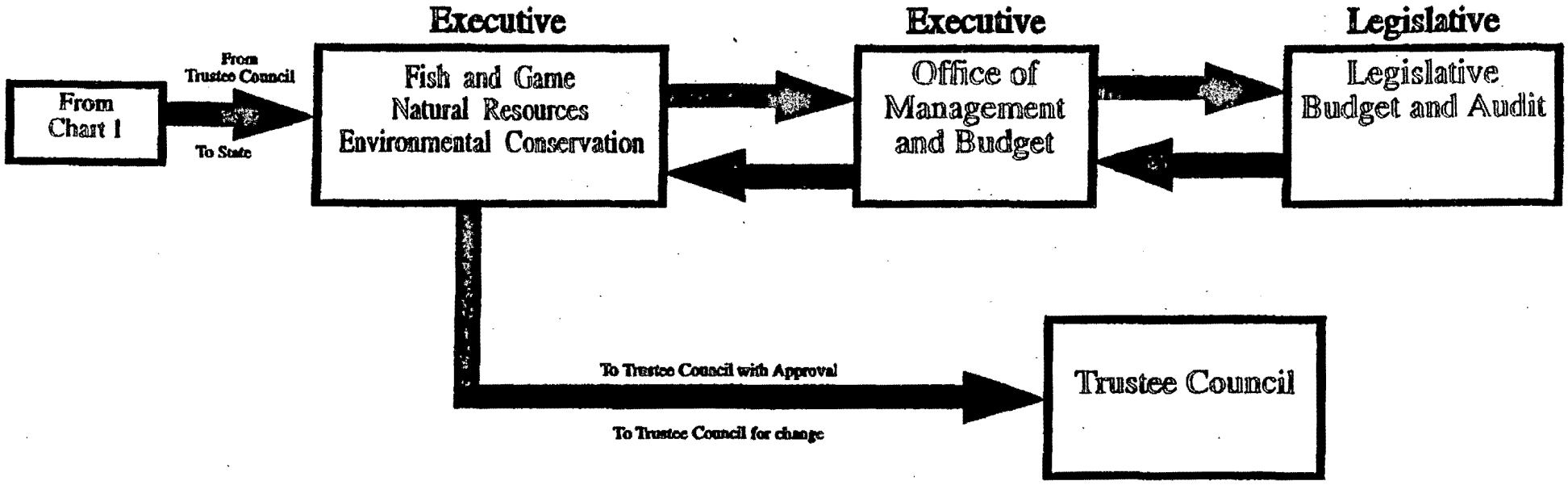
APPENDIX A
FINANCIAL OPERATING PROCEDURES
FLOW CHARTS

APPEN X A
FINANCIAL OPERATING PROCEDURES
(CHART 1)



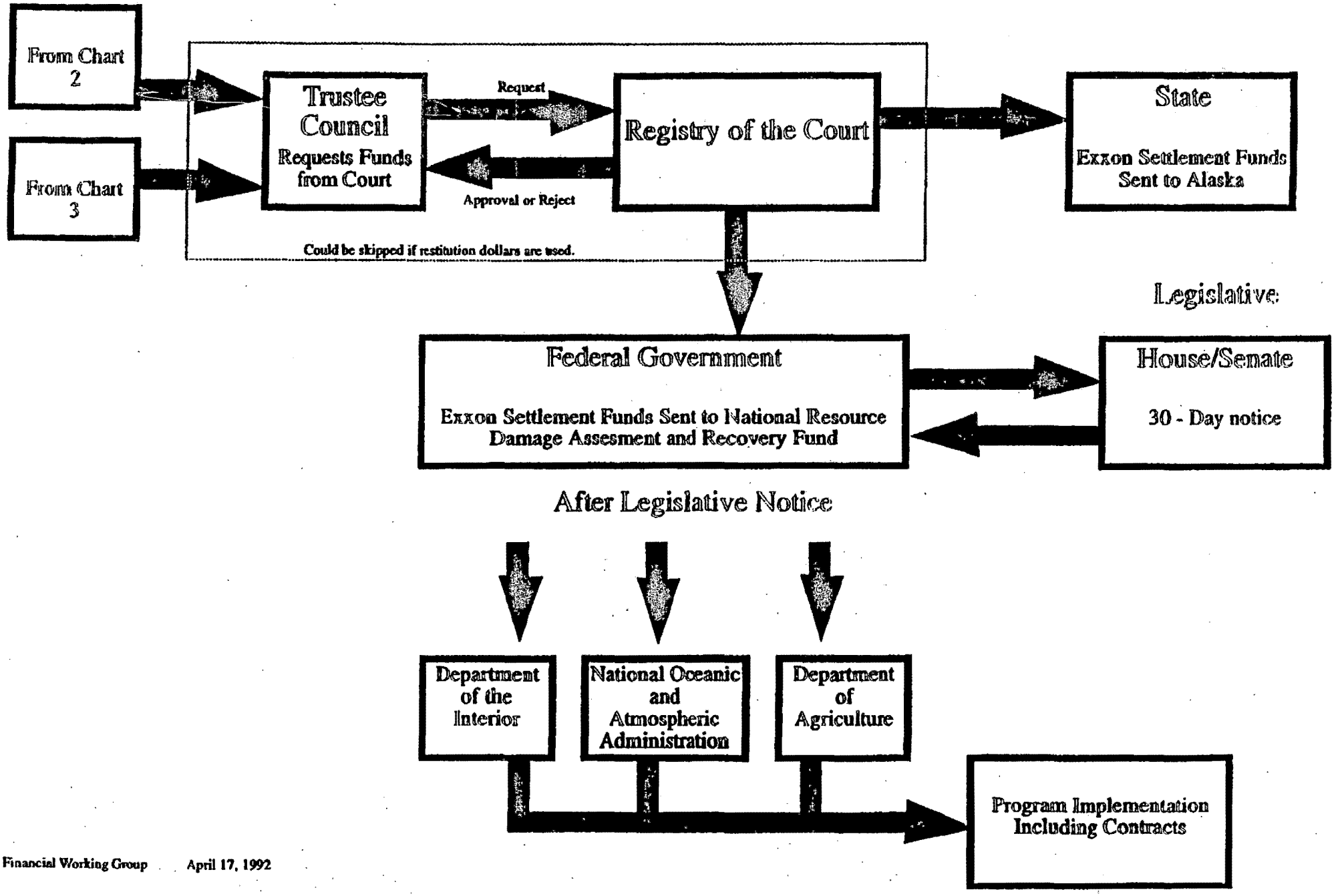
Financial Working Group May 14, 1992

APPEI IX A
FINANCIAL OPERATING PROCEDURES: STATE PROCESS
(CHART 3)

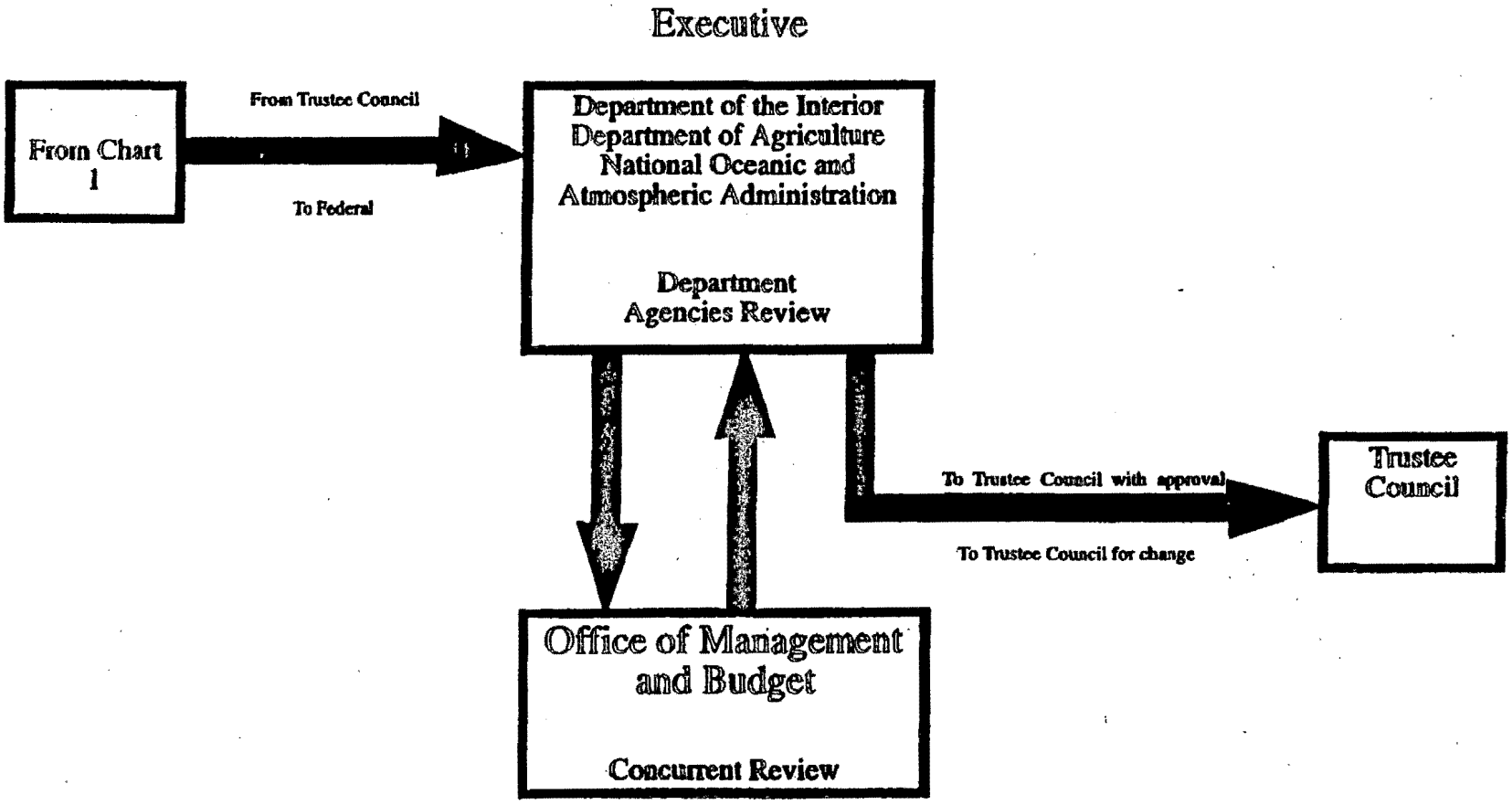


Financial Working Group May 14, 1992

APPENDIX
FINANCIAL OPERATING PROCEDURES
(CHART 4)



APPENDIX A
FINANCIAL OPERATING PROCEDURES: FEDERAL PROCESS
(CHART 2)



APPENDIX B

BUDGET FORMS

Budget forms, which will be used to display information for all projects proposed for funding through the Trustee Council, are shown on the following pages. Appropriate technical adjustments will be made every year.

APPENDIX C

STATE OF ALASKA PROCEDURES FOR PUBLIC NOTIFICATION AND REVIEW OF ANNUAL BUDGET

The State of Alaska adheres to an annual budget process, with the Governor required to release a draft annual budget plan on December 15 preceding the beginning of the fiscal year on July 1. Since the Trustee Council will approve projects for the period October 1 to September 30, the State will include in its budget process three months of one Federal fiscal year (July 1 to September) and nine months of the second Federal fiscal year (October 1 to June 30).

State of Alaska institutions are involved in the operations of the Trustee Council and the spending of settlement funds in three respects. First, heads of three executive branch agencies serve on the six-member Trustee Council. Second, members of the Alaska State Legislature have an interest in particular projects proposed for funding by the Trustee Council. Third, the Alaska State Legislature, in practice, authorizes all spending made by an executive branch agency, regardless of the source of the funds. The following process relates to the third aspect only.

After the Trustee Council makes its final budget decisions, the Alaska Office of Management and Budget will prepare, assisted if necessary by State agencies, documents reflecting Trustee Council approved spending plans for projects or sub-projects to be carried out by State agencies. These documents will include a project description, line-item proposed expenditures, and information on state employees to be paid from the project. No projects to be carried out by Federal agencies will be subject to the State review and notification process.

The budget documents will be submitted for review to the Legislative Budget and Audit Committee, as prescribe in Alaska Statute 37.07.080(h). Authorization to spend will be recorded in the Alaska State Accounting System. Accounting documents establishing authorization to spend will be prepared by the State agency responsible for carrying out the project or sub-project, and approved by the Office of Management and Budget.

Data on expenditures made in the prior budget year, the current year authorization to spend, and spending approved by the Trustee Council for the upcoming budget year will be provided to the Alaska State Legislature, for information, through the normal budget process. Normal budget documents will identify such past and proposed expenditures with a unique funding source code, and State employees to be paid from settlement funds will be identified along with the amount they will be paid from the settlement funds. Budget structure changes, such as new budget request units or budget components, may be created with approval from the Office of Management and Budget to consolidate Trustee Council projects and sub-projects.

APPENDIX D

FEDERAL GOVERNMENT PROCEDURES FOR PUBLIC NOTIFICATION AND REVIEW OF ANNUAL BUDGET

During budget formulation, the President establishes general budget guidelines (OMB annual guidance) and fiscal policy guidelines. Under a multi-year planning system, policy guidance and planning ceilings are given to agencies for both the upcoming budget year and for the four following years. The budget guidelines also provide the initial guidelines for preparation of agency budget requests.

ANNUAL BUDGET FORMULATION PROCESS

As a subset of this procedure, the Restoration Team will provide budget/program recommendations to the Trustee Council for consideration that will reflect the requirements for the upcoming fiscal year. (For the 1994 Federal budget, it is expected that budgetary information will be received from the Trustee Council beginning in June 1992.) These recommendations will include for each agency, a list of projects and their associated project numbers and costs, including multi-year costs. The project list will be used by the Restoration Team in making recommendations to the Trustee Council.

Upon approval of the projects by the Trustee Council, the Financial Committee will ensure that the preparation and submission of all Federal budget estimates are in accordance with OMB Circular A-11.

PRESENTATION

Presentation of the annual budget request should be consistent across Federal Trustee Agencies and in accordance with OMB Circular A-11. A new title and code will be established within the Departments of Agriculture, Commerce, and Interior. These title and code designations (referred to as "Budget Activity") will be solely dedicated to Exxon Valdez oil spill assessment and restoration activities.

The Budget Activity will have three sub-activities that will provide detailed justification required by OMB for inclusion in the Congressional budget submission. Exxon Valdez oil spill budgetary requirements will be displayed by the Federal Trustee Agencies in the budget justification materials as follows:

* Activity: Exxon Valdez Restoration Program
* Subactivity: Damage Assessment Program
* Subactivity: Restoration Program
* Subactivity: Administration

TRANSFER OF EXXON SETTLEMENT FUNDS FROM THE COURT REGISTRY

Federal funds from the Court Registry will initially be transferred to and deposited in the Department of the Interior's (DOI) Natural Resource Damage Assessment and Restoration (NRDA&R) Fund. Therefore, the DOI annual budget estimate will reflect all Federal budgetary requirements anticipated at the time of submission for continuing activities, new activities, amounts necessary to meet specific financial liabilities imposed by law, and amounts to be transferred to Federal Trustees for Exxon Valdez oil spill-related program activities. The Federal Trustees will reflect in their individual budgets, the amount of the transfer from the NRDA&R Fund account, and will submit all required budget justification materials to OMB for clearance prior to transmittal to Congress.

CONTENT

Required budget materials for the initial and subsequent budget submissions are listed in OMB Circular A-11. These materials will be submitted in accordance with the detailed instructions in the sections indicated and the arrangements made by OMB representatives. OMB guidelines specify requirements that apply only to certain Federal Agencies or under certain circumstances.

FORMAT

As a general rule, approval for changes in budget structure should be requested by October 1, unless OMB specifies an earlier date. Changes in budget structure include establishment of new accounts, changes in account titles, account mergers, changes in the sequence of existing accounts, and new methods of financing. Specific information and format requirements will be determined in consultation with OMB representatives. Advance approval must be obtained before modifications are made to the standard justification material requirements used to present program and financial information.

CONGRESSIONAL NOTIFICATION

According to Public Law 102-229, which is dated December 12, 1991, "Making dire emergency supplemental appropriations...", among other provisions, provided "...That, for fiscal year 1992, the Federal Trustees shall provide written notification of the proposed transfer of such amounts to the Appropriations Committees of the House of Representatives and the Senate thirty days prior to the actual transfer of such amounts..."

"Such amounts" refers to amounts received by the United States for restitution and future restoration in settlement of United States v. Exxon Corporation and Exxon Shipping Company and deposited into the NRDA&R Fund prior to the transfer of funds to the other Federal Trustees and notice to OMB. Congressional notification will be by letter from the Federal Trustees to the Chairpersons of the House and Senate Appropriations Committees.

The notification will include, in summary form, an estimate of the Exxon settlement funds that are to be expended from the NRDA&R Fund by the Federal Trustees and the projects and activities for which the funds are to be used.

PL 102-229 also required "...That, for fiscal 1993 and thereafter, the Federal Trustees shall submit in the President Budget for each fiscal year the proposed use of such amounts."

Because this requirement was not incorporated into the President's 1993 Budget, due to time constraints, it is anticipated that the same requirement that was made for the Federal Trustees in 1992 will also be required by the Congress in 1993.

APPENDIX E

PROCEDURE FOR REQUESTING MONEY FROM THE COURT REGISTRY

The memorandum of agreement between the State and Federal governments requires a joint application to the Court for funds. The U.S. Department of Justice and the Alaska Department of Law will make the application upon authorization to do so by a unanimous vote of the Trustee Council. The Trustee Council will specify, in its vote, the amount to request from the Court for deposit in the Natural Resource Damage Assessment and Recovery (NRDA&R) Fund and the fund established by the State of Alaska. The Court will be asked to deliver monies separately to the two governments.

The Administrative Director shall assist, if necessary, the Department of Justice and the Department of Law prepare documents (primarily those concerning project descriptions) comprising the application for funds.

The Resolution Form (w/blanks) developed by State and Federal Attorneys is as follows:

RESOLUTION OF THE
EXXON VALDEZ SETTLEMENT TRUSTEE COUNCIL

We, the undersigned, duly authorized members of the Exxon Valdez Settlement Trustee Council do hereby certify that, in accordance with the Memorandum of Agreement and Consent Decree entered as settlement of United States of American v. State of Alaska, No. A91-081 Civil, U.S. District Court for the District of Alaska, and after numerous public meetings, unanimous agreement has been reached to expend funds received in settlement of United States of America v. Exxon Corporation, et al., No. A91-082 Civil, U.S. District Court for the District of Alaska, and State of Alaska v. Exxon Corporation, et al., No. A91-083 Civil, U.S. District Court for the District of Alaska, for necessary natural resource damage assessment, restoration activities and administration from _____ to _____, according to the budgets appended hereto and totalling $_____. The moneys are to be distributed to the Trustee agencies according to the following schedule:

Alaska Department of Fish and Game	$
Alaska Department of Natural Resources	
Alaska Department of Environmental Conservation	_____
SUBTOTAL TO STATE OF ALASKA	$
U.S. Department of Agriculture	$
U.S. Department of the Interior	
U.S. National Oceanic and Atmospheric Administration	_____
SUBTOTAL TO UNITED STATES OF AMERICA	$

TOTAL BUDGET _____ to _____

We further certify that, by unanimous consent, we have requested the Attorney General of the State of Alaska and the Assistant Attorney General of the Environmental and Natural Resources Division of the United States Department of Justice to petition the United States District Court for the District of Alaska for withdrawal of the sum of $ _____ from the Court Registry account established as a result of the governments' settlement with the Exxon companies.

_____ Dated_____
MICHAEL A. BARTON
Regional Forester
Alaska Region
USDA Forest Service

_____ Dated_____
CHARLES E. COLE
Attorney General
State of Alaska

_____ Dated_____
CURTIS V. McVEE
Special Assistant
U.S. Department of the Interior

_____ Dated_____
STEVEN PENOYER
Director, Alaska Region
National Marine Fisheries Service

_____ Dated_____
CARL L. ROSIER
Commissioner
Alaska Department of Fish and Game

_____ Dated_____
JOHN A. SANDOR
Commissioner
Alaska Department of Environmental Conservation

APPENDIX F

ADDITIONAL FINANCIAL POLICIES AND PROCEDURES PERTAINING TO THE FEDERAL TRUSTEE DEPARTMENTS AND AGENCIES

As a result of differing financial/accounting policies and procedures utilized by the Federal and State governments, these additional policies set forth in this appendix apply solely to the Federal Trustee departments and agencies.

ANNUAL CERTIFICATION

Financial operating procedures and controls will be certified annually, similar to the process required by the Federal manager's Financial Integrity Act, the OMB Circular on Internal Control Systems. All Federal agencies and bureaus utilizing settlement funds will certify as of September 30, that such agency has operated in accordance with the financial operating procedures and that related controls have been implemented, and that based upon testing performed, the agency can provide reasonable assurance that financial operating procedures and controls are being complied with and are functioning as intended. This report will be completed annually, by October 31st. Such certification will take the form of a memorandum or letter, from each agency, to the Administrative Director for presentation to the Trustee Council and is available for public inspection.

BUDGET IMPLEMENTATION

For Federal agencies, the authority to move funds between object classes within a project is limited to a cumulative amount of $25,000 or up to 10% of the annual spending level for that project. For amounts of greater value, the procedures for approval by the Trustee Council shall apply (see paragraphs b) and c) at page 4).

AUDITS

An important objective of the Federal Chief Financial Officers Act is the identification of performance measures and the systematic measurement and reporting of performance in each project or activity undertaken. Therefore, project plans are periodically assessed. Then, the project managers should self-certify that the results were achieved.

Finally, when audits of projects are conducted specific procedures, to be recommended by the Finance Committee, should be incorporated in the audit program to review and express an opinion on the accuracy of certified performance. All Federal agencies using settlement funds will self-certify projects (for its files only) at the end of each fiscal year.

Project Idea Look-up Tables

11.1.10 K

EXXON VALDEZ OIL SPILL

1993 Projects and Ideas Tables, Introduction and Instructions

INTRODUCTION

The following tables recapture the process that was used to evaluate ideas submitted by the public and trustee agencies for work in 1993, transform some into project descriptions, and then determine whether these projects should be recommended to the Trustee Council for inclusion in the 1993 Draft Work Plan.

A request to the public and trustee agencies for ideas was made in April and idea suggestions were accepted through most of June. While the Restoration Team requested that ideas be submitted on a standard prepared format, all correspondence was evaluated to determine whether it contained statements which could be considered to be "ideas". Thus any suggestion proposing any damage assessment or restoration activity (including purchase of land or moratoria on development of land) was considered to be an idea. Each piece of correspondence received a document identification number. Each significant comment or idea within a document was assigned an extension number. Critical information about each document, comment and idea was recorded in a data base. Sometimes precisely the same idea would be submitted more than once and would be noted as a duplicate. Similar ideas would often be combined and evaluated as a group. These ideas or groups of ideas were then judged against a set of criteria which determined what would then be developed as three page brief project proposals for inclusion in the 1993 Draft Work Plan. Lead trustee agencies or subgroups of the Restoration Team were then assigned to write the project descriptions based primarily upon their areas of resource management responsibility. Thus, an idea, whether received from the public or an agency, would nevertheless be developed into a proposal by a trustee agency.

The resulting proposals were evaluated according to technical merit first and then as to whether they should be part of the Restoration Team's recommendation to the Trustee Council for inclusion in the 1993 work plan.

Project/Idea Tables

The project/idea tables should enable anyone to track the fate of any idea submitted. In these tables, initials of one of the trustee agencies appear in the lead agency column. An explanation of these initials is found on the cover page for this and every table. The lead agency for some projects has yet to be determined and is purposefully left blank. The recommendations factor column displays a numerical code for the criteria which were used to evaluate an idea or group of ideas prior to preparation of a three page brief proposal. Explanation of the codes appears at the bottom of each

page. If ideas were not legal, technically feasible, or linked to an EVOS-related injury, they were rejected. If they were a damage assessment project and previously funded for closeout in 1992, or attempted to assess damage where injury was not apparent, they were rejected. A restoration idea was not recommended if there was no apparent restoration endpoint. A restoration plan is being prepared against which ideas will later be compared. Since a plan is not currently in place, restoration ideas which were not time critical or a lost opportunity if not conducted in 1993 were not recommended for funding this year though they may be considered in future years. The evaluation comments column to the right of the recommendation factors column often explains the factors further.

As noted above, only those ideas which passed the recommendation factors criteria evolved into three page proposals. The voting record column and the costs column is found only in the projects table because these are the project ideas which the RT is forwarding to the Trustee Council for consideration. Within this set however, the RT wished to assign priorities, and they did this by recording each RT member's recommendation as to whether to include a project in the 1993 work plan.

The tables which follow are:

Proposals Table The first column of this table displays the project number assigned to a three-page brief proposal and all of the ideas which were considered in developing that proposal. Each RT member's recommendation to include this in the 1993 work plan is displayed. The cost column displays the current request for this project though the combined costs for all component ideas from which this was developed may have originally been much greater. The project title is usually an attempt to describe a unified concept the project ideas represented.

Rejected Table Often several ideas were combined and then rejected as a whole on the basis of the recommendation factors noted. The data base combined all component ideas with the document listed at the top of each set of document idea numbers appearing in the document identification number column as was done for the project idea table. However, in this case, creation of a unique name was considered unnecessary. Therefore, what appears in the title column in this table is simply the name of the idea with which all other ideas in a set were combined.

Endowment Table A number of ideas were submitted suggesting endowments. This table lists these by document identification number. These ideas were not assigned to a specific project, but will be evaluated by a subgroup of the Restoration Team for presentation later to the Trustee Council.

Ideas Table, Sorted by Document Identification Number This table indicates whether a document was combined with another and whether lead documents were rejected or passed on to the 3 pager stage.

Ideas Table, Sorted by Idea Title This table contains the same information as the previous one, but allows someone to determine the fate of an idea when the user does not know the submitter's name or the document identification number.

Correspondence Table, Sorted by Submitter's Name A submitter will go to this table to find the document identification number and extension assigned to his or her idea. If the idea is a duplicate, note the identification number of the idea of which it is a duplicate. These numbers will be necessary in order to track the document in other tables.

INSTRUCTIONS FOR USING THE TABLES

1. Submitters trying to find the fate of their ideas would first look up their names in the correspondence table. Curious table users who did not submit ideas could look up title ideas in the ideas table sorted by title. Both would then determine the document identification number of the idea in which they were interested.

2. Users would then proceed to the ideas table sorted by document identification number. If the idea in question were combined with another, the users would then look up that lead identification number to determine the fate of all projects combined with the lead number. Projects which passed on to the 3 page project proposal stage would note the project number to which the approved ideas had been assigned.

3. Using the project number for passed ideas, the table user could then go to the project table, determine what other projects had been combined with theirs and the RT recommendations on that project.

4. For rejected ideas, the table user could go to the rejected tables to determine what other ideas had been combined into a single set, and then rejected and why.

EXXON VALDEZ OIL SPILL

1993 Proposals Table

This table allows users to determine what ideas were used to prepare 1993 brief project proposals by noting the contributing document idea numbers. Use these numbers to go to the "Ideas Table, Sorted by Document Identification Number" for more information. The "Proposals Table" also displays recommendation factors and evaluation comments which were considered before requesting preparation of brief proposals for these ideas. An absence of entries in the factors or comments columns indicates a good fit with criteria. In some cases the evaluation comments were more extensive than could be supported by the computer program used to create these tables. In these few instances, the complete comments are available upon request. In most cases, the designated lead agency prepared the brief proposal even if it was based on ideas submitted exclusively by the public. In several cases no lead agency is designated. These proposals were usually prepared by work groups set up by the Restoration Team. The Voting Record refers to whether individual Restoration Team members would like to see a project included in the 1993 work plan based on review of the brief project proposal. Cost refers to the current proposed cost regardless of costs appearing in the contributing ideas.

ABBREVIATION KEY:

FIELD	CODE	EXPLANATION
Lead Agency	ADEC	Alaska Dept. of Environmental Conservation
	ADFG	Alaska Dept. of Fish and Game
	ADNR	Alaska Dept. of Natural Resources
	DOI	United States Dept. of the Interior
	NOAA	National Oceanic and Atmospheric Administration
	USDA	United States Dept. of Agriculture

September 1992

Exxon Valdez Restoration 1993
Project Ideas

09/10/92 18:03:58

Project Num. Document ID#	Project Title	Lead Agency	Recommend. Factors	Evaluation Comments	Voting Record NOAA	ADNR	USDI	ADEC	USDA	ADFG	Cost
93001 920615298.28 920602084. 1 920615298.12	Recreation Resources Damage Assessment	USDA	6,	EVOS-linked impact unknown. Tailor study to determine whether injury has occurred to recreational services.	N	N	N	N	N	N	609600.
93002 920615297.32	Sockeye Overescapement	ADFG	7,		Y	Y	N	Y	Y	Y	714600.
93003 920615258. 3 920615297.37	Pink Salmon Eggs to Pre-Emergent Fry Survival in Prince William Sound	ADFG		Moved from damage assessment to management action. Valuable information will be gained on a yearly basis.	Y	Y	Y	Y	Y	Y	686000.
93004 920615297.33 920615298.42	Documentation, Enumeration, and Preservation of Genetically Discrete Wild Populations of Pink Salmon Impacted by EVOS in Prince William Sound	ADFG		Move from Damage Assessment to Management Action. Target pink salmon only - one year study.	Y	Y	N	Y	Y	Y	899100.
93005 920615296. 3 920615298.22 920615273.10 920615273.11 920601058.12 920615298.18 920601051. 3	Cultural Resources Information, Education and Interpretation	USDA		Develop brief 3 page description for public education.	Y	Y	Y	Y	Y	Y	400900.

KEY TO RECOMMENDATION FACTORS

1 = No linkage to Exxon Valdez Oil Spill, 2 = Not technically feasible, 3 = Inconsistent with laws or policies, 4 = Project previously funded for close-out, 5 = 1993 Close-out project, 6 = New Project where injury is apparent, 7 = Damage assessment continuation, 8 = No restoration endpoint, 9 = Not time critical 10 = No lost opportunity if not conducted in 1993, 11 = Involves long-term commitment.

Project Num. Document ID#	Project Title	Lead Agency	Recommend. Factors	Evaluation Comments	Voting Record NOAA	ADNR	USDI	ADEC	USDA	ADFG	Cost
93006 920615273. 8 920615273. 9	Site-specific Archaeological Restoration	DOI		Ensure prioritization of most important sites.	Y	Y	Y	Y	Y	Y	258600.
93007 920615298.20 920615273.14 920615296. 4	Archaeological Site Stewardship Program	DOI			Y	Y	Y	Y	Y	Y	193300.
93008 920615273.12 920615273.13	Archaeological Site Patrol and Monitoring	DOI		DOI-USFWS	Y	Y	Y	Y	Y	Y	295800.
93009 920615298.25 920622326.12 920615298.11 920615298.39 920612348. 4 920615298. 6 920604104. 1 920612237. 5 920604114. 1 920615298. 5 920622326.14 920622326.13 920615298. 7 920615298. 4 920615298. 9 920615298.26	Public Information, Education and Interpretation	USDA		USDA is lead - cooperate with others. Should have wide range of activities, but no construction.	Y	N	Y	Y	Y	Y	316700.

KEY TO RECOMMENDATION FACTORS

1 = No linkage to Exxon Valdez Oil Spill, 2 = Not technically feasible, 3 = Inconsistent with laws or policies, 4 = Project previously funded for close-out, 5 = 1993 Close-out project, 6 = New Project where injury is apparent, 7 = Damage assessment continuation, 8 = No restoration endpoint, 9 = Not time critical 10 = No lost opportunity if not conducted in 1993, 11 = Involves long-term commitment.

Project Num. Document ID#	Project Title	Lead Agency	Recommend. Factors	Evaluation Comments	Voting Record NOAA	ADNR	USDI	ADEC	USDA	ADFG	Cost
93010 920615273.19 920615279.18	Reduce Disturbance Near Murre Colonies Showing Indications of Injury from the EVOS	DOI			Y	N	Y	N	Y	N	56800.
93011 920615297.30	Develop Harvest Guidelines to Aid Restoration of River Otters and Harlequin Ducks	ADFG			Y	Y	N	Y	Y	Y	11200.
93012 920615297.35	Genetic Stock Identification of Kenai River Sockeye Salmon	ADFG	1		Y	Y	N	Y	Y	Y	300600.
93013 920615297.39 920615297.40	Combined with 93004	ADFG									
93014 920615297.17	Quality Assurance for Coded Wire Tag Application in Fish Restoration Projects	ADFG			Y	N	N	Y	Y	Y	94800.
93015 920615297.43	Kenai River Sockeye Salmon Restoration	ADFG	1		Y	Y	N	Y	Y	Y	732600.
93016 920615294. 5	Chenega Chinook and Coho Salmon Release Program	ADFG	9,	EVOS-linked impact unknown. Technical feasibility unknown. Needs to be run through Regional Planning Team and obtain licensing,etc. Not time critical	Y	Y	N	Y	Y	Y	25900.

KEY TO RECOMMENDATION FACTORS

1 = No linkage to Exxon Valdez Oil Spill, 2 = Not technically feasible, 3 = Inconsistent with laws or policies, 4 = Project previously funded for close-out, 5 = 1993 Close-out project, 6 = New Project where injury is apparent, 7 = Damage assessment continuation, 8 = No restoration endpoint, 9 = Not time critical 10 = No lost opportunity if not conducted in 1993, 11 = Involves long-term commitment.

Project Num. Document ID#	Project Title	Lead Agency	Recommend. Factors	Evaluation Comments	Voting Record NOAA	ADNR	USDI	ADEC	USDA	ADFG	Cost
93017 920615273.37 920615294. 6 920615297.10	Subistence Restoration Project	ADFG		To coordinate with other MMS studies and Interior and with Health Task Force. Focus on involving local communities and on "believeability".	Y	Y	Y	Y	Y	Y	281200.
93018 920615297.28 920615298.34	Enhanced Management for Wild Stocks in Prince William Sound, Special Emphasis on Cutthroat Trout and Dolly Varden	ADFG		Reduce to 2 years; address some technical concerns. Coordinate with Ken Holbrook on technical concerns.	Y	Y	N	Y	Y	Y	285200.
93019 920615270. 2	Chugach Region Village Mariculture Project	ADFG	9,10,	Consistency w/laws and policies unknown. Approved for economic and feasibility studies only. Feasibility is not long-term commitment. Concentra	N	N	N	N	N	N	589100.
93020 920612242. 1 920615297. 7 920514006. 1	Bivalve Shellfish Hatchery and Research Center	ADFG	9,10,	Approved - for feasibility study for bivalves.	Y	N	N	Y	N	Y	55700.
93021 920611233. 2	Restoration of Murres by Way of Transplantation of Chicks-Feasibility Study	DOI		Technical feasibility unknown.	N	N	N	N	N	N	
93022 920611233. 1	Evaluation to Feasibility of Enhancing Productivity of Murres by using Decoys, Dummy Eggs, and Recordings of Murre Calls to Simulate Normal Densities	DOI		Technical feasibility unknown.	Y	Y	Y	Y	Y	Y	281000.

KEY TO RECOMMENDATION FACTORS

1 = No linkage to Exxon Valdez Oil Spill, 2 = Not technically feasible, 3 = Inconsistent with laws or policies, 4 = Project previously funded for close-out, 5 = 1993 Close-out project, 6 = New Project where injury is apparent, 7 = Damage assessment continuation, 8 = No restoration endpoint, 9 = Not time critical 10 = No lost opportunity if not conducted in 1993, 11 = Involves long-term commitment.

Project Num. Document ID#	Project Title	Lead Agency	Recommend. Factors	Evaluation Comments	Voting Record NOAA	ADNR	USDI	ADEC	USDA	ADFG	Cost
93023 920615291. 2 920615297. 6 920615294. 1 920618316. 2	Combined with 93038	ADEC		Funding contingent upon feasibility study results.							
93024 920615297.72	Restoration of the Coghill Lake Sockeye Salmon Stock.	ADFG		Drop from 93 budget Forest Service portion of cost, as it is already paid for. (A portion of FS budget to be dropped. Work with F.S. biologist. KH)	Y	Y	N	Y	Y	Y	191800.
93025 920615298.37	Montague Island Chum Salmon Restoration	USDA			Y	Y	N	Y	Y	Y	81500.
93026 920615297.48	Fort Richardson Hatchery Water Pipeline	ADFG	11	Is a replacement action for lost services. Is also an exception to long-term commitment criteria.	N	N	N	Y	Y	Y	3617000.
93027 920615294. 3 920528045. 1	Combined with 93038	ADEC	11	Budget estimate seems very low. Type A manual pick-up believed to be not appropriate. Machine clean-up needed, so also conisder.							
93028 920615298.35	Restoration and Mitigation of Essential Wetland Habitats for injured Prince William Sound Fish and Wildlife Species	USDA	9,10,	EVOS-linked impact unknown. But consider for limited implementation project.	Y	Y	N	Y	Y	Y	82100.

KEY TO RECOMMENDATION FACTORS

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Project Num. Document ID#	Project Title	Lead Agency	Recommend. Factors	Evaluation Comments	Voting Record NOAA	ADNR	USDI	ADEC	USDA	ADFG	Cost
93029 920615298.54	Prince William Sound Second Growth Management	USDA	9,10,	Revisit as limited implementation project.	Y	Y	N	Y	Y	Y	62000.
93030 920615297.69	Red Lake Restoration	ADFG	9,10,	Continuation of R113.	Y	Y	N	Y	Y	Y	77200.
93031 920615297.70	Red Lake Mitigation for Red Salmon Fishery	ADFG		ADOL - this would be legal since it would restore services. USDOI - also legal.	Y	Y	N	Y	Y	Y	153700.
93032 920615297.20 920615297.23	Pink and Cold Creek Pink Salmon Restoration	ADFG	9,10,1	Long term commitment is based upon associated bioenhancement of habitat above the stream. Approved for 20 and 23. Rejected for 21 (duplicate form).	Y	Y	N	Y	Y	Y	36100.
93033 920615297.31 920611233. 6 920615279.15 920615273. 2	Harlequin Duck Restoration And Monitoring Study in Prince William Sound, Kenai, Afognak and Alaska Penisula Oil Spill Areas	ADFG		No workshop and to be covered by peer review synthesis. Limit to oiled areas, but consider looking outside oiled areas if critical. Study to also	Y	Y	Y	Y	Y	Y	506600.
93034 920615273.23	Pigeon Guillemot Colony Survey	DOI		Restoration endpoint better defined in 3 pager.	Y	Y	Y	Y	Y	N	165800.

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93035 920615273.17	Potential Impacts of Oiled Mussel Beds on Higher Organisms: Contamination of Black Oystercatchers Breeding on Persistently Oiled Sites in PWS	DOI		Answer to criteria about restoration end-point, 1993 work critical and opportunity lost are all "yes" if tied to mussel beds.	Y	Y	Y	Y	Y	Y	107900.
93036 920615258. 1 920615273. 4	Recovery Monitoring of Intertidal Oiled Mussel Beds in Prince William Sound and the Gulf Of Alaska Impacted by EVOS	NOAA		Focus work on known sites that have previous records (documentation). Tailor new surveys focusing on newly discovered site located by other indivi	Y	Y	Y	Y	Y	Y	404800.
93037 920610230. 1	Experimental Evaluation Of Oiled/control Paired Design Used In Assessing Damage and Recovery of Inter and Subtidal Communities	NOAA		Careful attention to what is an oiled area and what is a control area in the technical approach (Treatment History).	N	N	N	N	N	N	201700.
93038 920615290. 1	Shoreline Assessment	ADEC			Y	Y	Y	Y	Y	Y	520700.
93039 920618316. 3 920610229. 1 920610229. 2 920616307. 1 920615297.19	Herring Bay Experimental and Monitoring Studies	ADFG	9,10,	Approved and combined with 6307, 229-01. Lead Agency ADF&G, cooperate with NOAA. Macrocystis will not survive in upper intertidal; therefore	Y	Y	Y	Y	Y	Y	516100.
93040 920615264. 1	Long term Ecological Recovery Monitoring Program	NOAA		Technical feasibility unknown. ADOL and USDOI believe this is legal.	Y	N	N	N	N	N	234000.

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93041 920615262. 2 920526039. 1	Comprehensive Restoration Monitoring Program Phase II: Monitoring Plan Development	NOAA		Delete implementation portion.	Y	Y	Y	Y	Y	Y	237900.
93042 920615261. 2 920514005. 1 920514001. 1 920615261. 1	Recovery Monitoring of Prince William Sound Killer Whales Injured by the EVOS using Photo Identification Techniques	NOAA		EVOS-linked impact unknown. Combined with 261-01, 005-01 and approved.	Y	N	N	Y	Y	Y	127100.
93043 920615273.15 920615279.14 920601058. 8	Sea Otter Population, Demographics and Habitat Use in Areas Affected by the EVOS	DOI		Approved. Combine with 279-14, 058-08	Y	Y	Y	Y	Y	N	291900.
93044 920615273.16	Combined with 93043	DOI		Only for 1993, not for 1994. Copy to Habitat Protection for information. HPWG should track results.							
93045 920615273.22	Surveys to Monitor Marine Bird and Sea Otter Populations in Prince William Sound During Summer and Winter	DOI		Objective A only. Only PWS boat surveys.	Y	Y	Y	Y	Y	Y	262400.
93046 920615297.14 920615297.15	Habitat Use and Behavior of Harbor Seals in Prince William Sound	ADFG			Y	Y	Y	Y	Y	Y	230500.

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Project Num. Document ID#	Project Title	Lead Agency	Recommend. Factors	Evaluation Comments	Voting Record NOAA	ADNR	USDI	ADEC	USDA	ADFG	Cost
93047 920618315. 1 920612236. 4 920615263. 1 920615259. 1 920615297.12 920615297.24	Recovery of Sediments, Hydrocarbon-degrading Microorganisms, Eelgrass Communities, and Fish in the Shallow Subtidal Environment.	NOAA		Applied Marime Science to write one 3-pager for subtidal.	Y	Y	Y	Y	Y	Y	1000700.
93048 920615298.48	Communication System for Oil Spill Program	USDA	10,	Lead agency FS with ADEC cooperating. Tailor proposal to maintain existing FM system while gathering information on converting to a cellular system.	N	N	N	N	N	N	1.E7
93049 920615273.18 920615279.19	Combined with 93022	DOI		Go to 3-pager and set estimated duration of project at one year only.							
93050 1234567. 9	Update: Restoration Feasibility Study #5 (Identification and Recordation of Information Sources Relevant to Land and Resources Affected by EVOS)				N	Y	N	Y	N	Y	10200.
93051 920615273.25 920615298.53 920612250. 1 920615298.44 920615273.26 920615298.27 920622326.10 920615298.45 920615297.27	Habitat Protection Information for Anadromous Fish Streams and Marbled Murrelets				Y	Y	Y	Y	Y	Y	1562100.

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Project Num. Document ID#	Project Title	Lead Agency	Recommend. Factors	Evaluation Comments	Voting Record NOAA	ADNR	USDI	ADEC	USDA	ADFG	Cost
93052 920615273.30	Identification and Protection of Important Bald Eagle Habitats (Rejected Idea Inadvertently Assigned a Project Number)		9,10,	Compare with other eagle studies for consistency.	N	N	N	N	N	N	188000.
93053 920608184. 1 920608184. 3 920608184. 2 920615290. 2 920615258. 2	Hydrocarbon Data Analysis, Interpretation, and Database Maintenance for Restoration and NRDA Environmental Samples Associated with the EVOS	ADFG		Develop for both state and federal documentation. Forwarded to the GIS Working Group.	Y	Y	Y	Y	Y	Y	105500.
93054 1234567. 6	Duplicate Project Inadvertently Assigned This Number, Withdrawn										
93055 1234567. 7	Duplicate Project Inadvertently Assigned This Number, Withdrawn										
93056 1234567. 8	Duplicate Project Inadvertently Assigned This Number, Withdrawn										
93057 920608191. 1 920615273.34 920615298.47 920612236. 2 920611233. 5	Damage Assessment GIS	ADNR			Y	Y	Y	Y	Y	Y	67500.

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93058	Habitat Protection and Acquisition				N	N	N	N	N	N	0.
920601051. 1 920612246. 1 920615296. 8 920618318. 1 920601058.10 920615279. 8 920615296. 1 920615279. 9 920615257. 1 920615293. 1 920615279.12 920615279.20 920609217. 1 920615288. 1 920615279.21 920601058.11 920601051. 2 920619323. 1 920615295. 1 920619321. 1 920622324. 1 920615297.68 920609221. 1											
93059	Imminent Threat Habitat Protection				Y	Y	Y	Y	Y	Y	42300.
920622326. 1											
93060	Accelerated Data Acquisition				Y	Y	Y	Y	Y	Y	43900.
920603092. 1 920615260. 1 920615298.40 920615297.29 920615298.46											

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93061 1234567. 2	New Data Acquisition				Y	Y	Y	Y	Y	Y	535000.
93062 1234567. 5	Restoration GIS				Y	Y	Y	Y	Y	Y	138400.
93063 1234567. 3	Survey/Evaluation and Instream Habitat and Stock Restoration Techniques for Anadromous Fish				Y	Y	Y	Y	Y	Y	59400.
93064 1234567. 4	Imminent Threat Habitat Protection: Acquiring Land (Set-Aside Money)				Y	Y	Y	Y	Y	Y	5125000.

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EXXON VALDEZ OIL SPILL

1993 Rejected Table

This table allows users to determine what ideas were rejected for inclusion in the 1993 work plan. Similar ideas were combined and considered as a unit. Use the individual document identification numbers to go to the "Ideas Table, Sorted by Document Identification Number" for more information about specific ideas. The "Rejected Table" also displays recommendation factors and evaluation comments which were considered before rejecting these ideas. In some cases the evaluation comments were more extensive than could be supported by the computer program used to create these tables. In these few instances, the complete comments are available upon request. In most cases, the designated lead agency and the title which appears only refer to the lead project with which other documents were combined. For information on other document titles and lead agencies, again, refer to the "Ideas Table, Sorted by Document Identification Number".

ABBREVIATION KEY:

FIELD	CODE	EXPLANATION
Lead Agency	ADEC	Alaska Dept. of Environmental Conservation
	ADFG	Alaska Dept. of Fish and Game
	ADNR	Alaska Dept. of Natural Resources
	DOI	United States Dept. of the Interior
	NOAA	National Oceanic and Atmospheric Administration
	USDA	United States Dept. of Agriculture
Status	R	Recommend Rejection

September 1992

Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Technical Support Services	920511138. 1	Oily Bilgewater/Oily Waste Treatment - Several Oil Spill Communities.		R	9,10,	Linkage to recovery of resources not demonstrated.
Manipulation and Enhancement Terestrial Mammals	920514007. 1	Transplant Project For Deer And Elk	ADFG	R	1,2,	
Manipulation and Enhancement	920514012. 1	Trans-Alaska Pipeline Removal Project	ADNR	R	3,	Outside TC authority. Consistency w/laws and policies is unknown.
Damage Assessment Ecosystem	920515016. 1	Toxicological Profile Of PWS	NOAA	R		EVOS-linked impact unknown. Technical feasibility unknown.
Management Actions Archaeology	920526031. 1	Study Of Petroleum Hydrocarbon Spectra At Selected Sites.	ADNR	R	8,9,10,	EVOS-linked impact unknown. Thousands of samples taken through NRDA.
Damage Assessment Marine Mammals	920526033. 1	Humpback Whale Project	NOAA	R	1,	
Manipulation and Enhancement Fish/Shellfish	920527041. 1	Bivalve Shellfish Rehabilitation Project	ADFG	R	9,10,	Technical feasibility unknown, at best.

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Technical Support Coastal Habitat	920601049. 1 920601049. 2 920601049. 3 920601054. 1 920601065. 1	Coastal Habitat Specimens, University of Alaska Museum	ADNR	R	8,9,11	No need on TS-1. Has carry over money to dispose of. Crchival is rejected. RT will deal with this the week of 7/20. Consider damage assessment by TC
Manipulation and Enhancement Services	920601050. 1	Oil And Grease Separator/Valdez Harbor		R	8,9,10,	Linkage of recovery of resources not demonstrated.
Manipulation and Enhancement Services	920601050. 2	Oil and Grease Separator/Fidalgo		R	8,9,10,	Linkage to recovery of resources not demonstrated.
Manipulation and Enhancement Services	920601050. 3	Oil and Grease Separator/Hazelet		R	8,9,10,	Linkage to recovery of resources not demonstrated.
Manipulation and Enhancement Services	920601050. 4	Valdez Landfill Upgrade		R	1,	
Manipulation and Enhancement Services	920601050. 5	Valdez Recycling		R	1,	

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Manipulation and Enhancement Services	920601050. 6	Valdez Sewage Treatment Plant Upgrade		R	1,	
Manipulation and Enhancement Services	920601050. 7	Valdez Garbage Scow Facilities		R	1,	
Manipulation and Enhancement Services	920601050. 8	Valdez/Remediate Existing Landfills		R	1,	
Manipulation and Enhancement Services	920601050. 9	Valdez Hazardous Waste Collection		R	8,9,10,	EVOS-linked impact unknown.
Manipulation and Enhancement Services	920601050. 10	Landfill Liner		R	1,	
Management Actions Services	920601050. 12	Oil Spill Cooperative/Training Center		R	8,9,10,	EVOS-linked impact unknown.
Management Actions Services	920601050. 13	Valdez Oversight of Oil Industry		R	9,10,	Consistency w/laws and policies unknown. ADOL believes that only items #6 and #7 are linked to restoration of EVOS damaged natural res

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Management Actions Recreation	920601050. 15	Improve Marine Parks	NOAA	R	9,10,11	EVOS-linked impact unknown.
Manipulation and Enhancement Services	920601050. 16	Assist Valdez in Handling Waste Oil		R	8,9,10,	EVOS-linked impact unknown.
Management Actions Services	920601050. 17	Train Valdez Personnel for Environmental Incidents		R	1,	
Manipulation and Enhancement Services	920601050. 18	Improve Public Health Facilities, PWS		R	1,	
Management Actions Fish/Shellfish	920601058. 5	Sockeye Salmon Escapement Evaluation - Ayakuluk River	ADFG	R	9,10,	EVOS-linked impact unknown.
Manipulation and Enhancement Coastal Habitat	920601059. 1 920601061. 1 920601062. 1 920601063. 1	Natural Product Natural Life Restoration	ADEC	R	9,10,	Technical feasibility unknown, at best. Birds do not feed on oligochaetes. Diatomaceous is not a fertilizer. Consistency w/laws and poli

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Management Actions Education	920601064. 1	Cordova Environmental Reporter	USDA	R	10,11	Not most cost effective because of Admin. Public Relations personnel and the PAG is coming on-line along with the general media.
Restoration Monitoring Fish/Shellfish	920603093. 1	Build Research and Monitoring Facilities and Program/Cook Inlet, Kodiak	NOAA	R	9,10,	EVOS-linked impact unknown.
Damage Assessment Terestrial Mammals	920604104. 2	Long-term Epidemiology Study Of Oil Spill Workers	ADEC	R	1,	Technical feasibility unknown. Consistency w/state and federal laws unknown. USDOI - legal. ADOL - illegal, nothing to do with natural res
Management Actions Education	920605137. 1	SAAMS - Alaska Sealife Center	NOAA	R	9,10,11	Legislature funded initial studies.
Damage Assessment Coastal Habitat	920610229. 3	Coastal Habitat Injury Assessment - Intertidal Algae	USDA	R	4,	
Restoration Monitoring Coastal Habitat	920610229. 4	Remote Monitoring Of Intertidal Recovery	USDA	R	9,10,	Technical feasibility unknown.
Damage Assessment Sub-Tidal	920610230. 2	Experimental Studies Of Interaction Between Subtidal Epifaunal Invertebrates	ADFG	R	9,10,	

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Management Actions Birds	920611233. 3	Identification Of Seabird Feeding Areas From Remotely Sensed Data And Impact On Restoration	DOI	R	8,9,10,	Technical feasibility unknown.
Manipulation and Enhancement Birds	920611233. 4	Marbled Murrelet Vocalizations In Conjunction With Artificial Nests	DOI	R	8,	Technical feasibility unknown. We don't believe that nest site habitat is a critical factor.
Damage Assessment Fish/Shellfish	920611234. 1	Herring Embryo Viability Evaluation - Natural and Catastrophic Effects	ADFG	R	4,9,10,	If this were meant to be a restoration idea, then it is not time critical or a lost opportunity.
Damage Assessment Ecosystem	920612235. 1	Cook Inlet Comprehensive Monitoring Program	NOAA	R	9,10,	
Manipulation and Enhancement Coastal Habitat	920612237. 2	Restore Shorelines Damaged By Beach Berm Relocation	ADNR	R	9,10,	EVOS-linked impact unknown. Technical feasibility unknown.
Restoration Monitoring Recreation	920612237. 3	Annual Garbage Cleanup Program for Oil Spill Impacted Beaches		R	8,9,10,11	EVOS-linked impact unknown.
Manipulation and Enhancement Fish/Shellfish	920612243. 1	Paint River Fish Ladder Salmon Stocking Program	ADFG	R	9,10,	EVOS-linked impact unknown. Project technically feasible, but effect of stocking this area (river) is unknown.

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Management Actions Fish/Shellfish	920612244. 1	C-lab-A System For Monitoring Meteorological And Oceanographic Variables That Affect Salmon Growth	NOAA	R	8,9,10,11	EVOS-linked impact unknown.
Technical Support Services	920614300. 1	Build Facilities For Oil Workers Who Work In Karluk Kodiak Area		R	1,	
Manipulation and Enhancement Marine Mammals	920615247. 1	Oiled Wildlife Rehabilitation Center		R	1,	Technically feasible to build center, however, success rate low for past cleaning activities.
Manipulation and Enhancement Fish/Shellfish	920615249. 2	Cutthroat Trout And Dolly Varden Hatchery	ADFG	R	9,10,	
Manipulation and Enhancement Fish/Shellfish	920615249. 3	Shelter Cove, Cordova Restoration Project	ADFG	R	9,10,	EVOS-linked impact unknown.
Management Actions Fish/Shellfish	920615249. 4	Sportfish Biologist For Cordova	ADFG	R	8,9,10,	EVOS-linked impact unknown.
Manipulation and Enhancement Education	920615251. 1	Valdez City Schools		R	1,	

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Technical Support Services	920615252. 1	Tanker Inspection Facility		R	8,9,10,11	EVOS-linked impact unknown.
Technical Support Services	920615253. 1	Oil Spill Response Valdez Cleanup Co-Op		R	8,9,10,11	EVOS-linked impact unknown.
Technical Support Education	920615254. 1	Cold Weather Oil Spill School		R	8,9,10,	EVOS-linked impact unknown.
Technical Support Endowments	920615256. 1	Payoff Debt of Valdez Fisheries Development Association		R	3,	Inappropriate to use civil settlement funds to compensate third party litigation claims.
Damage Assessment Marine Mammals	920615261. 3	Monitoring Of Small Cetaceans In PWS	NOAA	R		EVOS-linked impact unknown. Injury is not apparent.
Restoration Monitoring Fish/Shellfish	920615262. 1 920615273. 32	Distribution Of Prey Species For Apex Predator Species (Murre, Guillemot, Murrelet, Harbor Seal, Etc.)	NOAA	R	9,10,	Reduce focus to design sampling program. Technical feasibility unknown.
Restoration Monitoring Sub-Tidal	920615264. 2	New Field Test of Bioremediation	NOAA	R	9,10,	Consistency w/laws and policies unknown. USDOI - legal. ADOL - this is probably legal but not clear cut; if it addresses current issues it is le

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Restoration Monitoring Fish/Shellfish	920615265. 1	PWS Long-Term Monitoring Program-Acute and Chronic Toxicity of Residual Hydrocarbons to Littleneck Clams	NOAA	R	9,10,	EVOS-linked impact unknown.
Manipulation and Enhancement Coastal Habitat	920615266. 1 920615271. 1	Rapid Restoration Of Weathered Crude Contaminated Beach Subsurface Material.	ADEC	R	9,10,	Consistency w/laws and policies unknown; USDOI - legal; ADOL - this project would be legal if it addressed the EVOS, but not if it addressed futur
Manipulation and Enhancement Fish/Shellfish	920615270. 1	Port Graham Salmon Hatchery	ADFG	R	9,10,	EVOS-linked impact unknown.
Restoration Monitoring Terestrial Mammals	920615273. 1	Productivity And Survival Of Brown Bears In Katmai National Park	DOI	R	1,	
Restoration Monitoring Birds	920615273. 3	Determine Status Of Marbled Murrelet Populations In Oiled National Parks	DOI	R	9,10,	
Restoration Monitoring Marine Mammals	920615273. 21	Radio-Telemetry Project To Monitor Recovery Of Sea Otters	DOI	R	9,	
Restoration Monitoring Birds	920615273. 24	Assessment Of Marbled Murrelet Foraging Habitat Requirements During Breeding Season	DOI	R	9,10,	

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Restoration Monitoring Birds	920615273. 27	Monitor Population Status Of Seabird Nesting Colonies In The Spill Zone	DOI	R	9,10,	
Habitat Protection and Acquisition Inventory	93052 920615273. 30	Identification And Protection Of Important Bald Eagle Habitats		R	9,10,	Compare with other eagle studies for consistency.
Management Actions Birds	920615273. 31	Development Of Managment Strategies For Enhancing Recovery Rate Of Birds And Sea Otter Populations	DOI	R	9,10,	
Restoration Monitoring Fish/Shellfish	920615273. 33	Hydrocarbons in Mussels From Coastal Gulf of Alaska, Cook Inlet and Shelikof Strait	NOAA	R	9,10,	NOAA has been conducting similar studies since the mid-seventies.
Manipulation and Enhancement Coastal Habitat	920615273. 35	Hydrodynamic Purging of Oil from Contaminated Beaches, PWS.	ADEC	R	10,	Technical feasibilty unknown.
Restoration Monitoring Coastal Habitat	920615273. 36	Fate And Transport Of Subsurface Hydrocarbons In Beach Deposits In PWS	DOI	R	8,9,10,	
Technical Support Services	920615274. 1 920617313. 1	Construction Of Chenega Bay Marine Service Center	ADNR	R	2,9,10,11	Consistency w/laws and policies unknown. USDOI - believes this is legal; ADOL does not since there is no connection to restoring natural resourc

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Management Actions Fish/Shellfish	920615279. 10	Ayakulik River Sockeye Salmon Escapement Evaluation	ADFG	R	9,10,	EVOS-linked impact unknown.
Management Actions Fish/Shellfish	920615279. 11 920601058. 6	Uganik River Fish Weir	ADFG	R	1,	No sockeye overescapement in this system.
Restoration Monitoring Birds	920615279. 16 920601058. 7 920615273. 5 920615273. 28 920615273. 29 920615279. 13	Bald Eagle Nesting Surveys-Alaska Pen. Pacific Coast	DOI	R	9,10,	Technical feasibility unknown.
Manipulation and Enhancement Birds	920615279. 17 920603092. 2 920608200. 1 920615273. 20	Removal Of Introduced Foxes To Restore Breeding Seabirds.	DOI	R	9,10,	
Technical Support Services	920615279. 23	Villages Kitoi Bay Hatchery and Other Site Prevention and Response	ADFG	R	1,	

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Manipulation and Enhancement Fish/Shellfish	920615279. 24	Kitoi Bay Hatchery On Afognak Island	ADFG	R	1,	Early Marine Life History studies on Kodiak Island on salmonids showed no injury.
Management Actions Coastal Habitat	920615279. 25	Thirteen Commercial Species Assessment	NOAA	R	8,9,10,	EVOS-linked impact unknown.
Management Actions Archaeology	920615279. 27	Archaeological Outreach-Curator Position.	USDA	R	8,9,10,	
Manipulation and Enhancement Fish/Shellfish	920615279. 29	Enhancement Of The Pacific Herring	ADFG	R	9,10,	EVOS-linked impact unknown. Technical feasibility unknown.
Restoration Monitoring Fish/Shellfish	920615279. 30	Assessment And Quality Assurance Of Shellfish Resources	ADFG	R	9,10,	EVOS-linked impact unknown. Technical feasibility unknown.
Management Actions Education	920615279. 32	Environmental Learning Resource Center	ADNR	R	9,10,11	
Restoration Monitoring Coastal Habitat	920615279. 99	Monitoring Sites - Collector Beaches and Lagoons.	ADFG	R	9,10,	USDOI and ADOL - legal.

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Manipulation and Enhancement Air/Water	920615286. 1	Silver Lake Hydropower Project		R	1,	
Manipulation and Enhancement Fish/Shellfish	920615286. 2	Silver Lake Fish Hatchery	ADFG	R	1,	No EVOS-linked impact; technical feasibility unknown. This is tied to Silver Lake Hydro-project. USDOI and ADOL - legal.
Manipulation and Enhancement Air/Water	920615286. 3	Power Creek Hydropower Project	ADNR	R	1,	
Manipulation and Enhancement Air/Water	920615286. 4	Silver Lake to Ellamar to Tatitlek Underwater Intertie	ADNR	R	1,	
Management Actions Sub-Tidal	920615289. 1	Field Study Of Bioremediation Enhancement Treatment Methods	ADEC	R	8,9,10,	
Habitat Protection and Acquisition Inventory	920615291. 1 920615294. 4	Mark 17(b) Easements On Port Graham Land.		R	1,	
Manipulation and Enhancement Archaeology	920615294. 2	Restoration Of Chenega Village Site	ADNR	R	9,10,	EVOS-linked impact unknown. Consistency w/laws and policies unknown. USDOI - legal. ADOL - if they are considered to be archaeologica

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Management Actions Archaeology	920615296. 5	Archaeological Restoration-Regional Archaeological Planning	ADNR	R	-08,9,10,	Linkage to recovery of injured resources not demonstrated.
Management Actions Recreation	920615296. 6	Marine Recreation Plan For Spill Area	ADNR	R	9,10,	EVOS-linked impact unknown.
Manipulation and Enhancement Recreation	920615296. 7	Public Use Cabins In State Marine Parks	ADNR	R	9,10,	EVOS-linked impact unknown.
Management Actions Recreation	920615296. 10	Recreation Field Management And Monitoring	ADNR	R	8,9,10,	EVOS-linked impact unknown.
Management Actions Fish/Shellfish	920615297. 1	Restoration Of PWS Rockfish And Lingcod Resources	ADFG	R	9,10,11	EVOS-linked impact unknown.
Damage Assessment Fish/Shellfish	920615297. 2	PWS Herring Egg Loss Survey	ADFG	R	4,	EVOS-linked impact unknown. If this were meant as a restoration idea, then it is not time critical or a lost opportunity.
Management Actions Fish/Shellfish	920615297. 3	PWS Herring Spawn Deposition Survey	ADFG	R	9,10,	EVOS-linked impact unknown.

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Restoration Monitoring Fish/Shellfish	920615297. 4 920615297. 5	PWS Herring Tagging Feasibility Study	ADFG	R	9,10,	EVOS-linked impact unknown.
Manipulation and Enhancement Fish/Shellfish	920615297. 9	Lower Cook Inlet Sockeye Salmon Restoration And Enhancement	ADFG	R	9,10,	Technical feasibility unknown.
Technical Support Sub-Tidal	920615297. 11	Develop Protocols For Analysis And Assessment Of Benthic Biological, Physical, And Hydrocarbon Data	ADFG	R	4,	EVOS-linked impact unknown.
Management Actions Terestrial Mammals	920615297. 13	Synthesis Of Information On Ecology And Injury To River Otters In PWS	ADFG	R	4,	EVOS-lined impact unknown.
Technical Support Services	920615297. 16	Development Of Economic Guidelines And Cost Benefit Analysis Of Oilspill Projects For NEPA And TC	USDA	R	9,10,	Duplicative of Walcoff contract and also 1992 funding to Restoration Planning Work Group for analysis.
Restoration Monitoring Coastal Habitat	920615297. 18 920610228. 2	Coastal Habitat Comprehensive Intertidal Monitoring Program	USDA	R	9,10,	A comprehensivwe Natural Recovery Monitoring Project is premature until a final Damage Assessment report is prepared.

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Manipulation and Enhancement Fish/Shellfish	920615297. 21	Horse Marine Creek Pink Salmon Restoration	ADFG	R	9,10,11	21 rejected. 297 - 20 and 23 approved.
Manipulation and Enhancement Fish/Shellfish	920615297. 22	Waterfall Creek Pink Salmon Restoration-Fish Improvement	ADFG	R	9,10,	
Restoration Monitoring Fish/Shellfish	920615297. 25	Monitoring For Recruitment Of Littleneck Clams.	ADFG	R	9,10,	
Technical Support Services	920615297. 26	Kitoi Bay Hatchery Oil Spill Equipment Storage	ADFG	R	1,	
Management Actions Fish/Shellfish	920615297. 34	Genetic Stock Identification For Herring In PWS	ADFG	R	9,10,	EVOS-linked impact unknown.
Restoration Monitoring Fish/Shellfish	920615297. 36	Genetic Monitoring of Kodiak Island Sockeye Salmon	ADFG	R	9,10,	Not time critical if other Red Lake projects go through.
Management Actions Fish/Shellfish	920615297. 38	Coded Wire Tagging Of Wild Stock Pink Salmon For Stock Identification	ADFG	R	9,	

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Management Actions Fish/Shellfish	920615297. 41 920615297. 42	Adult Tagging To Determine Distribution, Migratory Timing And Rate Of Movement Of Pink Salmon In PWS	ADFG	R	9,	297-42 should be funded by the non-profit fish hatcheries.
Management Actions Fish/Shellfish	920615297. 44 920615297. 46	PWS Spot Shrimp Recovery Management Plan	ADFG	R	9,	EVOS-linked impact unknown.
Restoration Monitoring Fish/Shellfish	920615297. 45	PWS Spot Shrimp Survey	ADFG	R	9,10,	EVOS-linked impact unknown.
Management Actions Fish/Shellfish	920615297. 47	Intertidal/Shallow Subtidal Crustacean (Decapod) Composition	ADFG	R	8,9,10,	EVOS-linked impact unknown. Technical feasibility unknown.
Manipulation and Enhancement Fish/Shellfish	920615297. 71	Fry Rearing To Improve Survival And Restore Wild Pink And Chum Salmon Stocks	ADFG	R	9,10,	
Manipulation and Enhancement Fish/Shellfish	920615297. 73 920615298. 41	Instream Habitat And Stock Restoration Techniques For Anadromous Fish.	ADFG	R	9,10,	

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Management Actions Fish/Shellfish	920615297. 74	Otolith Mass Marking As An Inseason Stock Separation Tool To Reduce Wild Stock Salmon Exploitation	ADFG	R	9,10,	
Manipulation and Enhancement Fish/Shellfish	920615297. 75	Est. An Ecological Basis For Restoring And Enhancing The Mixed-stock Salmon Resources Of PWS.	ADFG	R	9,10,	
Technical Support Services	920615298. 1	Cultural Emergency Response System	USDA	R	8,9,10,	EVOS-linked impact unknown.
Technical Support Services	920615298. 2 920622326. 5 920622326. 11	Multi-agency Library On PWS And Copper River Delta	USDA	R	9,10,	Services already provided by OSPIC.
Technical Support Services	920615298. 3	Oilspill Injured Resources Literature Research And Review	USDA	R	8,9,10,	
Management Actions Recreation	920615298. 10	Protect Resources And Enhance Visitor Enjoyment Through Increased Administrative Presence	USDA	R	8,9,10,	EVOS-linked impact unknown. Technical feasibility unknown.

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Management Actions Archaeology	920615298. 17 920601058. 9 920615279. 28 920615298. 21	Nuchek Heritage Interpretive Center	USDA	R	9,10,	EVOS-linked impact unknown.
Management Actions Archaeology	920615298. 19 920615273. 6 920615273. 7 920615279. 31 920615296. 2	PWS Landmarks--Evaluation And Interpretation	USDA	R	9,10,	EVOS-linked impact unknown.
Restoration Monitoring Ecosystem	920615298. 29	Inventory, Monitor, Protect Permanent Monitoring Sites	USDA	R	9,10,	
Restoration Monitoring Birds	920615298. 30	Survey To Determine Abundance Distribution, Habitat And Food Habits Of Staging Shore Birds W Cr Delta	USDA	R	9,10,	Review in context of a monitoring plan.
Restoration Monitoring Birds	920615298. 31	Survey To Determine Distribution, Abundance, Food Habits Of Migratory Waterfowl Staging W. Cr Delta	USDA	R	9,10,	
Restoration Monitoring Birds	920615298. 32	Migratory Shore Birds Staging In Rocky Intertidal Habitats Of PWS	USDA	R	9,10,	

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Habitat Protection and Acquisition Inventory	920615298. 36 920615298. 33 920615298. 38 920615298. 43	Stream Channel Type Classification And Fish Habitat Assessment	USDA	R	9,10,	Even though rejected, refer package to HPWG for consideration for habitat identification project. (Rejected by HPWG>)
Technical Support Services	920615298. 49	Oil Spill Restoration Support Service And Facilities	USDA	R	9,10,11	
Management Actions Education	920615298. 50 920601050. 11 920610225. 1 920615298. 23	Environmental Education Center In PWS.	USDA	R	9,10,11	
Habitat Protection and Acquisition Inventory	920615298. 52	Distribution, Abundance, Habitat Use And Phylogeny Of Canada Geese In PWS		R	1,	
Manipulation and Enhancement Recreation	920615298. 55 920601050. 14 920615298. 8 920615298. 14 920615298. 15 920615298. 16 920615298. 24	Low Impact Recreation Development Nellie Juan, College Fiord Wilderness Study Area	USDA	R	9,10,	EVOS-linked impact unknown. These studies are contingent upon the results of the damage assessment recreation proposals for 1993.

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Technical Support Services	920616310. 1	Near Island Fisheries Research Center	ADFG	R	9,10,	
Management Actions Education	920617314. 1	Press Release Project On Restoration Program Work	USDA	R	8,9,10,11	
Manipulation and Enhancement Fish/Shellfish	920618316. 1	Mussel Bed Treatment	ADEC	R	2,	ADOL and USDOI - legal.
Technical Support Technical Support	920622326. 2	Full Funding For Oil Spill Recovery Institute	NOAA	R	8,9,10,	
Restoration Monitoring Technical Support	920622326. 3	Full Funding for Cordova Oil Spill Recovery Institute		R	3,	OPA '90 did not authorize permanent facility.
Management Actions Ecosystem	920622326. 4	Testing Of Patch-Response Patch Dependence Hypothesis-Testing of an Ecosystem Model	NOAA	R	1,	
Technical Support GIS	920622326. 6	Experimental Designs and Statistical Procedures for Damage for Oilspill Cleanup and Restoration Projects	ADNR	R	9,10,	Duplicative of on-going studies.

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Category Project Type	Document ID#	Title	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Restoration Monitoring Sub-Tidal	920622326. 7	Characterization Of Near-shore Bottom Habitat	ADFG	R	8,9,10,	
Restoration Monitoring Ecosystem	920622326. 8	Multi-agency University Ecosystem Study Of PWS	USDA	R	8,9,10,	EVOS-linked impact unknown.
Technical Support GIS	920622326. 9	Interactive Public Access to Oil Spill and Related Environmental Data in PWS Science Center GIS	ADNR	R	1,	

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EXXON VALDEZ OIL SPILL

1993 Endowment Table

This table lists the document identification numbers of all ideas suggesting creation of various endowments. The Restoration Team or a subgroup will consider these later and use them to create one or more endowment proposals based on direction from the Trustee Council. For more information, look up ideas by their document identification number in the "Ideas Table, Sorted by Document Identification Number". Lead agencies have not yet been assigned for endowment ideas.

ABBREVIATION KEY:

Status	E	Forwarded to Endowment Work Group

September 1992

09/11/92

Category	Project Type	Document ID#	Title	Preliminary Lead Agency	STATUS
Technical Support	Endowments	920604101. 1 920601058. 1 920601058. 2 920601058. 4 920601067. 1 920603094. 1 920603094. 2 920615272. 1 920615279. 98 920615287. 1 920615287. 2 920615296. 9 920615298. 13 920615298. 51	Endowment of Sinking Fund		E

EXXON VALDEZ OIL SPILL

1993 Ideas Table, Sorted by Document Identification Number

This table allows users to determine what ideas were considered for inclusion in the 1993 work plan. Similar ideas were combined and considered as a unit. One idea from a group was chosen as the lead idea and all similar ideas were combined with it. Thus, ideas which display a "C" in the status column were combined with another idea. In the "Combined With" field, the document identification number of the idea with which it was combined is noted. Documents which display "P" or "R" are the lead ideas into which other ideas were combined. Ideas with the "P" status were developed as proposals and the project number appears in the same column as the document identification number and above it. Ideas with "R" in the status column were rejected. Endowment ideas ("E" in the status column) will be considered by the Restoration Team or a subgroup thereof at a later date. This table also displays recommendation factors and evaluation comments which were considered before rejecting or passing ideas. In some cases the evaluation comments were more extensive than could be supported by the computer program used to create these tables. For these few, the complete comments are available upon request. In most cases, evaluation factors and comments apply only to "R" and "P" lead ideas (referring to the entire combined group). No entries in these columns for "P" ideas usually indicates good agreement with evaluation criteria.

ABBREVIATION KEY:

FIELD	CODE	EXPLANATION
Preliminary Lead Agency	ADEC	Alaska Dept. of Environmental Conservation
	ADFG	Alaska Dept. of Fish and Game
	ADNR	Alaska Dept. of Natural Resources
	DOI	United States Dept. of the Interior
	NOAA	National Oceanic and Atmospheric Administration
	USDA	United States Dept. of Agriculture
Status	C	Combined with another idea
	D	Duplicate of another idea
	E	Forwarded to Endowment Work Group
	P	Recommend Preparation of Study Plan and Budget
	R	Recommend Rejection

September 1992

Document ID	Category	Project Type	Title	Status	Combined With
920511138. 1	Technical Support	Services Agency:	Oily Bilgewater/Oily Waste Treatment - Several Oil Spill Communities.	R	
920514005. 1	Restoration Monitoring	Marine Mammals Agency: NOAA	Restoration of Killer Whales in PWS, combined with 920615261.2	C	920615261.2
920514006. 1	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Clam Enhancement, combined with 920612242.1	C	920612242.1
920514007. 1	Manipulation and Enhancement	Terestrial Mammals Agency: ADFG	Transplant Project For Deer And Elk	R	
920514012. 1	Manipulation and Enhancement	Agency: ADNR	Trans-Alaska Pipeline Removal Project	R	
920515016. 1	Damage Assessment	Ecosystem Agency: NOAA	Toxicological Profile Of PWS	R	
920526031. 1	Management Actions	Archaeology Agency: ADNR	Study Of Petroleum Hydrocarbon Spectra At Selected Sites.	R	
920526033. 1	Damage Assessment	Marine Mammals Agency: NOAA	Humpback Whale Project	R	
920526039. 1	Damage Assessment	Ecosystem Agency: ADFG	Long-term Monitoring Of Marine Environment Of Resurrection Bay. Combined with 920615262.2	C	920615262.2
920527041. 1	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Bivalve Shellfish Rehabilitation Project	R	
920528045. 1	Manipulation and Enhancement	Coastal Habitat Agency: ADEC	Beach Subsurface Oil Recovery, combined with 920615294.3	C	920615294.3
920601049. 1	Technical Support	Coastal Habitat Agency: ADNR	Coastal Habitat Specimens, University of Alaska Museum	R	
920601049. 2	Technical Support	Birds Agency: ADNR	Bird and Mammal Specimens, University of Alaska Museum, combined with 920601049.1	C	920601049.1
920601049. 3	Technical Support	Archaeology Agency: ADNR	Archaeological Specimens, University of Alaska Museum, combined with 920601049.1	C	920601049.1
920601050. 1	Manipulation and Enhancement	Services Agency:	Oil And Grease Separator/Valdez Harbor	R	
920601050. 2	Manipulation and Enhancement	Services Agency:	Oil and Grease Separator/Fidalgo	R	

Document ID	Category	Project Type	Title	Status	Combined With
920601050. 3	Manipulation and Enhancement	Services Agency:	Oil and Grease Separator/Hazelet	R	
920601050. 4	Manipulation and Enhancement	Services Agency:	Valdez Landfill Upgrade	R	
920601050. 5	Manipulation and Enhancement	Services Agency:	Valdez Recycling	R	
920601050. 6	Manipulation and Enhancement	Services Agency:	Valdez Sewage Treatment Plant Upgrade	R	
920601050. 7	Manipulation and Enhancement	Services Agency:	Valdez Garbage Scow Facilities	R	
920601050. 8	Manipulation and Enhancement	Services Agency:	Valdez/Remediate Existing Landfills	R	
920601050. 9	Manipulation and Enhancement	Services Agency:	Valdez Hazardous Waste Collection	R	
920601050. 10	Manipulation and Enhancement	Services Agency:	Landfill Liner	R	
920601050. 11	Management Actions	Education Agency: ADNR	Maritime Wing Valdez Museum, combined with 920615298.50	C	920615298.50
920601050. 12	Management Actions	Services Agency:	Oil Spill Cooperative/Training Center	R	
920601050. 13	Management Actions	Services Agency:	Valdez Oversight of Oil Industry	R	
920601050. 14	Manipulation and Enhancement	Recreation Agency: USDA	Increased Access PWS, combined with 920615298.55	C	920615298.55
920601050. 15	Management Actions	Recreation Agency: NOAA	Improve Marine Parks	R	
920601050. 16	Manipulation and Enhancement	Services Agency:	Assist Valdez in Handling Waste Oil	R	
920601050. 17	Management Actions	Services Agency:	Train Valdez Personnel for Environmental Incidents	R	
920601050. 18	Manipulation and Enhancement	Services Agency:	Improve Public Health Facilities, PWS	R	
920601051. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Land Exchange Chuyak Island For Land On Kodiak Island Road System, combined with 920601051.1	P 93058	

Document ID	Category	Project Type	Title	Status	Combined With
920601051. 2	Habitat Protection and Acquisition	Land Acquisition Agency:	Acquisition Of Recreational Sites On Kodiak Road System, combined with 920601051.1	C	920601051.1
920601051. 3	Management Actions	Archaeology Agency: USDA	Public Education And Interpretation Of Archaeological Resources In State Parks - Train Park Rangers, Combine with 9	C	920615296.3
920601054. 1	Technical Support	Coastal Habitat Agency: ADNR	November 91 Request for Immediate Funding for Coastal Habitat Specimens, combined with 920601049.1	C	920601049.1
920601058. 1	Technical Support	Endowments Agency:	Select Critical Sites for Baseline Data Collection, combined with 920604101.1	C	920604101.1
920601058. 2	Technical Support	Endowments Agency:	Set Up Revolving Fund for Baseline Sampling and Analysis, combined with 920604101.1	C	920604101.1
920601058. 4	Technical Support	Endowments Agency: NOAA	Analyze NRDA Samples Left Un-Analyzed, combined with 920604101.1	C	920604101.1
920601058. 5	Management Actions	Fish/Shellfish Agency: ADFG	Sockeye Salmon Escapement Evaluation - Ayakuluk River	R	
920601058. 6	Management Actions	Fish/Shellfish Agency: DOI	Uganik River Fish Counting Weir, Combined with 920615279.11	C	920615279.11
920601058. 7	Restoration Monitoring	Birds Agency: DOI	Use And Productivity Of Bald Eagle Nest Sites, Kodiak	C	920615279.16
920601058. 8	Restoration Monitoring	Marine Mammals Agency: DOI	Sea Otters In Kodiak Archipelago - Population Status,trends. Combined with 920615273-15	C	920615273.15
920601058. 9	Management Actions	Archaeology Agency: ADNR	Native Museum And Cultural Center, Kodiak, combine with 920615298.17	C	920615298.17
920601058. 10	Habitat Protection and Acquisition	Land Acquisition Agency:	Land Exchange Shuyak For Kodiak Land On Road System, combined with 920601051.1	C	920601051.1
920601058. 11	Habitat Protection and Acquisition	Land Acquisition Agency:	Acquisition Of Recreational Sites On Kodiak Road System, combined with 920601051.1	C	920601051.1
920601058. 12	Management Actions	Archaeology Agency: ADNR	Public Education/interpretation Of Archaeological Resources In State Parks, Combine with 920615296.3	C	920615296.3
920601059. 1	Manipulation and Enhancement	Coastal Habitat Agency: ADEC	Natural Product Natural Life Restoration	R	
920601061. 1	Manipulation and Enhancement	Coastal Habitat Agency: ADEC	Natural Product Natural Life Restoration, combined with 920601059.2.	C	920601059.1
920601062. 1	Manipulation and Enhancement	Coastal Habitat Agency: ADEC	Natural Product Natural Life Restoration, combined with 920601059.1	C	920601059.1

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920601063. 1	Manipulation and Enhancement	Coastal Habitat Agency: ADEC	Shoreline Worm Life Monitoring, combined with 920601059.1	C	920601059.1
920601064. 1	Management Actions	Education Agency: USDA	Cordova Environmental Reporter	R	
920601065. 1	Technical Support	Coastal Habitat Agency: ADNR	Archive Biological and Archaeological Specimens - Revised Proposal, combined with 920601049.1	C	920601049.1
920601067. 1	Technical Support	Endowments Agency:	Alaska Land And Wildlife Conservation Fund, combined with 920604101.1	C	920604101.1
920602084. 1	Damage Assessment	Inventory Agency: ADNR	Damage Assessment Of Economic Damages To Wilderness-based Tourism	C	920615298.28
920603092. 1	Manipulation and Enhancement	Birds Agency:	Habitat Aquisition Evaluation, Evaluate Pacific Seabird Group List, Eliminate Predators, combined with 920603092.1	P 93060	
920603092. 2	Manipulation and Enhancement	Birds Agency: DOI	Removal Of Alien Predators From Bird Colonies, combined with 920615279.17	C	920615279.17
920603093. 1	Restoration Monitoring	Fish/Shellfish Agency: NOAA	Build Research and Monitoring Facilities and Program/Cook Inlet, Kodiak	R	
920603094. 1	Technical Support	Endowments Agency:	Exxon Valdez Oil Spill Marine Sciences Endowment I, combined with 920604101.1	C	920604101.1
920603094. 2	Technical Support	Endowments Agency:	Exxon Valdez Oil Spill Marine Sciences Endowment II, combined with 920604101.1	C	920604101.1
920604101. 1	Technical Support	Endowments Agency:	Endowment of Sinking Fund	E	
920604104. 1	Management Actions	Education Agency: USDA	Develop User Friendly Synopsis Of Oil Spill Information, combine with 920615298.25	C	920615298.25
920604104. 2	Damage Assessment	Terestrial Mammals Agency: ADEC	Long-term Epidemiology Study Of Oil Spill Workers	R	
920604114. 1	Management Actions	Education Agency: ADNR	Map Of Spill Area By Resource, combined with 920615298.25	C	920615298.25
920605137. 1	Management Actions	Education Agency: NOAA	SAAMS - Alaska Sealife Center	R	
920608184. 1	Technical Support	Services Agency: ADFG	Database Integration	P 93053	
920608184. 2	Technical Support	Services Agency: ADFG	Database Management - NRDA FS30, combined with 920608184.1	C	920608184.1

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920608184. 3	Technical Support	Services Agency: ADFG	Management Of Restoration Database, Sample Archiving, Chemical Interpretation, combined with 920608184.1	C	920608184.1
920608191. 1	Technical Support	GIS Agency: ADNR	Public Access Repository For Oil Spill Geographic Information System, combined with 920608184.1	C 93057	920608191.1
920608200. 1	Manipulation and Enhancement	Birds Agency: DOI	Seabird Colony Restoration, combined with 920615279.17	C	920615279.17
920609217. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Habitat Acq. Kachemak, combined with 920601051.1	C	920601051.1
920609221. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Habitat Acq. Kodiak, Kodiak Refuge, combined with 920601051.1	C	920601051.1
920610225. 1	Management Actions	Education Agency: USDA	Fund A PWS Nature Center, combined with 920615298.50	C	920615298.50
920610228. 2	Restoration Monitoring	Coastal Habitat Agency: ADFG	Coastal Habitat Comprehensive Intertidal Monitoring Program	C	920615297.18
920610229. 1	Manipulation and Enhancement	Coastal Habitat Agency: USDA	Fucus Restoration Feasibility Study, combined with 920618316.3	C	920618316.3
920610229. 2	Restoration Monitoring	Coastal Habitat Agency: USDA	Fucus Recovery In Upper Intertidal Zones (continuation Of Study)	C	920618316.3
920610229. 3	Damage Assessment	Coastal Habitat Agency: USDA	Coastal Habitat Injury Assessment - Intertidal Algae	R	
920610229. 4	Restoration Monitoring	Coastal Habitat Agency: USDA	Remote Monitoring Of Intertidal Recovery	R	
920610230. 1	Restoration Monitoring	Sub-Tidal Agency: NOAA	Experimental Evaluation Of Oiled/control Paired Design Used In Assessing Inter/Subtidal Community	P 93037	
920610230. 2	Damage Assessment	Sub-Tidal Agency: ADFG	Experimental Studies Of Interaction Between Subtidal Epifaunal Invertebrates	R	
920611233. 1	Manipulation and Enhancement	Birds Agency: DOI	Restoration Of Murres By Way Of Behavioral Attraction And Habitat Enhancement	P 93022	
920611233. 2	Manipulation and Enhancement	Birds Agency: DOI	Restoration Of Murres By Way Of Transplantation Of Chicks-Feasibility Study	P 93021	
920611233. 3	Management Actions	Birds Agency: DOI	Identification Of Seabird Feeding Areas From Remotely Sensed Data And Impact On Restoration	R	
920611233. 4	Manipulation and Enhancement	Birds Agency: DOI	Marbled Murrelet Vocalizations In Conjunction With Artificial Nests	R	

Document ID	Category	Project Type	Title	Status	Combined With
920611233. 5	Technical Support	GIS Agency: ADNR	Establishment Of User-friendly GIS And Remote-sensing Demonstration Center For Public-5 Communities, combined with	C	920608191.1
920611233. 6	Habitat Protection and Acquisition	Inventory Agency:	Quantification Of Stream Habitat For Harlequin Ducks From Remotely Sensed Data, combined with 920615297.31	C	920615297.31
920611234. 1	Damage Assessment	Fish/Shellfish Agency: ADFG	Herring Embryo Viability Evaluation - Natural and Catastrophic Effects	R	
920612235. 1	Damage Assessment	Ecosystem Agency: NOAA	Cook Inlet Comprehensive Monitoring Program	R	
920612236. 2	Technical Support	GIS Agency: ADNR	Providing Public Access To Oilspill Gis Databases Using Arcview In PC Windows Environment, combined with 920608184.1	C	920608191.1
920612236. 4	Restoration Monitoring	Sub-Tidal Agency: USDA	Experimental Studies of Interaction Between Subtidal Epifaunal Invertebrates, combined with 920618315.1	C	920618315.1
920612237. 2	Manipulation and Enhancement	Coastal Habitat Agency: ADNR	Restore Shorelines Damaged By Beach Berm Relocation	R	
920612237. 3	Restoration Monitoring	Recreation Agency:	Annual Garbage Cleanup Program for Oil Spill Impacted Beaches	R	
920612237. 5	Management Actions	Terestrial Mammals Agency: ADFG	Watchable Wildlife, combined with 920615298.25	C	920615298.25
920612242. 1	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Seward Shellfish Hatchery	P 93020	
920612243. 1	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Paint River Fish Ladder Salmon Stocking Program	R	
920612244. 1	Management Actions	Fish/Shellfish Agency: NOAA	C-lab-A System For Monitoring Meteorological And Oceanographic Variables That Affect Salmon Growth	R	
920612246. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Purchase Of Seldovia Native Assoc, Timber Trading Co, Cook Inlet Region, Inholdings Kachemak Bay, combined with 92060105	C	920601051.1
920612250. 1	Habitat Protection and Acquisition	Inventory Agency:	Study Impact Of Clearcut Logging Operations On Bird Populations, Katchemak Bay State Park, combined with 92061527	C	920615273.25
920612348. 4	Management Actions	Education Agency: USDA	Publish And Distribute Brochures On Damaged Species, combined with 920615298.25	C	920615298.25
920614300. 1	Technical Support	Services Agency:	Build Facilities For Oil Workers Who Work In Karluk Kodiak Area	R	
920615247. 1	Manipulation and Enhancement	Marine Mammals Agency:	Oiled Wildlife Rehabilitation Center	R	

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920615249. 2	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Cutthroat Trout And Dolly Varden Hatchery	R	
920615249. 3	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Shelter Cove, Cordova Restoration Project	R	
920615249. 4	Management Actions	Fish/Shellfish Agency: ADFG	Sportfish Biologist For Cordova	R	
920615251. 1	Manipulation and Enhancement	Education Agency:	Valdez City Schools	R	
920615252. 1	Technical Support	Services Agency:	Tanker Inspection Facility	R	
920615253. 1	Technical Support	Services Agency:	Oil Spill Response Valdez Cleanup Co-Op	R	
920615254. 1	Technical Support	Education Agency:	Cold Weather Oil Spill School	R	
920615256. 1	Technical Support	Endowments Agency:	Payoff Debt of Valdez Fisheries Development Association	R	
920615257. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Acquisition Of Koniag Corp. Inholdings Within The Kodiak National Wildlife Refuge, combined with 920601051.1	C	920601051.1
920615258. 1	Restoration Monitoring	Coastal Habitat Agency: NOAA	Recovery Monitoring Of Intertidal Oiled Mussel Beds In PWS And Gulf Of Alaska	P 93036	
920615258. 2	Technical Support	Services Agency: NOAA	Mgmt. Of Restoration Database,samples, Archiving, And Chemical Interpretation, combined with 920608184.1	C	920608184.1
920615258. 3	Management Actions	Fish/Shellfish Agency: ADFG	Injury to Salmon Eggs and Pre-emergent Fry in PWS, Laboratory Verification	P 93003	
920615259. 1	Restoration Monitoring	Sub-Tidal Agency: NOAA	Recovery Monitoring of Hydrocarbon-Contaminated Subtidal Marine Sediment Resources, combined with 920618315.1	C	920618315.1
920615260. 1	Habitat Protection and Acquisition	Inventory Agency: USDA	Restoration Recovery Monitoring Of Stream-rearing Anadromous Salmonids, combined with 920603092.1	C	920603092.1
920615261. 1	Restoration Monitoring	Marine Mammals Agency: NOAA	Photo-Identification Studies of PWS Killer Whales, combined with 920615261.2	C	920615261.2
920615261. 2	Restoration Monitoring	Marine Mammals Agency: NOAA	Use of Satellite Transmitters to Investigate Killer Whale Ecology in PWS	P 93042	
920615261. 3	Damage Assessment	Marine Mammals Agency: NOAA	Monitoring Of Small Cetaceans In PWS	R	

Document ID	Category	Project Type	Title	Status	Combined With
920615262. 1	Restoration Monitoring	Fish/Shellfish Agency: NOAA	Distribution Of Prey Species For Apex Predator Species (Murre, Guillemot, Murrelet, Harbor Seal, Etc.)	R	
920615262. 2	Restoration Monitoring	Ecosystem Agency: NOAA	Comprehensive Monitoring Program	P 93041	
920615263. 1	Restoration Monitoring	Sub-Tidal Agency: NOAA	Natural Recovery of Subtidal Species in PWS, combined with 920618315.1	C	920618315.1
920615264. 1	Restoration Monitoring	Coastal Habitat Agency: NOAA	Natural Recovery Of Oiled And Treated Shorelines	P 93040	
920615264. 2	Restoration Monitoring	Sub-Tidal Agency: NOAA	New Field Test of Bioremediation	R	
920615265. 1	Restoration Monitoring	Fish/Shellfish Agency: NOAA	PWS Long-Term Monitoring Program-Acute and Chronic Toxicity of Residual Hydrocarbons to Littleneck Clams	R	
920615266. 1	Manipulation and Enhancement	Coastal Habitat Agency: ADEC	Rapid Restoration Of Weathered Crude Contaminated Beach Subsurface Material.	R	
920615270. 1	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Port Graham Salmon Hatchery	R	
920615270. 2	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Village Mariculture Project	P 93019	
920615271. 1	Manipulation and Enhancement	Fish/Shellfish Agency: ADEC	Rapid Restoration Of Weathered Crude Beach Subsurface Material.	C	920615266.1
920615272. 1	Technical Support	Endowments Agency:	Sturgulewski Endowment, combined with 920604101.1	C	920604101.1
920615273. 1	Restoration Monitoring	Terestrial Mammals Agency: DOI	Productivity And Survival Of Brown Bears In Katmai National Park	R	
920615273. 2	Restoration Monitoring	Birds Agency: ADFG	Determine The Extent Of Oil Spill Injuries To Harlequin Ducks In National Parks, combined with 920615297.31	C	920615297.31
920615273. 3	Restoration Monitoring	Birds Agency: DOI	Determine Status Of Marbled Murrelet Populations In Oiled National Parks	R	
920615273. 4	Restoration Monitoring	Coastal Habitat Agency: NOAA	Recovery Monitoring Of Intertidal Oiled Mussel Beds Outside PWS, combined with 920615258.1	C	920615258.1
920615273. 5	Restoration Monitoring	Birds Agency: DOI	Determine The Status Of Bald Eagle Populations In Oiled National Parks, combined with 920615279.16	C	920615279.16
920615273. 6	Management Actions	Archaeology Agency: ADNR	Coastal Archaeological Inventory And Evaluation Of Archaeological, Sites Kenai And Katmai Natl Parks., combined	C	920615298.19

Document ID	Category	Project Type	Title	Status	Combined With
920615273. 7	Management Actions	Archaeology Agency: ADNR	Coastal Archaeological Inventory And Evaluation Of Archaeological Sites - Interagency, combined with 920615298.1	C	920615298.19
920615273. 8	Management Actions	Archaeology Agency: DOI	Site-specific Archaeological Restoration - Interagency	P 93006	
920615273. 9	Management Actions	Archaeology Agency: DOI	Site-specific Archaeological Restoration In Kenai And Katmai National Parks, Combine with 920615273.8	C	920615273.8
920615273. 10	Management Actions	Archaeology Agency: USDA	Archaeological Site Protection-public Education-interagency, Combine with 920615296.3	C	920615296.3
920615273. 11	Management Actions	Archaeology Agency: USDA	Archaeological Site Protection-public Education-national Park Service, Combine with 920615296.3	C	920615296.3
920615273. 12	Restoration Monitoring	Archaeology Agency: DOI	Archaeological Site Protection-Site Patrol Monitoring-Interagency	P 93008	
920615273. 13	Restoration Monitoring	Archaeology Agency: DOI	Archaeological Site Protection-site Patrol And Monitoring-national Park Service, Combine with 920615273.12	C	920615273.12
920615273. 14	Management Actions	Archaeology Agency: ADNR	Archaeological Site Stewardship Program, Combine with 920615298.20	C	920615298.20
920615273. 15	Restoration Monitoring	Marine Mammals Agency: DOI	Monitoring Of Sea Otter Population Abundance, Distribution, Reproduction, And Mortality.	P 93043	
920615273. 16	Habitat Protection and Acquisition	Inventory Agency: DOI	Habitat Utilization By Sea Otters And Designation Of Protected Areas	P 93044	
920615273. 17	Restoration Monitoring	Birds Agency: DOI	Feeding Ecology And Reproductive Success Of Black Oystercatchers In PWS	P 93035	
920615273. 18	Restoration Monitoring	Birds Agency: DOI	Monitoring Rate Of Recovery Of Murres In Breeding Colonies Downstream From Oil Spill. Same As 920615279.19	P 93049	
920615273. 19	Management Actions	Agency: DOI	Reduce Disturbance Near Murre Colonies Damaged By The Oil Spill	P 93010	
920615273. 20	Manipulation and Enhancement	Birds Agency: DOI	Removal Of Introduced Foxes To Restore Breeding Seabirds. Same As 920615279-17, combined with 920615279.17	C	920615279.17
920615273. 21	Restoration Monitoring	Marine Mammals Agency: DOI	Radio-Telemetry Project To Monitor Recovery Of Sea Otters	R	
920615273. 22	Restoration Monitoring	Marine Mammals Agency: DOI	Surveys To Monitor Marine Bird And Sea-otter Populations	P 93045	
920615273. 23	Restoration Monitoring	Birds Agency: DOI	Pigeon Guillemot Recovery Enhancement And Monitoring	P 93034	

Document ID	Category	Project Type	Title	Status	Combined With
920615273. 24	Restoration Monitoring	Birds Agency: DOI	Assessment Of Marbled Murrelet Foraging Habitat Requirements During Breeding Season	R	
920615273. 25	Habitat Protection and Acquisition	Inventory Agency:	Identification Of Nesting Habitat Criteria And Reproductive Success For Marbled Murrelet, combined with 920615273.25	P 93051	
920615273. 26	Habitat Protection and Acquisition	Inventory Agency:	Survey To Id Upland Use By Murrelets, combined with 920615273.25	C	920615273.25
920615273. 27	Restoration Monitoring	Birds Agency: DOI	Monitor Population Status Of Seabird Nesting Colonies In The Spill Zone	R	
920615273. 28	Restoration Monitoring	Birds Agency: DOI	Monitor Productivity Of Bald Eagles In PWS Kodiak And Alaska Pen. Pacific Coast, combined with 920615279.16	C	920615279.16
920615273. 29	Restoration Monitoring	Birds Agency: DOI	Long-term Population Monitoring For Bald Eagles, combined with 920615279.16	C	920615279.16
920615273. 30	Habitat Protection and Acquisition	Inventory Agency:	Identification And Protection Of Important Bald Eagle Habitats	R 93052	
920615273. 31	Management Actions	Birds Agency: DOI	Development Of Managment Strategies For Enhancing Recovery Rate Of Birds And Sea Otter Populations	R	
920615273. 32	Restoration Monitoring	Fish/Shellfish Agency: NOAA	Abundance And Distribution Of Forage Fish And Their Influence On Recovery Of Seabirds Impacted By EVOS, combined	C	920615262.1
920615273. 33	Restoration Monitoring	Fish/Shellfish Agency: NOAA	Hydrocarbons in Mussels From Coastal Gulf of Alaska, Cook Inlet and Shelikof Strait	R	
920615273. 34	Technical Support	GIS Agency: DOI	CD-ROM Publication Of Digital Spatial Data From Exxon Valdez Oil Spill Mapping Activities, combined with 920608184.1	C	920608191.1
920615273. 35	Manipulation and Enhancement	Coastal Habitat Agency: ADEC	Hydrodynamic Purging of Oil from Contaminated Beaches, PWS.	R	
920615273. 36	Restoration Monitoring	Coastal Habitat Agency: DOI	Fate And Transport Of Subsurface Hydrocarbons In Beach Deposits In PWS	R	
920615273. 37	Management Actions	Fish/Shellfish Agency: ADFG	Survey Of EVOS Impacted Native Communities-Subsistence	P 93017	
920615274. 1	Technical Support	Services Agency: ADNR	Construction Of Chenega Bay Marine Service Center	R	
920615279. 8	Habitat Protection and Acquisition	Land Acquisition Agency:	Habitat Acq., North Afognak Island, combined with 920601051.1	C	920601051.1
920615279. 9	Habitat Protection and Acquisition	Land Acquisition Agency:	Kodiak Bear Refuge Stream Mouth Inholdings Acq., combined with 920601051.1	C	920601051.1

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920615279. 10	Management Actions	Fish/Shellfish Agency: ADFG	Ayakulik River Sockeye Salmon Escapement Evaluation	R	
920615279. 11	Management Actions	Fish/Shellfish Agency: ADFG	Uganik River Fish Weir	R	
920615279. 12	Habitat Protection and Acquisition	Land Acquisition Agency:	Habitat Acq., Kodiak Island, combined with 920601051.1	C	920601051.1
920615279. 13	Restoration Monitoring	Birds Agency: DOI	Bald Eagle Productivity Survey And Catalog, combined with 920615279.16	C	920615279.16
920615279. 14	Restoration Monitoring	Marine Mammals Agency: DOI	Sea Otter Population Survey And Trends, combined with 920615273.15	C	920615273.15
920615279. 15	Restoration Monitoring	Birds Agency: ADFG	Breeding Population Status Of Harlequin Ducks On Areas Of The Kodiak Island Group W. And S. Sides, combined with 920615	C	920615297.31
920615279. 16	Restoration Monitoring	Birds Agency: DOI	Bald Eagle Nesting Surveys-Alaska Pen. Pacific Coast	R	
920615279. 17	Manipulation and Enhancement	Birds Agency: DOI	Removal Of Introduced Foxes To Restore Breeding Seabirds.	R	
920615279. 18	Restoration Monitoring	Birds Agency: DOI	Reduce Disturbance Near Murre Colonies Damaged By Oil Spill, combined with 920615273.19	C	920615273.19
920615279. 19	Restoration Monitoring	Birds Agency: DOI	Monitoring The Rate Of Recovery Of Murres In Breeding Colonies In Or Downstream From Oil Spill. Combined with 92061	C	920615273.18
920615279. 20	Habitat Protection and Acquisition	Land Acquisition Agency:	Acquisition Of Inholdings In Shuyak Island State Park, combined with 920601051.1	C	920601051.1
920615279. 21	Habitat Protection and Acquisition	Land Acquisition Agency:	Sites For Recreation Along Kodiak Road System, combined with 920601051.1	C	920601051.1
920615279. 23	Technical Support	Services Agency: ADFG	Villages Kitoi Bay Hatchery and Other Site Prevention and Response	R	
920615279. 24	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Kitoi Bay Hatchery On Afognak Island	R	
920615279. 25	Management Actions	Coastal Habitat Agency: NOAA	Thirteen Commercial Species Assessment	R	
920615279. 27	Management Actions	Archaeology Agency: USDA	Archaeological Outreach-Curator Position.	R	
920615279. 28	Management Actions	Archaeology Agency: ADNR	Alutiiq Museum And Culture Center-phase I Construction, combined with 920615298.17	C	920615298.17

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920615279. 29	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Enhancement Of The Pacific Herring	R	
920615279. 30	Restoration Monitoring	Fish/Shellfish Agency: ADFG	Assessment And Quality Assurance Of Shellfish Resources	R	
920615279. 31	Management Actions	Archaeology Agency: ADNR	Archaeological Site Inventory And Assessment, combined with 920615298.19	C	920615298.19
920615279. 32	Management Actions	Education Agency: ADNR	Environmental Learning Resource Center	R	
920615279. 98	Technical Support	Endowments Agency:	Kodiak Island Borough Endowment Fund to Support Restoration Activities, combined with 920604101.1	C	920604101.1
920615279. 99	Restoration Monitoring	Coastal Habitat Agency: ADFG	Monitoring Sites - Collector Beaches and Lagoons.	R	
920615286. 1	Manipulation and Enhancement	Air/Water Agency:	Silver Lake Hydropower Project	R	
920615286. 2	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Silver Lake Fish Hatchery	R	
920615286. 3	Manipulation and Enhancement	Air/Water Agency: ADNR	Power Creek Hydropower Project	R	
920615286. 4	Manipulation and Enhancement	Air/Water Agency: ADNR	Silver Lake to Ellamar to Tatitlek Underwater Intertie	R	
920615287. 1	Technical Support	Endowments Agency:	Endowment Proposal I, combined with 920604101.1	C	920604101.1
920615287. 2	Technical Support	Endowments Agency:	Endowment Proposal II, combined with 920604101.1	C	920604101.1
920615288. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Kodiak Wildlife Habitat Conservation And Acquisition Project, combined with 920601051.1	C	920601051.1
920615289. 1	Management Actions	Sub-Tidal Agency: ADEC	Field Study Of Bioremediation Enhancement Treatment Methods	R	
920615290. 1	Restoration Monitoring	Coastal Habitat Agency: ADEC	Shoreline Assessment	P 93038	
920615290. 2	Technical Support	Services Agency: ADEC	Electronic Archiving Of Exxon Valdez Response Records, combined with 920608184.1	C	920608184.1
920615291. 1	Habitat Protection and Acquisition	Inventory Agency:	Mark 17(b) Easements On Port Graham Land.	R	

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920615291. 2	Manipulation and Enhancement	Fish/Shellfish Agency: ADEC	Restoration Of Windy Bay Mussel Beds.	P 93023	
920615293. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Land Acq. PWS, Kodiak, combined with 920601051.1	C	920601051.1
920615294. 1	Manipulation and Enhancement	Fish/Shellfish Agency: ADEC	Restoration Of Mussel Beds, combined with 920615291.2.	C	920615291.2
920615294. 2	Manipulation and Enhancement	Archaeology Agency: ADNR	Restoration Of Chenega Village Site	R	
920615294. 3	Manipulation and Enhancement	Coastal Habitat Agency: ADEC	Chenega Bay Subsistence Restoration Project (Remove Oil)	P 93027	
920615294. 4	Habitat Protection and Acquisition	Education Agency:	17(b) Easement Identification, combined with 920615294.1	C	920615294.1
920615294. 5	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Chenega Chinook And Silver Salmon Release Program	P 93016	
920615294. 6	Management Actions	Fish/Shellfish Agency: USDA	Chenega Bay Replacement Subsistence Resource Project	C	920615273.37
920615295. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Habitat Acq., Afognak, combined with 920601051.1	C	920601051.1
920615296. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Archaeological Restoration Site Acquisition, combined with 920601051.1	C	920601051.1
920615296. 2	Manipulation and Enhancement	Archaeology Agency: ADNR	Heritage Information Replacement, combined with 920615298.19	C	920615298.19
920615296. 3	Management Actions	Archaeology Agency: USDA	Public Education In Spill Area Archaeology	P 93005	
920615296. 4	Management Actions	Archaeology Agency: DOI	Archaeological Site Stewardship - Homer and Kodiak, Combined with 920615298.20	C	920615298.20
920615296. 5	Management Actions	Archaeology Agency: ADNR	Archaeological Restoration-Regional Archaeological Planning	R	
920615296. 6	Management Actions	Recreation Agency: ADNR	Marine Recreation Plan For Spill Area	R	
920615296. 7	Manipulation and Enhancement	Recreation Agency: ADNR	Public Use Cabins In State Marine Parks	R	
920615296. 8	Habitat Protection and Acquisition	Land Acquisition Agency:	Acquisition Of Important Recreation Lands, combined with 920601051.1	C	920601051.1

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920615296. 9	Technical Support	Endowments Agency: USDA	Endowment, combined with 920604101.1	C	920604101.1
920615296. 10	Management Actions	Recreation Agency: ADNR	Recreation Field Management And Monitoring	R	
920615297. 1	Management Actions	Fish/Shellfish Agency: ADFG	Restoration Of PWS Rockfish And Lingcod Resources	R	
920615297. 2	Damage Assessment	Fish/Shellfish Agency: ADFG	PWS Herring Egg Loss Survey	R	
920615297. 3	Management Actions	Fish/Shellfish Agency: ADFG	PWS Herring Spawn Deposition Survey	R	
920615297. 4	Restoration Monitoring	Fish/Shellfish Agency: ADFG	PWS Herring Tagging Feasibility Study	R	
920615297. 5	Restoration Monitoring	Fish/Shellfish Agency: ADFG	Larval Herring Age and Growth in PWS Using Otoliths	C	920615297.4
920615297. 6	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Replacement Of Oiled Mussels With Commercially Produced Mussels, combined with 920615291.2	C	920615291.2
920615297. 7	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Mariculture Technical Center, Combined with 920612242.1	C	920612242.1
920615297. 9	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Lower Cook Inlet Sockeye Salmon Restoration And Enhancement	R	
920615297. 10	Restoration Monitoring	Fish/Shellfish Agency: ADFG	Subsistence Food Safety Testing, Combined with 920615273.37	C	920615273.37
920615297. 11	Technical Support	Sub-Tidal Agency: ADFG	Develop Protocols For Analysis And Assessment Of Benthic Biological, Physical, And Hydrocarbon Data	R	
920615297. 12	Restoration Monitoring	Sub-Tidal Agency: ADFG	Injury and Recovery of Deep-Benthic Macrofaunal Communities, combined with 920618315.1	C	920618315.1
920615297. 13	Management Actions	Terestrial Mammals Agency: ADFG	Synthesis Of Information On Ecology And Injury To River Otters In PWS	R	
920615297. 14	Restoration Monitoring	Marine Mammals Agency: ADFG	Habitat Use And Behavior Of Harbor Seals In PWS	P 93046	
920615297. 15	Restoration Monitoring	Marine Mammals Agency: ADFG	Monitoring Trends In Abundance Of Harbor Seals In PWS 1993-1994, combined with 920615297.14	C	920615297.14
920615297. 16	Technical Support	Services Agency: USDA	Development Of Economic Guidelines And Cost Benefit Analysis Of Oilspill Projects For NEPA And TC	R	

Document ID	Category	Project Type	Title	Status	Combined With
920615297. 17	Management Actions	Fish/Shellfish Agency: ADFG	Quality Assurance For PWS Coded Wire Tagging And Fish Production Records For Improved Mgmt. Ability	P 93014	
920615297. 18	Restoration Monitoring	Coastal Habitat Agency: USDA	Coastal Habitat Comprehensive Intertidal Monitoring Program	R	
920615297. 19	Restoration Monitoring	Coastal Habitat Agency: ADFG	Herring Bay Experimental And Monitoring Studies	C	920618316.3
920615297. 20	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Cold Creek Pink Salmon Restoration	P 93032	
920615297. 21	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Horse Marine Creek Pink Salmon Restoration	R	
920615297. 22	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Waterfall Creek Pink Salmon Restoration-Fish Improvement	R	
920615297. 23	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Pink Creek Pink Salmon Restoration, combined with 920615297.20	C	920615297.20
920615297. 24	Restoration Monitoring	Sub-Tidal Agency: ADFG	Natural Recovery Monitoring of Subtidal Eelgrass Communities in PWS, combined with 920618315.1	C	920618315.1
920615297. 25	Restoration Monitoring	Fish/Shellfish Agency: ADFG	Monitoring For Recruitment Of Littleneck Clams.	R	
920615297. 26	Technical Support	Services Agency: ADFG	Kitoi Bay Hatchery Oil Spill Equipment Storage	R	
920615297. 27	Habitat Protection and Acquisition	Inventory Agency:	Stream Habitat Assessment (R47), combined with 920615273.25	C	920615273.25
920615297. 28	Management Actions	Fish/Shellfish Agency: ADFG	Enhanced Management For Cutthroat Trout And Dolly Varden In PWS. Same As 920615249.1	P 93018	
920615297. 29	Habitat Protection and Acquisition	Inventory Agency:	Identification Of Critical Upland Wildlife Habitat in PWS, combined with 920603092.1	C	920603092.1
920615297. 30	Management Actions	Birds Agency: ADFG	Develop Harvest Guidelines To Aid Restoration Of Injured Terrestrial Mammals And Seaducks	P 93011	
920615297. 31	Restoration Monitoring	Birds Agency: ADFG	Harlequin Duck Restoration And Monitoring Study	P 93033	
920615297. 32	Damage Assessment	Fish/Shellfish Agency: ADFG	Sockeye Salmon Overescapement	P 93002	
920615297. 33	Management Actions	Fish/Shellfish Agency: ADFG	Genetic Risk Assessment Of Injured Salmonids	P 93004	

Document ID	Category	Project Type	Title	Status	Combined With
920615297. 34	Management Actions	Fish/Shellfish Agency: ADFG	Genetic Stock Identification For Herring In PWS	R	
920615297. 35	Management Actions	Fish/Shellfish Agency: ADFG	Genetic Stock Identification Of Kenai River Sockeye For Protection In Mixed Harvest Areas	P 93012	
920615297. 36	Restoration Monitoring	Fish/Shellfish Agency: ADFG	Genetic Monitoring of Kodiak Island Sockeye Salmon	R	
920615297. 37	Restoration Monitoring	Fish/Shellfish Agency: ADFG	Pink Salmon Egg to Pre-Emergent Fry Survival in PWS, combined with 920615258.3	C	920615258.3
920615297. 38	Management Actions	Fish/Shellfish Agency: ADFG	Coded Wire Tagging Of Wild Stock Pink Salmon For Stock Identification	R	
920615297. 39	Management Actions	Fish/Shellfish Agency: ADFG	Inventory And Effects Of Straying Hatchery Pink Salmon On Wild Pink Salmon Populations In PWS	P 93013	
920615297. 40	Management Actions	Fish/Shellfish Agency: ADFG	Pink Salmon Escapement Enumeration, combined with 920615297.39	C	920615297.39
920615297. 41	Management Actions	Fish/Shellfish Agency: ADFG	Adult Tagging To Determine Distribution, Migratory Timing And Rate Of Movement Of Pink Salmon In PWS	R	
920615297. 42	Management Actions	Fish/Shellfish Agency: ADFG	Coded Wire Tag Recoveries From Commercial Catches In PWS Salmon Fisheries, Combined with 920615297.41	C	920615297.41
920615297. 43	Management Actions	Fish/Shellfish Agency: ADFG	Kenai River Sockeye Salmon Restoration	P 93015	
920615297. 44	Management Actions	Fish/Shellfish Agency: ADFG	PWS Spot Shrimp Recovery Management Plan	R	
920615297. 45	Restoration Monitoring	Fish/Shellfish Agency: ADFG	PWS Spot Shrimp Survey	R	
920615297. 46	Management Actions	Fish/Shellfish Agency: ADFG	Juvenile Spot Shrimp Habitat, Combined with 920615297.44	C	920615297.44
920615297. 47	Management Actions	Fish/Shellfish Agency: ADFG	Intertidal/Shallow Subtidal Crustacean (Decapod) Composition	R	
920615297. 48	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Fort Richardson Pipeline.	P 93026	
920615297. 68	Habitat Protection and Acquisition	Land Acquisition Agency:	Weir And Conservation Land Acquisition, combined with 920601051.1	C	920601051.1
920615297. 69	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Red Lake Salmon Restoration	P 93030	

Document ID	Category	Project Type	Title	Status	Combined With
920615297. 70	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Red Lake Mitigation.	P 93031	
920615297. 71	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Fry Rearing To Improve Survival And Restore Wild Pink And Chum Salmon Stocks	R	
920615297. 72	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Restoration Of The Coghill Lake Sockeye Salmon Stock.	P 93024	
920615297. 73	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Instream Habitat And Stock Restoration Techniques For Anadromous Fish.	R	
920615297. 74	Management Actions	Fish/Shellfish Agency: ADFG	Otolith Mass Marking As An Inseason Stock Separation Tool To Reduce Wild Stock Salmon Exploitation	R	
920615297. 75	Manipulation and Enhancement	Fish/Shellfish Agency: ADFG	Est. An Ecological Basis For Restoring And Enhancing The Mixed-stock Salmon Resources Of PWS.	R	
920615298. 1	Technical Support	Services Agency: USDA	Cultural Emergency Response System	R	
920615298. 2	Technical Support	Services Agency: USDA	Multi-agency Library On PWS And Copper River Delta	R	
920615298. 3	Technical Support	Services Agency: USDA	Oilspill Injured Resources Literature Research And Review	R	
920615298. 4	Management Actions	Education Agency: USDA	PWS Large Format Photographic Book, combined with 920615298.25	C	920615298.25
920615298. 5	Management Actions	Education Agency: USDA	PWS Family Of Brochures, combined with 920615298.25	C	920615298.25
920615298. 6	Management Actions	Education Agency: USDA	PWS Family Of Video Programs, combined with 920615298.25	C	920615298.25
920615298. 7	Management Actions	Education Agency: USDA	PBS Program On PWS, combined with 920615298.25	C	920615298.25
920615298. 8	Manipulation and Enhancement	Recreation Agency: USDA	PWS Kayak Trail, combined with 920615298.55	C	920615298.55
920615298. 9	Management Actions	Education Agency: USDA	PWS Implementation Of Interpretive Plan, combined with 920615298.25	C	920615298.25
920615298. 10	Management Actions	Recreation Agency: USDA	Protect Resources And Enhance Visitor Enjoyment Through Increased Administrative Presence	R	
920615298. 11	Management Actions	Education Agency: USDA	PWS Scenic Byway-- Nomination And Interpretive Plan, combined with 920615298.25	C	920615298.25

Document ID	Category	Project Type	Title	Status	Combined With
920615298. 12	Damage Assessment	Recreation Agency: USDA	Sustainable Tourism In PWS, Combine with 920615298.28	C	920615298.28
920615298. 13	Technical Support	Endowments Agency: USDA	Endowment, combined with 920604101.1	C	920604101.1
920615298. 14	Manipulation and Enhancement	Recreation Agency: USDA	Prince William Sound Campground, combined with 920615298.55	C	920615298.55
920615298. 15	Manipulation and Enhancement	Recreation Agency: USDA	PWS Recreation Facilities, combined with 920615298.55	C	920615298.55
920615298. 16	Manipulation and Enhancement	Recreation Agency: USDA	Enhanced Trail Opportunities, Including Columbia And Blackstone Glacier Trails, combined with 920615298.55	C	920615298.55
920615298. 17	Management Actions	Archaeology Agency: USDA	Nuchek Heritage Interpretive Center	R	
920615298. 18	Management Actions	Archaeology Agency: USDA	Vandalized Cultural Resources--inventory, Evaluation, Interpretation, Combine with 920615296.3	C	920615296.3
920615298. 19	Management Actions	Archaeology Agency: USDA	PWS Landmarks--Evaluation And Interpretation	R	
920615298. 20	Management Actions	Archaeology Agency: DOI	PWS Site Stewardship Program	P 93007	
920615298. 21	Management Actions	Archaeology Agency: USDA	Chugach Natural Forest Heritage Interpretive Centers, combined with 920615298.17	C	920615298.17
920615298. 22	Management Actions	Archaeology Agency: DOI	Passports In Time--Cultural Resource Patterns In PWS, Combine with 920615296.3	C	920615296.3
920615298. 23	Management Actions	Education Agency: USDA	Valdez Visitors Center, combined with 920615298.50	C	920615298.50
920615298. 24	Manipulation and Enhancement	Recreation Agency: USDA	Green Island Cabin Replacement, combined with 920615298.55	C	920615298.55
920615298. 25	Management Actions	Education Agency: USDA	Public Information and Education	P 93009	
920615298. 26	Management Actions	Recreation Agency: USDA	Interpretation Of PWS, combined with 920615298.26	C	920615298.25
920615298. 27	Management Actions	Education Agency: USDA	Cordova Environmental Education Center, combined with 920615273.25	C	920615273.25
920615298. 28	Damage Assessment	Recreation Agency: USDA	Post-Oilspill Recreation-based User Survey For PWS	P 93001	

Document ID	Category	Project Type	Title	Status	Combined With
920615298. 29	Restoration Monitoring	Ecosystem Agency: USDA	Inventory, Monitor, Protect Permanent Monitoring Sites	R	
920615298. 30	Restoration Monitoring	Birds Agency: USDA	Survey To Determine Abundance Distribution, Habitat And Food Habits Of Staging Shore Birds W Cr Delta	R	
920615298. 31	Restoration Monitoring	Birds Agency: USDA	Survey To Determine Distribution, Abundance, Food Habits Of Migratory Waterfowl Staging W. Cr Delta	R	
920615298. 32	Restoration Monitoring	Birds Agency: USDA	Migratory Shore Birds Staging In Rocky Intertidal Habitats Of PWS	R	
920615298. 33	Habitat Protection and Acquisition	Inventory Agency: USDA	Fish Limiting Factors Analysis, combined with 920615298.36	C	920615298.36
920615298. 34	Management Actions	Fish/Shellfish Agency: USDA	Wild Fish Stock Information Assessment, combined with 920615297.28	C	920615297.28
920615298. 35	Manipulation and Enhancement	Birds Agency: USDA	Restoration And Mitigation Of Essential Wetland Habitats For PWS Fish And Wildlife	P 93028	
920615298. 36	Habitat Protection and Acquisition	Inventory Agency: USDA	Stream Channel Type Classification And Fish Habitat Assessment	R	
920615298. 37	Manipulation and Enhancement	Fish/Shellfish Agency: USDA	Montague Island Chum Salmon Restoration	P 93025	
920615298. 38	Habitat Protection and Acquisition	Inventory Agency: USDA	Anadromous Cutthroat And Dolly Varden Char Habitat Inventory, Evaluation, And Restoration, combined with 9206152	C	920615298.36
920615298. 39	Management Actions	Education Agency: USDA	Eyes On Wildlife-injured Resources And Their Restoration, combined with 920615298.25	C	920615298.25
920615298. 40	Habitat Protection and Acquisition	Inventory Agency: USDA	Migratory Waterfowl And Shorebird Monitoring, combined with 920603092.1	C	920603092.1
920615298. 41	Manipulation and Enhancement	Fish/Shellfish Agency: USDA	Feasibility Of Fish Passes As Oilspill Restoration, combined with 920615297.73	C	920615297.73
920615298. 42	Management Actions	Fish/Shellfish Agency: ADFG	PWS Salmon Stock Genetics. Combine with 920615297.33	C	920615297.33
920615298. 43	Habitat Protection and Acquisition	Inventory Agency: USDA	Stream Channel Capability Modeling, combined with 920615298.36	C	920615298.36
920615298. 44	Habitat Protection and Acquisition	Inventory Agency:	Characterization And Identification Of Habitats Important To Upland Species (Harlequin, Murrelet, etc), combined with 9206	C	920615273.25
920615298. 45	Habitat Protection and Acquisition	Inventory Agency:	Vegetation And Stream Classification And Mapping Of Western PWS, combined with 920615273.25	C	920615273.25

Document ID	Category	Project Type	Title	Status	Combined With
920615298. 46	Habitat Protection and Acquisition	Inventory Agency:	Wetland Habitat Classification, Mapping And Assessment, combined with 920603092.1	C	920603092.1
920615298. 47	Technical Support	GIS Agency: ADNR	Geographic Information System Mapping Of Natural Resources In Western PWS, combined with 920608184.1	C	920608191.1
920615298. 48	Technical Support	Services Agency: USDA	Communication System for Oil Spill Program	P 93048	
920615298. 49	Technical Support	Services Agency: USDA	Oil Spill Restoration Support Service And Facilities	R	
920615298. 50	Management Actions	Education Agency: USDA	Environmental Education Center In PWS.	R	
920615298. 51	Technical Support	Endowments Agency: USDA	Endowment, combined with 920604101.1	C	920604101.1
920615298. 52	Habitat Protection and Acquisition	Inventory Agency:	Distribution, Abundance, Habitat Use And Phylogeny Of Canada Geese In PWS	R	
920615298. 53	Habitat Protection and Acquisition	Inventory Agency:	Inland Survey Of Marbled Murrelet Habitat Use In PWS, combined with 920615273.25	C	920615273.25
920615298. 54	Manipulation and Enhancement	Coastal Habitat Agency: USDA	Restoration Of Second Growth Habitat For Wildlife In PWS	P 93029	
920615298. 55	Manipulation and Enhancement	Recreation Agency: USDA	Low Impact Recreation Development Nellie Juan, College Fiord Wilderness Study Area	R	
920616307. 1	Manipulation and Enhancement	Coastal Habitat Agency: USDA	Restoration of High-Intertidal Fucus Following EVOS, combined with 920618316.3	C	920618316.3
920616310. 1	Technical Support	Services Agency: ADFG	Near Island Fisheries Research Center	R	
920617313. 1	Technical Support	Services Agency: ADNR	Construction Of Chenega Marine Service Center, combined with 920615274.1	C	920615274.1
920617314. 1	Management Actions	Education Agency: USDA	Press Release Project On Restoration Program Work	R	
920618315. 1	Restoration Monitoring	Fish/Shellfish Agency: NOAA	Monitoring Injury to Rockfish in PWS	P 93047	
920618316. 1	Manipulation and Enhancement	Fish/Shellfish Agency: ADEC	Mussel Bed Treatment	R	
920618316. 2	Manipulation and Enhancement	Fish/Shellfish Agency: ADEC	Mussel Bed Treatment, combined with 920615291.2	C	920615291.2

Document ID	Category	Project Type	Title	Status	Combined With
920618316. 3	Manipulation and Enhancement	Sub-Tidal Agency: ADFG	Kelp Regeneration In The Upper Intertidal	P 93039	
920618318. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Acquisition Of Koniag Corp Inholdings Within The Kodiak State Park, combined with 920601051.1	C	920601051.1
920619321. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Acquire Olsen Bay Watershed, 920601051.1	C	920601051.1
920619323. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Habitat Acq. Of Koniag Corp. Inholdings, Kodiak National Wildlife Refuge, 920601051.1	C	920601051.1
920622324. 1	Habitat Protection and Acquisition	Land Acquisition Agency:	Acquisition Of Habitat, Afognak Island., combined with 920601051.1	C	920601051.1
920622326. 1	Habitat Protection and Acquisition	Inventory Agency:	Workshop To Identify Critical Habitats In PWS Temporate Rain Forest, combined with 920622326.1	P 93059	
920622326. 2	Technical Support	Technical Support Agency: NOAA	Full Funding For Oil Spill Recovery Institute	R	
920622326. 3	Restoration Monitoring	Technical Support Agency:	Full Funding for Cordova Oil Spill Recovery Institute	R	
920622326. 4	Management Actions	Ecosystem Agency: NOAA	Testing Of Patch-Response Patch Dependence Hypothesis-Testing of an Ecosystem Model	R	
920622326. 5	Technical Support	Technical Support Agency: USDA	Develop Video Library Of Intertidal Habitat And Biota To Assess Impact And Determine Recovery, combined with 920615298	C	920615298.2
920622326. 6	Technical Support	GIS Agency: ADNR	Experimental Designs and Statistical Procedures for Damage for Oilspill Cleanup and Restoration Projects	R	
920622326. 7	Restoration Monitoring	Sub-Tidal Agency: ADFG	Characterization Of Near-shore Bottom Habitat	R	
920622326. 8	Restoration Monitoring	Ecosystem Agency: USDA	Multi-agency University Ecosystem Study Of PWS	R	
920622326. 9	Technical Support	GIS Agency: ADNR	Interactive Public Access to Oil Spill and Related Environmental Data in PWS Science Center GIS	R	
920622326. 10	Habitat Protection and Acquisition	Inventory Agency:	Mapping Streams And Salmon Spawning In PWS, combined with 920615273.25	C	920615273.25
920622326. 11	Technical Support	Technical Support Agency: USDA	Establish Natural Resource Library And Computer Support Technical Service In Cordova, combined with 920615298.2	C	920615298.2
920622326. 12	Management Actions	Education Agency: USDA	Cordova Mini-imaginarium, combine with 920615298.25	C	920615298.25

Document ID	Category	Project Type	Title	Status	Combined With
920622326. 13	Management Actions	Education Agency: USDA	Science Of The Sound- Education Program, combined with 920615298.25	C	920615298.25
920622326. 14	Management Actions	Education Agency: USDA	Alaska Oil Spill Curriculum Rewrite And Reprint, combine with 920615298.25	C	920615298.25

EXXON VALDEZ OIL SPILL

1993 Ideas Table, Sorted by Idea Title

This table allows users to determine what ideas were considered for inclusion in the 1993 work plan. Similar ideas were combined and considered as a unit. One idea from a group was chosen as the lead idea and all similar ideas were combined with it. Thus, ideas which display a "C" in the status column were combined with another idea. In the title field, the document identification number of the idea with which it was combined is noted following the title. **For ideas with a "C" status, it is usually easier to find the lead project with which the "C" idea was combined by proceeding to the "Ideas Table, Sorted by Document Identification Number".** Documents which display "P" or "R" are the lead ideas into which other ideas were combined. Ideas with the "P" status were developed as proposals and the project number appears in the same column as the document identification number and above it. Ideas with "R" in the status column were rejected. Endowment ideas ("E" in the status column) will be considered by the Restoration Team or a subgroup thereof at a later date. This table also displays recommendation factors and evaluation comments which were considered before rejecting or passing ideas. In some cases the evaluation comments were more extensive than the field size allows. For these few, the complete comments are available upon request. In most cases, evaluation factors and comments apply only to "R" and "P" lead ideas (referring to the entire combined group). No entries in these columns for "P" ideas usually indicates good agreement with evaluation criteria.

ABBREVIATION KEY:

FIELD	CODE	EXPLANATION
Preliminary Lead Agency	ADEC	Alaska Dept. of Environmental Conservation
	ADFG	Alaska Dept. of Fish and Game
	ADNR	Alaska Dept. of Natural Resources
	DOI	United States Dept. of the Interior
	NOAA	National Oceanic and Atmospheric Administration
	USDA	United States Dept. of Agriculture
Status	C	Combined with another idea
	D	Duplicate of another idea
	E	Forwarded to Endowment Work Group
	P	Recommend Preparation of Study Plan and Budget
	R	Recommend Rejection

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Title Document Author	Project Num. Document ID#	Category Project Type	Lead Agency	Status	Recommend. Factors	Evaluation Comments
17(b) Easement Identification, combined with 920615294.1	920615294. 4	Habitat Protection and Acquisition Education		C	1,	Combined with 291-01. Normal agency responsibility.
Abundance And Distribution Of Forage Fish And Their Influence On Recovery Of Seabirds Impacted By EVOS, combi	920615273. 32	Restoration Monitoring Fish/Shellfish	NOAA	C		
Acquire Olsen Bay Watershed, 920601051.1 Helle, John. None	920619321. 1	Habitat Protection and Acquisition Land Acquisition		C		
Acquisition Of Habitat, Afognak Island., combined with 920601051.1 Carmichael, James. President Afognak Native Corporation	920622324. 1	Habitat Protection and Acquisition Land Acquisition		C		
Acquisition Of Important Recreation Lands, combined with 920601051.1 Johannsen, Neil. ADNR	920615296. 8	Habitat Protection and Acquisition Land Acquisition		C		
Acquisition Of Inholdings In Shuyak Island State Park, combined with 920601051.1 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 20	Habitat Protection and Acquisition Land Acquisition		C		
Acquisition Of Koniag Corp Inholdings Within The Kodiak State Park, combined with 920601051.1 Pagano, Frank. President Koniag, Inc.	920618318. 1	Habitat Protection and Acquisition Land Acquisition		C		
Acquisition Of Koniag Corp. Inholdings Within The Kodiak National Wildlife Refuge, combined with 920601051.1 Pagano, Frank. President Koniag, Inc.	920615257. 1	Habitat Protection and Acquisition Land Acquisition		C		

KEY TO RECOMMENDATION FACTORS

1 = No linkage to Exxon Valdez Oil Spill, 2 = Not technically feasible, 3 = Inconsistent with laws or policies, 4 = Project previously funded for close-out, 5 = 1993 Close-out project, 6 = New Project where injury is apparent, 7 = Damage assessment continuation, 8 = No restoration endpoint, 9 = Not time critical 10 = No lost opportunity if not conducted in 1993, 11 = Involves long-term commitment.

Title Document Author	Project Num. Document ID#	Category Project Type	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Acquisition Of Recreational Sites On Kodiak Road System, combined with 920601051.1 Blackett, Roger. Chairman Kodiak St. Prks Citizen's Advisory Board	920601051. 2	Habitat Protection and Acquisition Land Acquisition		C		
Acquisition Of Recreational Sites On Kodiak Road System, combined with 920601051.1 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920601058. 11	Habitat Protection and Acquisition Land Acquisition		C		
Adult Tagging To Determine Distribution, Migratory Timing And Rate Of Movement Of Pink Salmon In PWS Sharr, Sam. ADF&G	920615297. 41	Management Actions Fish/Shellfish	ADFG	R	9,	297-42 should be funded by the non-profit fish hatcheries.
Alaska Land And Wildlife Conservation Fund, combined with 920604101.1 Cline, Dave. Vice-President National Audubon Society	920601067. 1	Technical Support Endowments		C		
Alaska Oil Spill Curriculum Rewrite And Reprint, combine with 920615298.25 Thomas, G.L.. Director PWS Science Center	920622326. 14	Management Actions Education	USDA	C		
Alutiiq Museum And Culture Center-phase I Construction, combined with 920615298.17 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 28	Management Actions Archaeology	ADNR	C		
Anadromous Cutthroat And Dolly Varden Char Habitat Inventory, Evaluation, And Restoration, combined with 920 Schmid, Dave. USFS-Cordova Ranger District	920615298. 38	Habitat Protection and Acquisition Inventory	USDA	C		
Analyze NRDA Samples Left Un-Analyzed, combined with 920604101.1	920601058. 4	Technical Support Endowments	NOAA	C		

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Title Document Author	Project Num. Document ID#	Category Project Type	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Annual Garbage Cleanup Program for Oil Spill Impacted Beaches	920612237. 3	Restoration Monitoring Recreation		R	8,9,10,11	EVOS-linked impact unknown.
Archaeological Outreach-Curator Position. Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 27	Management Actions Archaeology	USDA	R	8,9,10,	
Archaeological Restoration Site Acquisition, combined with 920601051.1 Bittner, Judith. Office of History/Acheaol ADNR	920615296. 1	Habitat Protection and Acquisition Land Acquisition		C		
Archaeological Restoration-Regional Archaeological Planning Bittner, Judith. Office of History/Acheaol ADNR	920615296. 5	Management Actions Archaeology	ADNR	R	-08,9,10,	Linkage to recovery of injured resources not demonstrated.
Archaeological Site Inventory And Assessment, combined with 920615298.19 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 31	Management Actions Archaeology	ADNR	C		
Archaeological Site Protection-public Education-interagency, Combine with 920615296.3 Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 10	Management Actions Archaeology	USDA	C		
Archaeological Site Protection-public Education-national Park Service, Combine with 920615296.3 Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 11	Management Actions Archaeology	USDA	C		
Archaeological Site Protection-site Patrol And Monitoring-national Park Service, Combine with 920615273. Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 13	Restoration Monitoring Archaeology	DOI	C		

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Archaeological Site Protection-Site Patrol Monitoring-Interagency Hamson, Dan. Chief Coastal Programs National Park Service	93008 920615273. 12	Restoration Monitoring Archaeology	DOI	P		DOI-USFWS
Archaeological Site Stewardship - Homer and Kodiak, Combined with 920615298.20	920615296. 4	Management Actions Archaeology	DOI	C		
Archaeological Site Stewardship Program, Combine with 920615298.20 Diters, Charles. Regional Arceaologist US Fish and Wildlife Service	920615273. 14	Management Actions Archaeology	ADNR	C		
Archaeological Specimens, University of Alaska Museum, combined with 920601049.1 Redman, Wendy. Vice President University of Alaska Statewide System	920601049. 3	Technical Support Archaeology	ADNR	C		
Archive Biological and Archaeological Specimens - Revised Proposal, combined with 920601049.1 Steffan, Wallace. University of Alaska Statewide Systems	920601065. 1	Technical Support Coastal Habitat	ADNR	C		
Assessment And Quality Assurance Of Shellfish Resources Donohue, Marke. Kodiak Area Native Association	920615279. 30	Restoration Monitoring Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown. Technical feasibility unknown.
Assessment Of Marbled Murrelet Foraging Habitat Requirements During Breeding Season McVee, Curtis. Department of the Interior	920615273. 24	Restoration Monitoring Birds	DOI	R	9,10,	
Assist Valdez in Handling Waste Oil Griffin, Doug. City Manager City of Valdez	920601050. 16	Manipulation and Enhancement Services		R	8,9,10,	EVOS-linked impact unknown.

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Ayakulik River Sockeye Salmon Escapement Evaluation Bellinger, Jay. Kodiak National Wildlife Refuge	920615279. 10	Management Actions Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown.
Bald Eagle Nesting Surveys-Alaska Pen. Pacific Coast Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 16	Restoration Monitoring Birds	DOI	R	9,10,	Technical feasibility unknown.
Bald Eagle Productivity Survey And Catalog, combined with 920615279.16 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 13	Restoration Monitoring Birds	DOI	C		
Beach Subsurface Oil Recovery, combined with 920615294.3 Carlisle, Kelly. Mayor City of Whittier Mayor City of Whittier	920528045. 1	Manipulation and Enhancement Coastal Habitat	ADEC	C		
Bird and Mammal Specimens, University of Alaska Museum, combined with 920601049.1 Redman, Wendy. Vice President University of Alaska Statewide System	920601049. 2	Technical Support Birds	ADNR	C		
Bivalve Shellfish Rehabilitation Project Moyer, Mike. None	920527041. 1	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	Technical feasibility unknown, at best.
Breeding Population Status Of Harlequin Ducks On Areas Of The Kodiak Island Group W. And S. Sides, combined with Bellinger, Jay. Kodiak National Wildlife Refuge	920615279. 15	Restoration Monitoring Birds	ADFG	C		
Build Facilities For Oil Workers Who Work In Karluk Kodiak Area Derenoff, Margie. Kodiak Area Native Association	920614300. 1	Technical Support Services		R	1,	

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Build Research and Monitoring Facilities and Program/Cook Inlet, Kodiak Kroll, Henry. None	920603093. 1	Restoration Monitoring Fish/Shellfish	NOAA	R	9,10,	EVOS-linked impact unknown.
C-lab-A System For Monitoring Meteorological And Oceanographic Variables That Affect Salmon Growth Cooney, Robert. Institute of Marine Sciences	920612244. 1	Management Actions Fish/Shellfish	NOAA	R	8,9,10,11	EVOS-linked impact unknown.
CD-ROM Publication Of Digital Spatial Data From Exxon Valdez Oil Spill Mapping Activities, combined with 920608 Shasby, Mark B.. Chief USGS EROS AK Office USGS EROS Alaska Field Office	920615273. 34	Technical Support GIS	DOI	C		
Characterization And Identification Of Habitats Important To Upland Species (Harlequin, Murrelet, etc), c Van Zee, Bruce. USDA-Forest Service	920615298. 44	Habitat Protection and Acquisition Inventory		C		
Characterization Of Near-shore Bottom Habitat Thomas, G.L.. Director PWS Science Center	920622326. 7	Restoration Monitoring Sub-Tidal	ADFG	R	8,9,10,	
Chenega Bay Replacement Subsistence Resource Project Totemoff, Charles. President	920615294. 6	Management Actions Fish/Shellfish	USDA	C	10,	Consistency w/laws and policies unknown. ADOL believes that it is consistent w/ the MOA; USDOI is uncertain. Combine w/920615273.37 (930
Chenega Bay Subsistence Restoration Project (Remove Oil) Totemoff, Charles. President	93027 920615294. 3	Manipulation and Enhancement Coastal Habitat	ADEC	P	11	Budget estimate seems very low. Type A manual pick-up believed to be not appropriate. Machine clean-up needed, so also conisder.
Chenega Chinook And Silver Salmon Release Program Totemoff, Charles. President	93016 920615294. 5	Manipulation and Enhancement Fish/Shellfish	ADFG	P	9,	EVOS-linked impact unknown. Technical feasibility unknown. Needs to be run through Regional Planning Team and obtain licensing,etc. Not time critical

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Chugach Natural Forest Heritage Interpretive Centers, combined with 920615298.17 Van Zee, Bruce. USDA-Forest Service	920615298. 21	Management Actions Archaeology	USDA	C		
Clam Enhancement, combined with 920612242.1 Hetrick, Jeff. Alaska AquaFarm	920514006. 1	Manipulation and Enhancement Fish/Shellfish	ADFG	C		
Coastal Archaeological Inventory And Evaluation Of Archaeological Sites - Interagency, combined with 9206152 Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 7	Management Actions Archaeology	ADNR	C		
Coastal Archaeological Inventory And Evaluation Of Archaeological, Sites Kenai And Katmai Natl Parks., combi Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 6	Management Actions Archaeology	ADNR	C		
Coastal Habitat Comprehensive Intertidal Monitoring Program Highsmith, Ray. UAA, Institute of Marine Science	920610228. 2	Restoration Monitoring Coastal Habitat	ADFG	C		
Coastal Habitat Comprehensive Intertidal Monitoring Program Highsmith, Ray. Institute of Marine Science	920615297. 18	Restoration Monitoring Coastal Habitat	USDA	R	9,10,	A comprehensivwe Natural Recovery Monitoring Project is premature until a final Damage Assessment report is prepared.
Coastal Habitat Injury Assessment - Intertidal Algae Stekoll, Michael. UAA, School of Fisheries & Ocean Science	920610229. 3	Damage Assessment Coastal Habitat	USDA	R	4,	
Coastal Habitat Specimens, University of Alaska Museum Redman, Wendy. Vice President University of Alaska Statewide System	920601049. 1	Technical Support Coastal Habitat	ADNR	R	8,9,11	No need on TS-1. Has carry over money to dispose of. Crchival is rejected. RT will deal with this the week of 7/20. Consider damage assessment by TC

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Coded Wire Tag Recoveries From Commercial Catches In PWS Salmon Fisheries, Combined with 920615297.41 Sharr, Sam. ADF&G	920615297. 42	Management Actions Fish/Shellfish	ADFG	C		
Coded Wire Tagging Of Wild Stock Pink Salmon For Stock Identification Sharr, Sam. ADF&G	920615297. 38	Management Actions Fish/Shellfish	ADFG	R	9,	
Cold Creek Pink Salmon Restoration Honnold, Steve. Fred Division ADF&G	93032 920615297. 20	Manipulation and Enhancement Fish/Shellfish	ADFG	P	9,10,11	Long term commitment is based upon associated bioenhancement of habitat above the stream. Approved for 20 and 23. Rejected for 21 (duplicate form).
Cold Weather Oil Spill School Walker, William. City of Valdez	920615254. 1	Technical Support Education		R	8,9,10,	EVOS-linked impact unknown.
Communication System for Oil Spill Program Van Zee, Bruce. USDA-Forest Service	93048 920615298. 48	Technical Support Services	USDA	P	10,	Lead agency FS with ADEC cooperating. Tailor proposal to maintain existing FM system while gathering information on converting to a cellular system.
Comprehensive Monitoring Program	93041 920615262. 2	Restoration Monitoring Ecosystem	NOAA	P		Delete implementation portion.
Construction Of Chenega Bay Marine Service Center Totemoff, Philip. Chenega Bay I.R.A. Council	920615274. 1	Technical Support Services	ADNR	R	2,9,10,11	Consistency w/laws and policies unknown. USDOI - believes this is legal; ADOL does not since there is no connection to restoring natural resourc
Construction Of Chenega Marine Service Center, combined with 920615274.1 Totemoff, Philip. Chenega Bay I.R.A. Council	920617313. 1	Technical Support Services	ADNR	C		

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Cook Inlet Comprehensive Monitoring Program Parker, Lisa. Regional Citizens Advisory Council	920612235. 1	Damage Assessment Ecosystem	NOAA	R	9,10,	
Cordova Environmental Education Center, combined with 920615273.25 Van Zee, Bruce. USDA-Forest Service	920615298. 27	Management Actions Education	USDA	C	9,10,11	
Cordova Environmental Reporter Winchester, James. KCHU Radio	920601064. 1	Management Actions Education	USDA	R	10,11	Not most cost effective because of Admin. Public Relations personnel and the PAG is coming on-line along with the general media.
Cordova Mini-imaginarium, combine with 920615298.25 Thomas, G.L.. Director PWS Science Center	920622326. 12	Management Actions Education	USDA	C		
Cultural Emergency Response System	920615298. 1	Technical Support Services	USDA	R	8,9,10,	EVOS-linked impact unknown.
Cutthroat Trout And Dolly Varden Hatchery Arruda, David. Cordova Fly-Fishers	920615249. 2	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	
Damage Assessment Of Economic Damages To Wilderness-based Tourism Lethcoe, Nancy. Ak Wilderness Recreation & Tourism Assoc	920602084. 1	Damage Assessment Inventory	ADNR	C		EVOS-linked impact unknown. ADOL - only do this in order to estimate loss of services and to determine how to restore sevices to the baseline levels.
Database Integration Simonson, Bruce. ADF&G	93053 920608184. 1	Technical Support Services	ADFG	P		Develop for both state and federal documentation. Forwarded to the GIS Working Group.

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Database Management - NRDA FS30, combined with 920608184.1 Simonson, Bruce. ADF&G	920608184. 2	Technical Support Services	ADFG	C		
Determine Status Of Marbled Murrelet Populations In Oiled National Parks Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 3	Restoration Monitoring Birds	DOI	R	9,10,	
Determine The Extent Of Oil Spill Injuries To Harlequin Ducks In National Parks, combined with 920615297.31 Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 2	Restoration Monitoring Birds	ADFG	C		
Determine The Status Of Bald Eagle Populations In Oiled National Parks, combined with 920615279.16 Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 5	Restoration Monitoring Birds	DOI	C		
Develop Harvest Guidelines To Aid Restoration Of Injured Terrestrial Mammals And Seaducks Nowlin, Roy. ADF&G	93011 920615297. 30	Management Actions Birds	ADFG	P		
Develop Protocols For Analysis And Assessment Of Benthic Biological, Physical, And Hydrocarbon Data Feder, Howard. UAF	920615297. 11	Technical Support Sub-Tidal	ADFG	R	4,	EVOS-linked impact unknown.
Develop User Friendly Synopsis Of Oil Spill Information, combine with 920615298.25 Ott, Riki. Oil Reform Alliance	920604104. 1	Management Actions Education	USDA	C		
Develop Video Library Of Intertidal Habitat And Biota To Assess Impact And Determine Recovery, combined with 92061 Thomas, G.L.. Director PWS Science Center	920622326. 5	Technical Support Technical Support	USDA	C		

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Development Of Economic Guidelines And Cost Benefit Analysis Of Oilspill Projects For NEPA And TC Hartman, Jeff. Fred Division ADF&G	920615297. 16	Technical Support Services	USDA	R	9,10,	Duplicative of Walcoff contract and also 1992 funding to Restoration Planning Work Group for analysis.
Development Of Managment Strategies For Enhancing Recovery Rate Of Birds And Sea Otter Populations McVee, Curtis. Department of the Interior	920615273. 31	Management Actions Birds	DOI	R	9,10,	
Distribution Of Prey Species For Apex Predator Species (Murre, Guillemot, Murrelet, Harbor Seal, Etc.) None, None. NOAA-NMFS, OSDA&RO	920615262. 1	Restoration Monitoring Fish/Shellfish	NOAA	R	9,10,	Reduce focus to design sampling program. Technical feasibility unknown.
Distribution, Abundance, Habitat Use And Phylogeny Of Canada Geese In PWS Logan, Dan. Wildlife Biologist USFS	920615298. 52	Habitat Protection and Acquisition Inventory		R	1,	
Electronic Archiving Of Exxon Valdez Response Records, combined with 920608184.1 Bruce, David. Restoration Specialist ADEC-EVOS Project	920615290. 2	Technical Support Services	ADEC	C		
Endowment of Sinking Fund Komisar, Jerome. President University of Alaska	920604101. 1	Technical Support Endowments		E		Refer to Endowment Working Group.
Endowment Proposal I, combined with 920604101.1 Kehrer, Peg. Project Assistant ADF&G	920615287. 1	Technical Support Endowments		C		
Endowment Proposal II, combined with 920604101.1 Kehrer, Peg. Project Assistant ADF&G	920615287. 2	Technical Support Endowments		C		

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Endowment, combined with 920604101.1	920615296. 9	Technical Support Endowments	USDA	C		
Endowment, combined with 920604101.1	920615298. 13	Technical Support Endowments	USDA	C		
Endowment, combined with 920604101.1	920615298. 51	Technical Support Endowments	USDA	C		
Enhanced Management For Cutthroat Trout And Dolly Varden In PWS. Same As 920615249.1 McCarron, Suzanne. Fishery Biologist ADF&G	93018 920615297. 28	Management Actions Fish/Shellfish	ADFG	P		Reduce to 2 years; address some technical concerns. Coordinate with Ken Holbrook on technical concerns.
Enhanced Trail Opportunities, Including Columbia And Blackstone Glacier Trails, combined with 920615298.55 Van Zee, Bruce. USDA-Forest Service	920615298. 16	Manipulation and Enhancement Recreation	USDA	C		
Enhancement Of The Pacific Herring Kodiak Area Native Association	920615279. 29	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown. Technical feasibility unknown.
Environmental Education Center In PWS. Van Zee, Bruce. USDA-Forest Service	920615298. 50	Management Actions Education	USDA	R	9,10,11	
Environmental Learning Resource Center Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 32	Management Actions Education	ADNR	R	9,10,11	

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Est. An Ecological Basis For Restoring And Enhancing The Mixed-stock Salmon Resources Of PWS. Cooney, Ted. UAF	920615297. 75	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	
Establish Natural Resource Library And Computer Support Technical Service In Cordova, combined with 920615298.2 Thomas, G.L.. Director PWS Science Center	920622326. 11	Technical Support Technical Support	USDA	C		
Establishment Of User-friendly GIS And Remote-sensing Demonstration Center For Public-5 Communities, combined w Podolsky, Richard. None	920611233. 5	Technical Support GIS	ADNR	C		
Experimental Designs and Statistical Procedures for Damage for Oilspill Cleanup and Restoration Projects Thomas, G.L.. Director PWS Science Center	920622326. 6	Technical Support GIS	ADNR	R	9,10,	Duplicative of on-going studies.
Experimental Evaluation Of Oiled/control Paired Design Used In Assessing Inter/Subtidal Community Dean, Thomas. Coastal Resources Associates	93037 920610230. 1	Restoration Monitoring Sub-Tidal	NOAA	P		Careful attention to what is an oiled area and what is a control area in the technical approach (Treatment History).
Experimental Studies Of Interaction Between Subtidal Epifaunal Invertebrates Dean, Thomas. Coastal Resources Associates	920610230. 2	Damage Assessment Sub-Tidal	ADFG	R	9,10,	
Experimental Studies of Interaction Between Subtidal Epifaunal Invertebrates, combined with 920618315.1	920612236. 4	Restoration Monitoring Sub-Tidal	USDA	C		
Exxon Valdez Oil Spill Marine Sciences Endowment I, combined with 920604101.1 Sturgulewski, Arliss. Alaska State Legislature	920603094. 1	Technical Support Endowments		C		

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Exxon Valdez Oil Spill Marine Sciences Endowment II, combined with 920604101.1 Sturgulewski, Arliss. Alaska State Legislature	920603094. 2	Technical Support Endowments		C		
Eyes On Wildlife-injured Resources And Their Restoration, combined with 920615298.25 Sterne, Charla. Wildlife Biologist USFS	920615298. 39	Management Actions Education	USDA	C		
Fate And Transport Of Subsurface Hydrocarbons In Beach Deposits In PWS Carpenter, Phillip. District Chief USGS	920615273. 36	Restoration Monitoring Coastal Habitat	DOI	R	8,9,10,	
Feasibility Of Fish Passes As Oilspill Restoration, combined with 920615297.73 Wedemeyer, Kate. Fisheries Biologist USFS--Glacier Ranger Station	920615298. 41	Manipulation and Enhancement Fish/Shellfish	USDA	C		
Feeding Ecology And Reproductive Success Of Black Oystercatchers In PWS McVee, Curtis. Department of the Interior	93035 920615273. 17	Restoration Monitoring Birds	DOI	P		Answer to criteria about restoration end-point, 1993 work critical and opportunity lost are all "yes" if tied to mussel beds.
Field Study Of Bioremediation Enhancement Treatment Methods Viteri, Alex. ADEC	920615289. 1	Management Actions Sub-Tidal	ADEC	R	8,9,10,	
Fish Limiting Factors Analysis, combined with 920615298.36 Van Zee, Bruce. USDA-Forest Service	920615298. 33	Habitat Protection and Acquisition Inventory	USDA	C		
Fort Richardson Pipeline. Fallon, Michael.	93026 920615297. 48	Manipulation and Enhancement Fish/Shellfish	ADFG	P	11	Is a replacement action for lost services. Is also an exception to long-term commitment criteria.

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Fry Rearing To Improve Survival And Restore Wild Pink And Chum Salmon Stocks Willette, Mark. Fishery Biologist ADF&G	920615297. 71	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	
Fucus Recovery In Upper Intertidal Zones (continuation Of Study) Stekoll, Michael. UAA, School of Fisheries & Ocean Science	920610229. 2	Restoration Monitoring Coastal Habitat	USDA	C		Combined with 920618316-3 and 297-19. "Recovery Monitoring and Restoration of the Upper Intertidal Aone". This project should address the recovery of
Fucus Restoration Feasibility Study, combined with 920618316.3 Stekoll, Michael. UAA, School of Fisheries & Ocean Science	920610229. 1	Manipulation and Enhancement Coastal Habitat	USDA	C		
Full Funding for Cordova Oil Spill Recovery Institute	920622326. 3	Restoration Monitoring Technical Support		R	3,	OPA '90 did not authorize permanent facility.
Full Funding For Oil Spill Recovery Institute Thomas, G.L.. Director PWS Science Center	920622326. 2	Technical Support Technical Support	NOAA	R	8,9,10,	
Fund A PWS Nature Center, combined with 920615298.50 Graham, Marnie. Volunteer Volunteer PWS Conservation Alliance	920610225. 1	Management Actions Education	USDA	C		
Genetic Monitoring of Kodiak Island Sockeye Salmon Seeb, Jim. ADF&G	920615297. 36	Restoration Monitoring Fish/Shellfish	ADFG	R	9,10,	Not time critical if other Red Lake projects go through.
Genetic Risk Assessment Of Injured Salmonids Seeb, Jim. ADF&G	93004 920615297. 33	Management Actions Fish/Shellfish	ADFG	P		Move from Damage Assessment to Management Action. Target pink salmon only - one year study.

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Genetic Stock Identification For Herring In PWS Seeb, Jim. ADF&G	920615297. 34	Management Actions Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown.
Genetic Stock Identification Of Kenai River Sockeye For Protection In Mixed Harvest Areas Seeb, Jim. ADF&G	93012 920615297. 35	Management Actions Fish/Shellfish	ADFG	P	11	
Geographic Information System Mapping Of Natural Resources In Western PWS, combined with 920608184.1 Sterne, Charla. Wildlife Biologist USFS	920615298. 47	Technical Support GIS	ADNR	C		
Green Island Cabin Replacement, combined with 920615298.55 Baker, Cal. District Ranger Cordova Ranger District	920615298. 24	Manipulation and Enhancement Recreation	USDA	C		
Habitat Acq. Kachemak, combined with 920601051.1 Elvsaas, Fred. Seldovia Native Association, Inc.	920609217. 1	Habitat Protection and Acquisition Land Acquisition		C		
Habitat Acq. Kodiak, Kodiak Refuge, combined with 920601051.1 Barry, Donald. Vice President World Wildlife Fund	920609221. 1	Habitat Protection and Acquisition Land Acquisition		C		
Habitat Acq. Of Koniag Corp. Inholdings, Kodiak National Wildlife Refuge, 920601051.1 Pagano, Frank. President Koniag, Inc.	920619323. 1	Habitat Protection and Acquisition Land Acquisition		C		
Habitat Acq., Afognak, combined with 920601051.1 Carmichael, James. Afognak Native Corporation	920615295. 1	Habitat Protection and Acquisition Land Acquisition		C		

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Habitat Acq., Kodiak Island, combined with 920601051.1 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 12	Habitat Protection and Acquisition Land Acquisition		C		
Habitat Acq., North Afognak Island, combined with 920601051.1 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 8	Habitat Protection and Acquisition Land Acquisition		C		
Habitat Aquisition Evaluation, Evaluate Pacific Seabird Group List, Eliminate Predators, combined with 920603092. Harrison, Craig. Vice Chairman Conserv. Pacific Seabird Group	93060 920603092. 1	Manipulation and Enhancement Birds		P		
Habitat Use And Behavior Of Harbor Seals In PWS Frost, Kathryn. Wildlife Biologist ADF&G	93046 920615297. 14	Restoration Monitoring Marine Mammals	ADFG	P		
Habitat Utilization By Sea Otters And Designation Of Protected Areas McVee, Curtis. Department of the Interior	93044 920615273. 16	Habitat Protection and Acquisition Inventory	DOI	P		Only for 1993, not for 1994. Copy to Habitat Protection for information. HPWG should track results.
Harlequin Duck Restoration And Monitoring Study Patten, Samuel. Wildlife Biologist ADF&G	93033 920615297. 31	Restoration Monitoring Birds	ADFG	P		No workshop and to be covered by peer review synthesis. Limit to oiled areas, but consider looking outside oiled areas if critical. Study to also
Heritage Information Replacement, combined with 920615298.19 Bittner, Judith. Office of History/Acheaol ADNR	920615296. 2	Manipulation and Enhancement Archaeology	ADNR	C		
Herring Bay Experimental And Monitoring Studies Highsmith, Ray. Institute of Marine Science	920615297. 19	Restoration Monitoring Coastal Habitat	ADFG	C		

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Herring Embryo Viability Evaluation - Natural and Catastrophic Effects Kocan, Richard. Univ. of Washington	920611234. 1	Damage Assessment Fish/Shellfish	ADFG	R	4,9,10,	If this were meant to be a restoration idea, then it is not time critical or a lost opportunity.
Horse Marine Creek Pink Salmon Restoration Honnold, Steve. Fred Division ADF&G	920615297. 21	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,11	21 rejected. 297 - 20 and 23 approved.
Humpback Whale Project Matkin, Olga and Craig. The North Gulf Oceanic Society	920526033. 1	Damage Assessment Marine Mammals	NOAA	R	1,	
Hydrocarbons in Mussels From Coastal Gulf of Alaska, Cook Inlet and Shelikof Strait McVee, Curtis. Minerals Management Service	920615273. 33	Restoration Monitoring Fish/Shellfish	NOAA	R	9,10,	NOAA has been conducting similar studies since the mid-seventies.
Hydrodynamic Purging of Oil from Contaminated Beaches, PWS. Carpenter, Phillip. District Chief USGS	920615273. 35	Manipulation and Enhancement Coastal Habitat	ADEC	R	10,	Technical feasibilty unknown.
Identification And Protection Of Important Bald Eagle Habitats	93052 920615273. 30	Habitat Protection and Acquisition Inventory		R	9,10,	Compare with other eagle studies for consistency.
Identification Of Critical Upland Wildlife Habitat in PWS, combined with 920603092.1 Nowlin, Roy. ADF&G	920615297. 29	Habitat Protection and Acquisition Inventory		C		Recommend development of proposal-concentrate information collection on wildlife injured by EVOS. Remove work on brown bears. Par
Identification Of Nesting Habitat Criteria And Reproductive Success For Marbled Murrelet, combined with	93051 920615273. 25	Habitat Protection and Acquisition Inventory		P		

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Identification Of Seabird Feeding Areas From Remotely Sensed Data And Impact On Restoration Podolsky, Richard. None	920611233. 3	Management Actions Birds	DOI	R	8,9,10,	Technical feasibility unknown.
Improve Marine Parks	920601050. 15	Management Actions Recreation	NOAA	R	9,10,11	EVOS-linked impact unknown.
Improve Public Health Facilities, PWS Griffin, Doug. City Manager City of Valdez	920601050. 18	Manipulation and Enhancement Services		R	1,	
Increased Access PWS, combined with 920615298.55 Griffin, Doug. Mayor Mayor City of Valdez	920601050. 14	Manipulation and Enhancement Recreation	USDA	C		
Injury and Recovery of Deep-Benthic Macrofaunal Communities, combined with 920618315.1 Feder, Howard. UAF	920615297. 12	Restoration Monitoring Sub-Tidal	ADFG	C		
Injury to Salmon Eggs and Pre-emergent Fry in PWS, Laboratory Verification Rice, Stanley. NOAA/NMFS Auke Bay Fisheries Lab	93003 920615258. 3	Management Actions Fish/Shellfish	ADFG	P		Moved from damage assessment to management action. Valuable information will be gained on a yearly basis.
Inland Survey Of Marbled Murrelet Habitat Use In PWS, combined with 920615273.25 Logan, Dan. Wildlife Biologist USFS	920615298. 53	Habitat Protection and Acquisition Inventory		C		
Instream Habitat And Stock Restoration Techniques For Anadromous Fish. Kuwada, Mark. PI ADF&G	920615297. 73	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	

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Interactive Public Access to Oil Spill and Related Environmental Data in PWS Science Center GIS Thomas, G.L.. Director PWS Science Center	920622326. 9	Technical Support GIS	ADNR	R	1,	
Interpretation Of PWS, combined with 920615298.26 Van Zee, Bruce. USDA-Forest Service	920615298. 26	Management Actions Recreation	USDA	C		
Intertidal/Shallow Subtidal Crustacean (Decapod) Composition Vining, Ivan. Biometrician ADF&G	920615297. 47	Management Actions Fish/Shellfish	ADFG	R	8,9,10,	EVOS-linked impact unknown. Technical feasibility unknown.
Inventory And Effects Of Straying Hatchery Pink Salmon On Wild Pink Salmon Populations In PWS Sharr, Sam. Fishery Biologist ADF&G	93013 920615297. 39	Management Actions Fish/Shellfish	ADFG	P		
Inventory, Monitor, Protect Permanent Monitoring Sites Bishop, Mary Anne. Acting Manager Copper River Delta Institute	920615298. 29	Restoration Monitoring Ecosystem	USDA	R	9,10,	
Juvenile Spot Shrimp Habitat, Combined with 920615297.44 Vining, Ivan. Biometrician ADF&G	920615297. 46	Management Actions Fish/Shellfish	ADFG	C		
Kelp Regeneration In The Upper Intertidal Lawley, Gary. Martech USA, Inc.	93039 920618316. 3	Manipulation and Enhancement Sub-Tidal	ADFG	P	9,10,	Approved and combined with 6307, 229-01. Lead Agency ADF&G, cooperate with NOAA. Macrocystis will not survive in upper intertidal; therefore
Kenai River Sockeye Salmon Restoration Tarbox, Kenneth. Fishery Biologist ADF&G	93015 920615297. 43	Management Actions Fish/Shellfish	ADFG	P	11	

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Kitoi Bay Hatchery Oil Spill Equipment Storage Joyce, Timothy. Kitoi Bay	920615297. 26	Technical Support Services	ADFG	R	1,	
Kitoi Bay Hatchery On Afognak Island Malloy, Larry. Kodiak Regional Aquaculture Association	920615279. 24	Manipulation and Enhancement Fish/Shellfish	ADFG	R	1,	Early Marine Life History studies on Kodiak Island on salmonids showed no injury.
Kodiak Bear Refuge Stream Mouth Inholdings Acq., combined with 920601051.1 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 9	Habitat Protection and Acquisition Land Acquisition		C		
Kodiak Island Borough Endowment Fund to Support Restoration Activities, combined with 920604101.1	920615279. 98	Technical Support Endowments		C		
Kodiak Wildlife Habitat Conservation And Acquisition Project, combined with 920601051.1 Christiansen, Emil. Old Harbor Native Corp.	920615288. 1	Habitat Protection and Acquisition Land Acquisition		C		
Land Acq. PWS, Kodiak, combined with 920601051.1 Phipps, Alan. Ak Center for the Environment	920615293. 1	Habitat Protection and Acquisition Land Acquisition		C		
Land Exchange Chuyak Island For Land On Kodiak Island Road System, combined with 920601051.1 Blackett, Roger. Chairman Kodiak St. Prks Citizen's Advisory Board	93058 920601051. 1	Habitat Protection and Acquisition Land Acquisition		P		
Land Exchange Shuyak For Kodiak Land On Road System, combined with 920601051.1 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920601058. 10	Habitat Protection and Acquisition Land Acquisition		C		

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Landfill Liner Griffin, Doug. City Manager City of Valdez	920601050. 10	Manipulation and Enhancement Services		R	1,	
Larval Herring Age and Growth in PWS Using Otoliths Honnold, Steve. Fred Division ADF&G	920615297. 5	Restoration Monitoring Fish/Shellfish	ADFG	C		
Long-term Epidemiology Study Of Oil Spill Workers Ott, Riki. Oil Reform Alliance	920604104. 2	Damage Assessment Terestrial Mammals	ADEC	R	1,	Technical feasibility unknown. Consistency w/state and federal laws unknown. USDOI - legal. ADOL - illegal, nothing to do with natural res
Long-term Monitoring Of Marine Environment Of Resurrection Bay. Combined with 920615262.2 Royer, Thomas. Professor of Marine Sci. University of Alaska, Fairbanks	920526039. 1	Damage Assessment Ecosystem	ADFG	C	8,9,10,11	
Long-term Population Monitoring For Bald Eagles, combined with 920615279.16 McVee, Curtis. Department of the Interior	920615273. 29	Restoration Monitoring Birds	DOI	C		
Low Impact Recreation Development Nellie Juan, College Fiord Wilderness Study Area Van Zee, Bruce. USDA-Forest Service	920615298. 55	Manipulation and Enhancement Recreation	USDA	R	9,10,	EVOS-linked impact unknown. These studies are contingent upon the results of the damage assessment recreation proposals for 1993.
Lower Cook Inlet Sockeye Salmon Restoration And Enhancement Dudiak, Nick. ADF&G	920615297. 9	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	Technical feasibility unknown.
Management Of Restoration Database, Sample Archiving, Chemical Interpretation, combined with 920608184.1 Rice, Stanley. NOAA	920608184. 3	Technical Support Services	ADFG	C		

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Map Of Spill Area By Resource, combined with 920615298.25 Tileston, Jules. None	920604114. 1	Management Actions Education	ADNR	C		
Mapping Streams And Salmon Spawning In PWS, combined with 920615273.25	920622326. 10	Habitat Protection and Acquisition Inventory		C		
Marbled Murrelet Vocalizations In Conjunction With Artificial Nests Podolsky, Richard. None	920611233. 4	Manipulation and Enhancement Birds	DOI	R	8,	Technical feasibility unknown. We don't believe that nest site habitat is a critical factor.
Mariculture Technical Center, Combined with 920612242.1 Cochran, Jim. Mariculture Coordinator ADF&G	920615297. 7	Manipulation and Enhancement Fish/Shellfish	ADFG	C		
Marine Recreation Plan For Spill Area Johannsen, Neil. ADNR	920615296. 6	Management Actions Recreation	ADNR	R	9,10,	EVOS-linked impact unknown.
Maritime Wing Valdez Museum, combined with 920615298.50 Griffin, Doug. Mayor Mayor City of Valdez	920601050. 11	Management Actions Education	ADNR	C		
Mark 17(b) Easements On Port Graham Land. Norman, Patrick. Port Graham Corporation	920615291. 1	Habitat Protection and Acquisition Inventory		R	1,	
Mgmt. Of Restoration Database,samples, Archiving, And Chemical Interpretation, combined with 920608184.1	920615258. 2	Technical Support Services	NOAA	C		

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Migratory Shore Birds Staging In Rocky Intertidal Habitats Of PWS Bishop, Mary Anne. Acting Manager Copper River Delta Institute	920615298. 32	Restoration Monitoring Birds	USDA	R	9,10,	
Migratory Waterfowl And Shorebird Monitoring, combined with 920603092.1 Sterne, Charla. Wildlife Biologist USFS	920615298. 40	Habitat Protection and Acquisition Inventory	USDA	C	9,10,	Include as component of Habitat Protection data collection. * Appropriate parts were included in 920615298-46.
Monitor Population Status Of Seabird Nesting Colonies In The Spill Zone McVee, Curtis. Department of the Interior	920615273. 27	Restoration Monitoring Birds	DOI	R	9,10,	
Monitor Productivity Of Bald Eagles In PWS Kodiak And Alaska Pen. Pacific Coast, combined with 920615279.16 McVee, Curtis. Department of the Interior	920615273. 28	Restoration Monitoring Birds	DOI	C		
Monitoring For Recruitment Of Littleneck Clams. Johnson, J.D.. Fishery Biologist ADF&G	920615297. 25	Restoration Monitoring Fish/Shellfish	ADFG	R	9,10,	
Monitoring Injury to Rockfish in PWS McCarron, Suzanne. ADF&G	93047 920618315. 1	Restoration Monitoring Fish/Shellfish	NOAA	P		Applied Marime Science to write one 3-pager for subtidal.
Monitoring Of Sea Otter Population Abundance, Distribution, Reproduction, And Mortality. McVee, Curtis. Department of the Interior	93043 920615273. 15	Restoration Monitoring Marine Mammals	DOI	P		Approved. Combine with 279-14, 058-08
Monitoring Of Small Cetaceans In PWS	920615261. 3	Damage Assessment Marine Mammals	NOAA	R		EVOS-linked impact unknown. Injury is not apparent.

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Monitoring Rate Of Recovery Of Murres In Breeding Colonies Downstream From Oil Spill. Same As 920615279.19 McVee, Curtis. Department of the Interior	93049 920615273. 18	Restoration Monitoring Birds	DOI	P		Go to 3-pager and set estimated duration of project at one year only.
Monitoring Sites - Collector Beaches and Lagoons. White, Lonnie. Area Biologist ADF&G	920615279. 99	Restoration Monitoring Coastal Habitat	ADFG	R	9,10,	USDOI and ADOL - legal.
Monitoring The Rate Of Recovery Of Murres In Breeding Colonies In Or Downstream From Oil Spill. Combined with 9 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 19	Restoration Monitoring Birds	DOI	C		
Monitoring Trends In Abundance Of Harbor Seals In PWS 1993-1994, combined with 920615297.14 Frost, Kathryn. Wildlife Biologist ADF&G	920615297. 15	Restoration Monitoring Marine Mammals	ADFG	C		
Montague Island Chum Salmon Restoration Schmid, Dave. USFS-Cordova Ranger District	93025 920615298. 37	Manipulation and Enhancement Fish/Shellfish	USDA	P		
Multi-agency Library On PWS And Copper River Delta Bishop, Mary Anne. Acting Manager Copper River Delta Institute	920615298. 2	Technical Support Services	USDA	R	9,10,	Services already provided by OSPIC.
Multi-agency University Ecosystem Study Of PWS Thomas, G.L.. Director PWS Science Center	920622326. 8	Restoration Monitoring Ecosystem	USDA	R	8,9,10,	EVOS-linked impact unknown.
Mussel Bed Treatment None, None. Martech USA, Inc.	920618316. 1	Manipulation and Enhancement Fish/Shellfish	ADEC	R	2,	ADOL and USDOI - legal.

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Mussel Bed Treatment, combined with 920615291.2	920618316. 2	Manipulation and Enhancement Fish/Shellfish	ADEC	C		
Native Museum And Cultural Center, Kodiak, combine with 920615298.17	920601058. 9	Management Actions Archaeology	ADNR	C	9,10,11	EVOS-linked impact unknown.
Natural Product Natural Life Restoration Rusher, Jerry. Rusher's Services	920601059. 1	Manipulation and Enhancement Coastal Habitat	ADEC	R	9,10,	Technical feasibility unknown, at best. Birds do not feed on oligochaetes. Diatomaceous is not a fertilizer. Consistency w/laws and poli
Natural Product Natural Life Restoration, combined with 920601059.1 Rusher, Jerry. Rusher's Services	920601062. 1	Manipulation and Enhancement Coastal Habitat	ADEC	c		
Natural Product Natural Life Restoration, combined with 920601059.2. Rusher, Jerry. Rusher's Services	920601061. 1	Manipulation and Enhancement Coastal Habitat	ADEC	C		
Natural Recovery Monitoring of Subtidal Eelgrass Communities in PWS, combined with 920618315.1 Jewett, Stephen. UAF	920615297. 24	Restoration Monitoring Sub-Tidal	ADFG	C		
Natural Recovery Of Oiled And Treated Shorelines Mearns, Alan. NOAA-HMRAD	93040 920615264. 1	Restoration Monitoring Coastal Habitat	NOAA	P		Technical feasibility unknown. ADOL and USDOI believe this is legal.
Natural Recovery of Subtidal Species in PWS, combined with 920618315.1 Varanasi, Collier, Usha, Tracy. NOAA-NMFS, N.W. Fisheries Science Center	920615263. 1	Restoration Monitoring Sub-Tidal	NOAA	C		

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Near Island Fisheries Research Center French, John. UOA-Fishery Industrial Technology Center	920616310. 1	Technical Support Services	ADFG	R	9,10,	
New Field Test of Bioremediation Mearns, Alan. NOAA-HMRAD	920615264. 2	Restoration Monitoring Sub-Tidal	NOAA	R	9,10,	Consistency w/laws and policies unknown. USDOI - legal. ADOL - this is probably legal but not clear cut; if it addresses current issues it is le
November 91 Request for Immediate Funding for Coastal Habitat Specimens, combined with 920601049.1 Jarrel, Gordon. University of Alaska Museum	920601054. 1	Technical Support Coastal Habitat	ADNR	C		
Nuchek Heritage Interpretive Center Van Zee, Bruce. USDA-Forest Service	920615298. 17	Management Actions Archaeology	USDA	R	9,10,	EVOS-linked impact unknown.
Oil and Grease Separator/Fidalgo Griffin, Doug. City Manager City of Valdez	920601050. 2	Manipulation and Enhancement Services		R	8,9,10,	Linkage to recovery of resources not demonstrated.
Oil and Grease Separator/Hazelet Griffin, Doug. City Manager City of Valdez	920601050. 3	Manipulation and Enhancement Services		R	8,9,10,	Linkage to recovery of resources not demonstrated.
Oil And Grease Separator/Valdez Harbor Griffin, Doug. City Manager City of Valdez	920601050. 1	Manipulation and Enhancement Services		R	8,9,10,	Linkage of recovery of resources not demonstrated.
Oil Spill Cooperative/Training Center Griffin, Doug. City Manager City of Valdez	920601050. 12	Management Actions Services		R	8,9,10,	EVOS-linked impact unknown.

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Oil Spill Response Valdez Cleanup Co-Op Walker, William. City of Valdez	920615253. 1	Technical Support Services		R	8,9,10,11	EVOS-linked impact unknown.
Oil Spill Restoration Support Service And Facilities Van Zee, Bruce. USDA-Forest Service	920615298. 49	Technical Support Services	USDA	R	9,10,11	
Oiled Wildlife Rehabilitation Center Davis, Randall. Internationa Wildlife Research	920615247. 1	Manipulation and Enhancement Marine Mammals		R	1,	Technically feasible to build center, however, success rate low for past cleaning activities.
Oilspill Injured Resources Literature Research And Review Sterne, Charla. Wildlife Biologist USFS	920615298. 3	Technical Support Services	USDA	R	8,9,10,	
Oily Bilgewater/Oily Waste Treatment - Several Oil Spill Communities. Kitagawa, Judy. None	920511138. 1	Technical Support Services		R	9,10,	Linkage to recovery of resources not demonstrated.
Otolith Mass Marking As An Inseason Stock Separation Tool To Reduce Wild Stock Salmon Exploitation Willette, Mark. Fishery Biologist ADF&G	920615297. 74	Management Actions Fish/Shellfish	ADFG	R	9,10,	
Paint River Fish Ladder Salmon Stocking Program Chisholm, Brad. None	920612243. 1	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown. Project technically feasible, but effect of stocking this area (river) is unknown.
Passports In Time--Cultural Resource Patterns In PWS, Combine with 920615296.3 Van Zee, Bruce. USDA-Forest Service	920615298. 22	Management Actions Archaeology	DOI	C		

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Payoff Debt of Valdez Fisheries Development Association Walker, William. City Attorney - City of Valdez	920615256. 1	Technical Support Endowments		R	3,	Inappropriate to use civil settlement funds to compensate third party litigation claims.
PBS Program On PWS, combined with 920615298.25 Van Zee, Bruce. USDA-Forest Service	920615298. 7	Management Actions Education	USDA	C		
Photo-Identification Studies of PWS Killer Whales, combined with 920615261.2 Dahlheim, Loughlin, Marilyn, Thomas. NMFS-NMML	920615261. 1	Restoration Monitoring Marine Mammals	NOAA	C		
Pigeon Guillemot Recovery Enhancement And Monitoring McVee, Curtis. Department of the Interior	93034 920615273. 23	Restoration Monitoring Birds	DOI	P		Restoration endpoint better defined in 3 pager.
Pink Creek Pink Salmon Restoration, combined with 920615297.20 Honnold, Steve. Fred Division ADF&G	920615297. 23	Manipulation and Enhancement Fish/Shellfish	ADFG	C		
Pink Salmon Egg to Pre-Emergent Fry Survival in PWS, combined with 920615258.3	920615297. 37	Restoration Monitoring Fish/Shellfish	ADFG	C		
Pink Salmon Escapement Enumeration, combined with 920615297.39 Sharr, Sam. ADF&G	920615297. 40	Management Actions Fish/Shellfish	ADFG	C		
Port Graham Salmon Hatchery Chmielewski, Tasha. Chugach Regional Resources Commission	920615270. 1	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown.

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Post-Oilspill Recreation-based User Survey For PWS Baker, Cal. District Ranger Cordova Ranger District	93001 920615298. 28	Damage Assessment Recreation	USDA	P	6,	EVOS-linked impact unknown. Tailor study to determine whether injury has occurred to recreational services.
Power Creek Hydropower Project	920615286. 3	Manipulation and Enhancement Air/Water	ADNR	R	1,	
Press Release Project On Restoration Program Work Muehling, Eric. None	920617314. 1	Management Actions Education	USDA	R	8,9,10,11	
Prince William Sound Campground, combined with 920615298.55 Van Zee, Bruce. USDA-Forest Service	920615298. 14	Manipulation and Enhancement Recreation	USDA	C		
Productivity And Survival Of Brown Bears In Katmai National Park Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 1	Restoration Monitoring Terestrial Mammals	DOI	R	1,	
Protect Resources And Enhance Visitor Enjoyment Through Increased Administrative Presence Van Zee, Bruce. USDA-Forest Service	920615298. 10	Management Actions Recreation	USDA	R	8,9,10,	EVOS-linked impact unknown. Technical feasibility unknown.
Providing Public Access To Oilspill Gis Databases Using Arcview In PC Windows Environment, combined with 92060818 Deysher, Larry. Coastal Resources Associates	920612236. 2	Technical Support GIS	ADNR	C		
Public Access Repository For Oil Spill Geographic Information System, combined with 920608184.1 Hagenstein, Randall. Prince William Sound Science Center	93057 920608191. 1	Technical Support GIS	ADNR	C		

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Public Education And Interpretation Of Archaeological Resources In State Parks - Train Park Rangers, Combine wi Blackett, Roger. Chairman Kodiak St. Prks Citizen's Advisory Board	920601051. 3	Management Actions Archaeology	USDA	C		
Public Education In Spill Area Archaeology Bittner, Judith. Office of History/Acheaol ADNR	93005 920615296. 3	Management Actions Archaeology	USDA	P		Develop brief 3 page description for public education.
Public Education/interpretation Of Archaeological Resources In State Parks, Combine with 920615296.3 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920601058. 12	Management Actions Archaeology	ADNR	C		
Public Information and Education Van Zee, Bruce. USDA-Forest Service	93009 920615298. 25	Management Actions Education	USDA	P		USDA is lead - cooperate with others. Should have wide range of activities, but no construction.
Public Use Cabins In State Marine Parks Johannsen, Neil. ADNR	920615296. 7	Manipulation and Enhancement Recreation	ADNR	R	9,10,	EVOS-linked impact unknown.
Publish And Distribute Brochures On Damaged Species, combined with 920615298.25	920612348. 4	Management Actions Education	USDA	C		
Purchase Of Seldovia Native Assoc, Timber Trading Co, Cook Inlet Region, Inholdings Kachemak Bay, combined with Weiland, Anne. Kachemak Bay Citizens Coalition	920612246. 1	Habitat Protection and Acquisition Land Acquisition		C		
PWS Family Of Brochures, combined with 920615298.25 Van Zee, Bruce. USDA-Forest Service	920615298. 5	Management Actions Education	USDA	C		

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PWS Family Of Video Programs, combined with 920615298.25 Van Zee, Bruce. USDA-Forest Service	920615298. 6	Management Actions Education	USDA	C		
PWS Herring Egg Loss Survey Biggs, Evelyn. Fishery Biologist ADF&G	920615297. 2	Damage Assessment Fish/Shellfish	ADFG	R	4,	EVOS-linked impact unknown. If this were meant as a restoration idea, then it is not time critical or a lost opportunity.
PWS Herring Spawn Deposition Survey Seeb, Lisa. ADF&G	920615297. 3	Management Actions Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown.
PWS Herring Tagging Feasibility Study Biggs, Evelyn. Fishery Biologist ADF&G	920615297. 4	Restoration Monitoring Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown.
PWS Implementation Of Interpretive Plan, combined with 920615298.25 Van Zee, Bruce. USDA-Forest Service	920615298. 9	Management Actions Education	USDA	C		
PWS Kayak Trail, combined with 920615298.55 Van Zee, Bruce. USDA-Forest Service	920615298. 8	Manipulation and Enhancement Recreation	USDA	C		
PWS Landmarks--Evaluation And Interpretation Van Zee, Bruce. USDA-Forest Service	920615298. 19	Management Actions Archaeology	USDA	R	9,10,	EVOS-linked impact unknown.
PWS Large Format Photographic Book, combined with 920615298.25 Van Zee, Bruce. USDA-Forest Service	920615298. 4	Management Actions Education	USDA	C		

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PWS Long-Term Monitoring Program-Acute and Chronic Toxicity of Residual Hydrocarbons to Littleneck Clams Shigenaka, Gary. NOAA-HMRAD	920615265. 1	Restoration Monitoring Fish/Shellfish	NOAA	R	9,10,	EVOS-linked impact unknown.
PWS Recreation Facilities, combined with 920615298.55 Van Zee, Bruce. USDA-Forest Service	920615298. 15	Manipulation and Enhancement Recreation	USDA	C		
PWS Salmon Stock Genetics. Combine with 920615297.33 Wedemeyer, Kate. Fisheries Biologist USFS--Glacier Ranger Station	920615298. 42	Management Actions Fish/Shellfish	ADFG	C		
PWS Scenic Byway-- Nomination And Interpretive Plan, combined with 920615298.25 Van Zee, Bruce. USDA-Forest Service	920615298. 11	Management Actions Education	USDA	C		
PWS Site Stewardship Program Van Zee, Bruce. USDA-Forest Service	93007 920615298. 20	Management Actions Archaeology	DOI	P		
PWS Spot Shrimp Recovery Management Plan Trowbridge, Charlie. Fishery Biologist ADF&G	920615297. 44	Management Actions Fish/Shellfish	ADFG	R	9,	EVOS-linked impact unknown.
PWS Spot Shrimp Survey Trowbridge, Charlie. Fishery Biologist ADF&G	920615297. 45	Restoration Monitoring Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown.
Quality Assurance For PWS Coded Wire Tagging And Fish Production Records For Improved Mgmt. Ability Hauser, William. ADF&G	93014 920615297. 17	Management Actions Fish/Shellfish	ADFG	P		

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Quantification Of Stream Habitat For Harlequin Ducks From Remotely Sensed Data, combined with 920615297.31 Podolsky, Richard. None	920611233. 6	Habitat Protection and Acquisition Inventory		C		
Radio-Telemetry Project To Monitor Recovery Of Sea Otters McVee, Curtis. Department of the Interior	920615273. 21	Restoration Monitoring Marine Mammals	DOI	R	9,	
Rapid Restoration Of Weathered Crude Beach Subsurface Material. Page, Clayton. SBP Technologies, Inc.	920615271. 1	Manipulation and Enhancement Fish/Shellfish	ADEC	C		
Rapid Restoration Of Weathered Crude Contaminated Beach Subsurface Material. Page, Clayton. SBP Technologies, Inc.	920615266. 1	Manipulation and Enhancement Coastal Habitat	ADEC	R	9,10,	Consistency w/laws and policies unknown; USDOI - legal; ADOL - this project would be legal if it addressed the EVOS, but not if it addressed futur
Recovery Monitoring of Hydrocarbon-Contaminated Subtidal Marine Sediment Resources, combined with 920618315.1 O'Clair, Charles. Auke Bay Biological Laboratory	920615259. 1	Restoration Monitoring Sub-Tidal	NOAA	C		
Recovery Monitoring Of Intertidal Oiled Mussel Beds In PWS And Gulf Of Alaska Rice, Stanley. NOAA/NMFS Auke Bay Fisheries Lab	93036 920615258. 1	Restoration Monitoring Coastal Habitat	NOAA	P		Focus work on known sites that have previous records (documentation). Tailor new surveys focusing on newly discovered site located by other indivi
Recovery Monitoring Of Intertidal Oiled Mussel Beds Outside PWS, combined with 920615258.1 Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 4	Restoration Monitoring Coastal Habitat	NOAA	C		
Recreation Field Management And Monitoring	920615296. 10	Management Actions Recreation	ADNR	R	8,9,10,	EVOS-linked impact unknown.

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Red Lake Mitigation. White, Lorne. Fred Division ADF&G	93031 920615297. 70	Manipulation and Enhancement Fish/Shellfish	ADFG	P		ADOL - this would be legal since it would restore services. USDOI - also legal.
Red Lake Salmon Restoration White, Lorne. Fred Division ADF&G	93030 920615297. 69	Manipulation and Enhancement Fish/Shellfish	ADFG	P	9,10,	Continuation of R113.
Reduce Disturbance Near Murre Colonies Damaged By Oil Spill, combined with 920615273.19 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 18	Restoration Monitoring Birds	DOI	C		
Reduce Disturbance Near Murre Colonies Damaged By The Oil Spill	93010 920615273. 19	Management Actions	DOI	P		
Remote Monitoring Of Intertidal Recovery Stekoll, Michael. UAA, School of Fisheries & Ocean Science	920610229. 4	Restoration Monitoring Coastal Habitat	USDA	R	9,10,	Technical feasibility unknown.
Removal Of Alien Predators From Bird Colonies, combined with 920615279.17 Harrison, Craig. Vice Chairman Conserv. Pacific Seabird Group	920603092. 2	Manipulation and Enhancement Birds	DOI	C	9,10,	Out of spill area replacement action.
Removal Of Introduced Foxes To Restore Breeding Seabirds.	920615279. 17	Manipulation and Enhancement Birds	DOI	R	9,10,	
Removal Of Introduced Foxes To Restore Breeding Seabirds. Same As 920615279-17, combined with 920615279.1 McVee, Curtis. Department of the Interior	920615273. 20	Manipulation and Enhancement Birds	DOI	C		

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Replacement Of Oiled Mussels With Commercially Produced Mussels, combined with 920615291.2 Cochran, Jim. Mariculture Coordinator ADF&G	920615297. 6	Manipulation and Enhancement Fish/Shellfish	ADFG	C		
Restoration And Mitigation Of Essential Wetland Habitats For PWS Fish And Wildlife Van Zee, Bruce. USDA-Forest Service	93028 920615298. 35	Manipulation and Enhancement Birds	USDA	P	9,10,	EVOS-linked impact unknown. But consider for limited implementation project.
Restoration Of Chenega Village Site Totemoff, Charles. President	920615294. 2	Manipulation and Enhancement Archaeology	ADNR	R	9,10,	EVOS-linked impact unknown. Consistency w/laws and policies unknown. USDOI - legal. ADOL - if they are considered to be archaeologica
Restoration of High-Intertidal Fucus Following EVOS, combined with 920618316.3 DeVogelaere, Foster, Andrew, Michael. Moss Landing Marine Laboratories	920616307. 1	Manipulation and Enhancement Coastal Habitat	USDA	C		
Restoration of Killer Whales in PWS, combined with 920615261.2 Matkin, Craig. None	920514005. 1	Restoration Monitoring Marine Mammals	NOAA	C		
Restoration Of Murres By Way Of Behavioral Attraction And Habitat Enhancement Podolsky, Richard. None	93022 920611233. 1	Manipulation and Enhancement Birds	DOI	P		Technical feasibility unknown.
Restoration Of Murres By Way Of Transplantation Of Chicks-Feasibility Study Podolsky, Richard. None	93021 920611233. 2	Manipulation and Enhancement Birds	DOI	P		Technical feasibility unknown.
Restoration Of Mussel Beds, combined with 920615291.2. Evanoff, Gail. Chenega Corporation	920615294. 1	Manipulation and Enhancement Fish/Shellfish	ADEC	C		

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Restoration Of PWS Rockfish And Lingcod Resources Vining, Ivan. Biometrician ADF&G	920615297. 1	Management Actions Fish/Shellfish	ADFG	R	9,10,11	EVOS-linked impact unknown.
Restoration Of Second Growth Habitat For Wildlife In PWS Logan, Dan. Wildlife Biologist USFS	93029 920615298. 54	Manipulation and Enhancement Coastal Habitat	USDA	P	9,10,	Revisit as limited implementation project.
Restoration Of The Coghill Lake Sockeye Salmon Stock. Willette, Mark. Fishery Biologist ADF&G	93024 920615297. 72	Manipulation and Enhancement Fish/Shellfish	ADFG	P		Drop from 93 budget Forest Service portion of cost, as it is already paid for. (A portion of FS budget to be dropped. Work with F.S. biologist. KH)
Restoration Of Windy Bay Mussel Beds.	93023 920615291. 2	Manipulation and Enhancement Fish/Shellfish	ADEC	P		Funding contingent upon feasibility study results.
Restoration Recovery Monitoring Of Stream-rearing Anadromous Salmonids, combined with 920603092.1 Koski, K.V.. NMFS Auke Bay Laboratory	920615260. 1	Habitat Protection and Acquisition Inventory	USDA	C		
Restore Shorelines Damaged By Beach Berm Relocation Lethcoe, Nancy. Alaska Wilderness Recreation & Tourism	920612237. 2	Manipulation and Enhancement Coastal Habitat	ADNR	R	9,10,	EVOS-linked impact unknown. Technical feasibility unknown.
SAAMS - Alaska Sealife Center Dunham, Willard. Seward Marine Center	920605137. 1	Management Actions Education	NOAA	R	9,10,11	Legislature funded initial studies.
Science Of The Sound- Education Program, combined with 920615298.25 Thomas, G.L.. Director PWS Science Center	920622326. 13	Management Actions Education	USDA	C		

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Sea Otter Population Survey And Trends, combined with 920615273.15 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 14	Restoration Monitoring Marine Mammals	DOI	C		
Sea Otters In Kodiak Archipelago - Population Status,trends. Combined with 920615273-15 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920601058. 8	Restoration Monitoring Marine Mammals	DOI	C		
Seabird Colony Restoration, combined with 920615279.17 Harrison, Craig. Pacific Seabird Group	920608200. 1	Manipulation and Enhancement Birds	DOI	C		
Select Critical Sites for Baseline Data Collection, combined with 920604101.1	920601058. 1	Technical Support Endowments		C		
Set Up Revolving Fund for Baseline Sampling and Analysis, combined with 920604101.1	920601058. 2	Technical Support Endowments		C		
Seward Shellfish Hatchery Rolland, Richard. Chugachmiut	93020 920612242. 1	Manipulation and Enhancement Fish/Shellfish	ADFG	P	9,10,	Approved - for feasibility study for bivalves.
Shelter Cove, Cordova Restoration Project Arruda, David. Cordova Fly-Fishers	920615249. 3	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown.
Shoreline Assessment Bruce, David. Restoration Specialist ADEC-EVOS Project	93038 920615290. 1	Restoration Monitoring Coastal Habitat	ADEC	P		

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Shoreline Worm Life Monitoring, combined with 920601059.1 Rusher, Jerry. Rusher's Services	920601063. 1	Manipulation and Enhancement Coastal Habitat	ADEC	C		
Silver Lake Fish Hatchery Fischer, Thom. Whitewater Engineering Corp.	920615286. 2	Manipulation and Enhancement Fish/Shellfish	ADFG	R	1,	No EVOS-linked impact; technical feasibility unknown. This is tied to Silver Lake Hydro-project. USDOI and ADOL - legal.
Silver Lake Hydropower Project Fischer, Thom. Whitewater Engineering Corp.	920615286. 1	Manipulation and Enhancement Air/Water		R	1,	
Silver Lake to Ellamar to Tatitlek Underwater Intertie	920615286. 4	Manipulation and Enhancement Air/Water	ADNR	R	1,	
Site-specific Archaeological Restoration - Interagency Hamson, Dan. Chief Coastal Programs National Park Service	93006 920615273. 8	Management Actions Archaeology	DOI	P		Ensure prioritization of most important sites.
Site-specific Archaeological Restoration In Kenai And Katmai National Parks, Combine with 920615273.8 Hamson, Dan. Chief Coastal Programs National Park Service	920615273. 9	Management Actions Archaeology	DOI	C		Pattern after 273-08. Objective: do not do assessment 1, do only assessment 2 using Mark McAllister report. Ensure prioritation of most im
Sites For Recreation Along Kodiak Road System, combined with 920601051.1	920615279. 21	Habitat Protection and Acquisition Land Acquisition		C		
Sockeye Salmon Escapement Evaluation - Ayakuluk River 487-2600, Jay. Kodiak National Wildlife Refuge	920601058. 5	Management Actions Fish/Shellfish	ADFG	R	9,10,	EVOS-linked impact unknown.

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Sockeye Salmon Overescapement Schmidt, Dana. ADF&G	93002 920615297. 32	Damage Assessment Fish/Shellfish	ADFG	P	7,	
Sportfish Biologist For Cordova Arruda, David. Cordova Fly-Fishers	920615249. 4	Management Actions Fish/Shellfish	ADFG	R	8,9,10,	EVOS-linked impact unknown.
Stream Channel Capability Modeling, combined with 920615298.36 Wedemeyer, Kate. Fisheries Biologist USFS--Glacier Ranger Station	920615298. 43	Habitat Protection and Acquisition Inventory	USDA	C		
Stream Channel Type Classification And Fish Habitat Assessment Schmid, Dave. USFS-Cordova Ranger District	920615298. 36	Habitat Protection and Acquisition Inventory	USDA	R	9,10,	Even though rejected, refer package to HPWG for consideration for habitat identification project. (Rejected by HPWG>)
Stream Habitat Assessment (R47), combined with 920615273.25 Kuwada, Mark. PI ADF&G	920615297. 27	Habitat Protection and Acquisition Inventory		C		
Study Impact Of Clearcut Logging Operations On Bird Populations, Katchemak Bay State Park, combined with 9206 West, George. None	920612250. 1	Habitat Protection and Acquisition Inventory		C		
Study Of Petroleum Hydrocarbon Spectra At Selected Sites. Dekin, Albert. State University of New York	920526031. 1	Management Actions Archaeology	ADNR	R	8,9,10,	EVOS-linked impact unknown. Thousands of samples taken through NRDA.
Sturgulewski Endowment, combined with 920604101.1 Sturgulewski, Arliss. Alaska State Legislature-Senate	920615272. 1	Technical Support Endowments		C		

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Subsistence Food Safety Testing, Combined with 920615273.37 Fall, Jim. Subsistence ADF&G	920615297. 10	Restoration Monitoring Fish/Shellfish	ADFG	C		
Survey Of EVOS Impacted Native Communities-Subsistence Rosier, Carl. Commissioner ADF&G	93017 920615273. 37	Management Actions Fish/Shellfish	ADFG	P		To coordinate with other MMS studies and Interior and with Health Task Force. Focus on involving local communities and on "believeability".
Survey To Determine Abundance Distribution, Habitat And Food Habits Of Staging Shore Birds W Cr Delta Bishop, Mary Anne. Acting Manager Copper River Delta Institute	920615298. 30	Restoration Monitoring Birds	USDA	R	9,10,	Review in context of a monitoring plan.
Survey To Determine Distribution, Abundance, Food Habits Of Migratory Waterfowl Staging W. Cr Delta Bishop, Mary Anne. Acting Manager Copper River Delta Institute	920615298. 31	Restoration Monitoring Birds	USDA	R	9,10,	
Survey To Id Upland Use By Murrelets, combined with 920615273.25	920615273. 26	Habitat Protection and Acquisition Inventory		C		
Surveys To Monitor Marine Bird And Sea-otter Populations McVee, Curtis. Department of the Interior	93045 920615273. 22	Restoration Monitoring Marine Mammals	DOI	P		Objective A only. Only PWS boat surveys.
Sustainable Tourism In PWS, Combine with 920615298.28 Van Zee, Bruce. USDA-Forest Service	920615298. 12	Damage Assessment Recreation	USDA	C		
Synthesis Of Information On Ecology And Injury To River Otters In PWS Fraker, Mark. ADF&G	920615297. 13	Management Actions Terestrial Mammals	ADFG	R	4,	EVOS-lined impact unknown.

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Tanker Inspection Facility Walker, William. City of Valdez	920615252. 1	Technical Support Services		R	8,9,10,11	EVOS-linked impact unknown.
Testing Of Patch-Response Patch Dependence Hypothesis-Testing of an Ecosystem Model Thomas, G.L.. Director PWS Science Center	920622326. 4	Management Actions Ecosystem	NOAA	R	1,	
Thirteen Commercial Species Assessment Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 25	Management Actions Coastal Habitat	NOAA	R	8,9,10,	EVOS-linked impact unknown.
Toxicological Profile Of PWS Jackson, Paul. Environmental Specialist The North Pacific Rim	920515016. 1	Damage Assessment Ecosystem	NOAA	R		EVOS-linked impact unknown. Technical feasibility unknown.
Train Valdez Personnel for Environmental Incidents Griffin, Doug. City Manager City of Valdez	920601050. 17	Management Actions Services		R	1,	
Trans-Alaska Pipeline Removal Project None, None. Friends of the Earth Northwest Office	920514012. 1	Manipulation and Enhancement	ADNR	R	3,	Outside TC authority. Consistency w/laws and policies is unknown.
Transplant Project For Deer And Elk West, William. None	920514007. 1	Manipulation and Enhancement Terestrial Mammals	ADFG	R	1,2,	
Uganik River Fish Counting Weir, Combined with 920615279.11 Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920601058. 6	Management Actions Fish/Shellfish	DOI	C		

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Uganik River Fish Weir Bellinger, Jay. Kodiak National Wildlife Refuge	920615279. 11	Management Actions Fish/Shellfish	ADFG	R	1,	No sockeye overescapement in this system.
Use And Productivity Of Bald Eagle Nest Sites, Kodiak Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920601058. 7	Restoration Monitoring Birds	DOI	C		
Use of Satellite Transmitters to Investigate Killer Whale Ecology in PWS Dahlheim, Loughlin, Marilyn, Thomas. NMFS-NMML	93042 920615261. 2	Restoration Monitoring Marine Mammals	NOAA	P		EVOS-linked impact unknown. Combined with 261-01, 005-01 and approved.
Valdez City Schools Rodgers, Harry. Valdez City Schools	920615251. 1	Manipulation and Enhancement Education		R	1,	
Valdez Garbage Scow Facilities Griffin, Doug. City Manager City of Valdez	920601050. 7	Manipulation and Enhancement Services		R	1,	
Valdez Hazardous Waste Collection Griffin, Doug. City Manager City of Valdez	920601050. 9	Manipulation and Enhancement Services		R	8,9,10,	EVOS-linked impact unknown.
Valdez Landfill Upgrade Griffin, Doug. City Manager City of Valdez	920601050. 4	Manipulation and Enhancement Services		R	1,	
Valdez Oversight of Oil Industry Griffin, Doug. City Manager City of Valdez	920601050. 13	Management Actions Services		R	9,10,	Consistency w/laws and policies unknown. ADOL believes that only items #6 and #7 are linked to restoration of EVOS damaged natural res

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Valdez Recycling Griffin, Doug. City Manager City of Valdez	920601050. 5	Manipulation and Enhancement Services		R	1,	
Valdez Sewage Treatment Plant Upgrade Griffin, Doug. City Manager City of Valdez	920601050. 6	Manipulation and Enhancement Services		R	1,	
Valdez Visitors Center, combined with 920615298.50 Collins, V.E. (Rick). President Valdez Chamber of Commerce	920615298. 23	Management Actions Education	USDA	C		
Valdez/Remediate Existing Landfills Griffin, Doug. City Manager City of Valdez	920601050. 8	Manipulation and Enhancement Services		R	1,	
Vandalized Cultural Resources--inventory, Evaluation, Interpretation, Combine with 920615296.3 Van Zee, Bruce. USDA-Forest Service	920615298. 18	Management Actions Archaeology	USDA	C		
Vegetation And Stream Classification And Mapping Of Western PWS, combined with 920615273.25 Sterne, Charla. Wildlife Biologist USFS	920615298. 45	Habitat Protection and Acquisition Inventory		C		
Village Mariculture Project Chmielewski, Tasha. Chugach Regional Resources Commission	93019 920615270. 2	Manipulation and Enhancement Fish/Shellfish	ADFG	P	9,10,	Consistency w/laws and policies unknown. Approved for economic and feasibility studies only. Feasibility is not long-term commitment. Concentra
Villages Kitoi Bay Hatchery and Other Site Prevention and Response Selby, Jerome. Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough	920615279. 23	Technical Support Services	ADFG	R	1,	

KEY TO RECOMMENDATION FACTORS

1 = No linkage to Exxon Valdez Oil Spill, 2 = Not technically feasible, 3 = Inconsistent with laws or policies, 4 = Project previously funded for close-out, 5 = 1993 Close-out project, 6 = New Project where injury is apparent, 7 = Damage assessment continuation, 8 = No restoration endpoint, 9 = Not time critical 10 = No lost opportunity if not conducted in 1993, 11 = Involves long-term commitment.

Title Document Author	Project Num. Document ID#	Category Project Type	Lead Agency	Status	Recommend. Factors	Evaluation Comments
Watchable Wildlife, combined with 920615298.25 Lethcoe, Nancy. President Alaska Wilderness Recreation & Tourism	920612237. 5	Management Actions Terestrial Mammals	ADFG	C		
Waterfall Creek Pink Salmon Restoration-Fish Improvement Honnold, Steve. Fred Division ADF&G	920615297. 22	Manipulation and Enhancement Fish/Shellfish	ADFG	R	9,10,	
Weir And Conservation Land Acquisition, combined with 920601051.1	920615297. 68	Habitat Protection and Acquisition Land Acquisition		C		
Wetland Habitat Classification, Mapping And Assessment, combined with 920603092.1 Sterne, Charla. Wildlife Biologist USFS	920615298. 46	Habitat Protection and Acquisition Inventory		C		
Wild Fish Stock Information Assessment, combined with 920615297.28 Van Zee, Bruce. USDA-Forest Service	920615298. 34	Management Actions Fish/Shellfish	USDA	C		
Workshop To Identify Critical Habitats In PWS Temporate Rain Forest, combined with 920622326.1 Thomas, G.L.. Director PWS Science Center	93059 920622326. 1	Habitat Protection and Acquisition Inventory		P		

KEY TO RECOMMENDATION FACTORS

1 = No linkage to Exxon Valdez Oil Spill, 2 = Not technically feasible, 3 = Inconsistent with laws or policies, 4 = Project previously funded for close-out, 5 = 1993 Close-out project, 6 = New Project where injury is apparent, 7 = Damage assessment continuation, 8 = No restoration endpoint, 9 = Not time critical 10 = No lost opportunity if not conducted in 1993, 11 = Involves long-term commitment.

EXXON VALDEZ OIL SPILL

1993 Correspondence Table, Sorted by Submitter's Name

This table allows users to look up their last name and determine the fate of the ideas they submitted. Use the chart which precedes this table to locate key items in the entries. Find the submitter's name, then the title of interest. Find the status field. If a "C" (combined with) or "D" (duplicate) appears in this field, find the document identification number which is noted at the end in the title field (preceded by "Same as..." or "...combined with..."). Find this number in the "Ideas Table, Sorted by Document Identification Number". If a "P", "R", or "E" appears in the status field, find the document identification number and look it up in the "Proposals Table", "Rejected Table" or "Endowment Table" respectively for more information.

ABBREVIATION KEY:

FIELD	CODE	EXPLANATION
Category	DA	Damage Assessment
	MA	Management Action
	ME	Manipulation Enhancement
	OT	Other
	PA	Habitat Protection and Acquisition
	RM	Restoration Monitoring
	TS	Technical Support
Preliminary Lead Agency	ADEC	Alaska Dept. of Environmental Conservation
	ADFG	Alaska Dept. of Fish and Game
	ADNR	Alaska Dept. of Natural Resources
	DOI	United States Dept. of the Interior
	NOAA	National Oceanic and Atmospheric Administration
	USDA	United States Dept. of Agriculture
Status	C	Combined with another idea
	D	Duplicate of another idea
	E	Forwarded to Endowment Work Group
	P	Recommend Preparation of Study Plan and Budget
	R	Recommend Rejection

September 1992

1993 Correspondence Table - Format

The following is a description of the format for the correspondence table report. This report consists of a printout showing the author's name, position/title, company or agency name (if applicable), and address. Following the author's information is data identifying the idea proposed by the author. This information includes the document JD# (assigned by the Exxon Valdez Restoration Office), the idea title, a code for the project type, project category, current status, lead agency, and project number assigned (if any).

Bruce	David	Restoration Specialist	ADEC-EVOS Project 410 Willoughby Ave., Suite 105 Juneau AK			
920615290. 1	Shoreline Assessment	RM	Coastal Habitat	P	ADEC	93038
920615290. 2	Electronic Archiving Of Exxon Valdez Response Records, combined with 920608184.1					
		TS	Service	C	ADEC	

Last Name	First Name		
Arruda	David		Cordova Fly-Fishers
P.O. Box 1768	Cordova	AK	
920615249. 1 Enhanced Management For Cutthroat Trout And Dolly Varden In PWS. Same As 920615297.28			
MA	Fish and Shellfish	D	ADFG
920615249. 2 Cutthroat Trout And Dolly Varden Hatchery			
ME	Fish and Shellfish	R	ADFG
920615249. 3 Shelter Cove, Cordova Restoration Project			
ME	Fish and Shellfish	R	ADFG
920615249. 4 Sportfish Biologist For Cordova			
MA	Fish and Shellfish	R	ADFG
920615249. 4 Sportfish Biologist For Cordova			
MA	Fish and Shellfish	R	ADFG
Bailey-Garcia	D.		
10024 When Lane	Eagle River	AK	
920615297.63 Fort Richardson Pipeline. Same as 920615297.48			
ME	Fish and Shellfish	D	
Baker	Cal	District Ranger	Cordova Ranger District
BOX 280	Cordova	AK	
920615298.24 Green Island Cabin Replacement, combined with 920615298.55			
ME	Recreation	C	USDA
920615298.28 Post-Oilspill Recreation-based User Survey For PWS			
DA	Recreation	P	USDA 93001
Barber	Edward		
1317 W. Northern Lights Blvd.	Anchorage	AK	

Last Name	First Name

920615297.65 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Barber Susan

1317 W. Northern Lights Blvd. Anchorage AK

920615297.50 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Barry Donald Vice President World Wildlife Fund

1250 Twenty-Fourth St., NW Washington DC

920609221. 1 Habitat Acq. Kodiak, Kodiak Refuge, combined with 920601051.1
PA Land Acquisition C

Bechtol Bill Fishery Biologist ADF&G

3298 Douglas Street Homer AK

920615297. 1 Restoration Of PWS Rockfish And Lingcod Resources
MA Fish and Shellfish R ADFG

Bellinger Jay Kodiak National Wildlife Refuge

1390 Buskin River Road Kodiak AK

920601058. 5 Sockeye Salmon Escapement Evaluation - Ayakuluk River
MA Fish and Shellfish R ADFG

920615279.10 Ayakulik River Sockeye Salmon Escapement Evaluation
MA Fish and Shellfish R ADFG

920615279.10 Ayakulik River Sockeye Salmon Escapement Evaluation
MA Fish and Shellfish R ADFG

920615279.11 Uganik River Fish Weir
MA Fish and Shellfish R ADFG

920615279.15 Breeding Population Status Of Harlequin Ducks On Areas Of The Kodiak Island Group W. And S. Sides, combined wit
RM Birds C ADFG

920615297.11 Develop Protocols For Analysis And Assessment Of Benthic Biological, Physical, And Hydrocarbon Data
TS Sub-Tidal R ADFG

Biggs Evelyn ADF&G

Box 669 Cordova AK

Last Name	First Name

920610231. 1 PWS Herring Spawn Deposition Survey. Same As 920615297-3
MA Fish and Shellfish D ADFG

920610231. 2 PWS Herring Egg Loss Survey. Same As 920615297-2
DA Fish and Shellfish D ADFG

920610231. 3 Genetic Stock Identification For Herring In PWS. Same As 920615297-34
RM Fish and Shellfish D ADFG

920610231. 4 PWS Herring Tagging Feasibility Study. Same As 920615297-4
RM Fish and Shellfish D ADFG

920610231. 5 Larval Herring Age And Growth In PWS Using Otoliths. Same As 920615299-5
RM Fish and Shellfish D ADFG

920615279. 5 Horse Marine Creek Pink Salmon Restoration, Same As 920615297.21
ME Fish and Shellfish D ADFG

920615297. 2 PWS Herring Egg Loss Survey
DA Fish and Shellfish R ADFG

920615297. 4 PWS Herring Tagging Feasibility Study
RM Fish and Shellfish R ADFG

Bishop Mary Anne Acting Manager Copper River Delta Institute
BOX 1460 Cordova AK

920615298. 2 Multi-agency Library On PWS And Copper River Delta
TS Service R USDA

920615298.29 Inventory, Monitor, Protect Permanent Monitoring Sites
RM Ecosystem R USDA

920615298.30 Survey To Determine Abundance Distribution, Habitat And Food Habits Of Staging Shore Birds W Cr Delta
RM Birds R USDA

920615298.31 Survey To Determine Distribution, Abundance, Food Habits Of Migratory Waterfowl Staging W. Cr Delta
RM Birds R USDA

920615298.32 Migratory Shore Birds Staging In Rocky Intertidal Habitats Of PWS
RM Birds R USDA

Bittner Judith Office of History/Acheaol ADNR
P.O. Box 107001 Anchorage AK

Last Name	First Name

920615296. 1 Archaeological Restoration Site Acquisition, combined with 920601051.1
PA Land Acquisition C

920615296. 2 Heritage Information Replacement, combined with 920615298.19
ME Archeology C ADNR

920615296. 3 Public Education In Spill Area Archaeology
MA Archeology P USDA 93005

920615296. 5 Archaeological Restoration-Regional Archaeological Planning
MA Archeology R ADNR

Blackett Roger Chairman Kodiak St. Prks Citizen's Advisory Board

S.R. 3800 Kodiak AK

920601051. 1 Land Exchange Chuyak Island For Land On Kodiak Island Road System, combined with 920601051.1
PA Land Acquisition P 93058

920601051. 2 Acquisition Of Recreational Sites On Kodiak Road System, combined with 920601051.1
PA Land Acquisition C

920601051. 3 Public Education And Interpretation Of Archaeological Resources In State Parks - Train Park Rangers, Combine wi
MA Archeology C USDA

Blevins Terron

110 E 11th, Apt. 15 Anchorage AK

920615297.49 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Bowron Jim

P.O. Box 221954 Anchorage AK

920615297.59 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

920615297.59 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Brock Irvin None

P.O. Box 5267 Ft. Richardson AK

Last Name	First Name

920605134. 1 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Bruce David Restoration Specialist ADEC-EVOS Project
410 Willoughby Ave., Suite 105 Juneau AK

920615290. 1 Shoreline Assessment
RM Coastal Habitat P ADEC 93038

920615290. 2 Electronic Archiving Of Exxon Valdez Response Records, combined with 920608184.1
TS Service C ADEC

Carlisle Kelly Mayor City of Whittier Mayor City of Whittier
P.O. Box 731 Whittier AK

920528045. 1 Beach Subsurface Oil Recovery, combined with 920615294.3
ME Coastal Habitat C ADEC

Carmichael James Afognak Native Corporation
214 W. Rezanof Kodiak AK

920615295. 1 Habitat Acq., Afognak, combined with 920601051.1
PA Land Acquisition C

920622324. 1 Acquisition Of Habitat, Afognak Island., combined with 920601051.1
PA Land Acquisition C

Carpenter Phillip District Chief USGS
4230 University Dr. Suite 201 Anchorage AK

920615273.35 Hydrodynamic Purging of Oil from Contaminated Beaches, PWS.
ME Coastal Habitat R ADEC

920615273.36 Fate And Transport Of Subsurface Hydrocarbons In Beach Deposits In PWS
RM Coastal Habitat R DOI

Chisholm Brad None
Box 1585 Homer AK

920612243. 1 Paint River Fish Ladder Salmon Stocking Program
ME Fish and Shellfish R ADFG

Last Name	First Name		
Chmielewski	Tasha		Chugach Regional Resources Commission
3300 C Street	Anchorage	AK	
920615270. 1 Port Graham Salmon Hatchery ME	Fish and Shellfish	R	ADFG
920615270. 2 Village Mariculture Project ME	Fish and Shellfish	P	ADFG 93019
Christiansen	Emil		Old Harbor Native Corp.
P.O. Box 71	Old Harbor	AK	
920615288. 1 Kodiak Wildlife Habitat Conservation And Acquisition Project, combined with 920601051.1 PA	Land Acquisition	C	
Cline	Dave	Vice-President	National Audubon Society
308 G Street, Suite 219	Anchorage	AK	
920601067. 1 Alaska Land And Wildlife Conservation Fund, combined with 920604101.1 TS	Endowment	C	
Cochran	Jim	Mariculture Coordinator	ADF&G
P. O. Box 25526	Juneau	AK	
920615297. 6 Replacement Of Oiled Mussels With Commercially Produced Mussels, combined with 920615291.2 ME	Fish and Shellfish	C	ADFG
920615297. 7 Mariculture Technical Center, Combined with 920612242.1 ME	Fish and Shellfish	C	ADFG
Collins	V.E. (Rick)	President	Valdez Chamber of Commerce
BOX 512	Valdez	AK	
920615298.23 Valdez Visitors Center, combined with 920615298.50 MA	Education	C	USDA
920617312. 1 Valdez Visitors Center MA	Education	D	USDA
Cooney	R. Ted		Institute of Marine Science UAF
University of Alaska Fairbanks	Fairbanks	AK	

Last Name	First Name		

920514004. 1 C-lab; A System For Monitoring
ME Fish and Shellfish D NOAA

Cooney Robert Institute of Marine Sciences
University of Alaska Fairbanks Fairbanks AK

920612244. 1 C-lab-A System For Monitoring Meteorological And Oceanographic Variables That Affect Salmon Growth
MA Fish and Shellfish R NOAA

Cooney Ted UAF
Institute of Marine Science Fairbanks AK

920615297.75 Est. An Ecological Basis For Restoring And Enhancing The Mixed-stock Salmon Resources Of PWS.
ME Fish and Shellfish R ADFG

Dahlheim, Loughlin Marilyn, Thomas NMFS-NMML
7600 Sand Point Way N. E. Seattle WA

920615261. 1 Photo-Identification Studies of PWS Killer Whales, combined with 920615261.2
RM Marine Mammals C NOAA

920615261. 2 Use of Satellite Transmitters to Investigate Killer Whale Ecology in PWS
RM Marine Mammals P NOAA 93042

Darling Iris Downtown Merchants Assoc.
None Seward AK

920622325. 1 Same As 920605137
MA Education D NOAA

Davis Randall Internationa Wildlife Research
Texas A&M University Galveston TX

920615247. 1 Oiled Wildlife Rehabilitation Center
ME Marine Mammals R

Dean Thomas Coastal Resources Associates
2270 Camino Vida Roble, Suite L Carlsbad CA

920610230. 1 Experimental Evaluation Of Oiled/control Paired Design Used In Assessing Inter/Subtidal Community
RM Sub-Tidal P NOAA 93037

Last Name	First Name

920610230. 2 Experimental Studies Of Interaction Between Subtidal Epifaunal Invertebrates
DA Sub-Tidal R ADFG

920615297.77 Experimental Studies Of Interactions Between Subtidal Epifaunal Invertebrates. Same As 920610230-2
RM Sub-Tidal D ADFG

920615297.77 Experimental Studies Of Interactions Between Subtidal Epifaunal Invertebrates. Same As 920610230-2
RM Sub-Tidal D ADFG

920615297.77 Experimental Studies Of Interactions Between Subtidal Epifaunal Invertebrates. Same As 920610230-2
RM Sub-Tidal D ADFG

Dekin Albert State University of New York

P. O. Box 6000 Binghamton NY

920526031. 1 Study Of Petroleum Hydrocarbon Spectra At Selected Sites.
MA Archeology R ADNR

Derenoff Margie Kodiak Area Native Association

402 Center Avenue Kodiak AK

920614300. 1 Build Facilities For Oil Workers Who Work In Karluk Kodiak Area
TS Service R

DeVogelaere, Foster Andrew, Michael Moss Landing Marine Laboratories

P.O. Box 450 Moss Landing CA

920616307. 1 Restoration of High-Intertidal Fucus Following EVOS, combined with 920618316.3
ME Coastal Habitat C USDA

Deysher Larry Coastal Resources Associates

2270-1 Camino Vida Roble Carlsbad CA

920612236. 1 Quantification Of Intertidal Algal Recovery Using Multispectral Digital Remote Sensing
RM Sub-Tidal USDA

920612236. 2 Providing Public Access To Oilspill Gis Databases Using Arcview In PC Windows Environment, combined with 92060E
TS GIS C ADNR

920615297.76 Quantification Of Intertidal Algal Recovery Using Multispectral Digital Remote Sensing. Same As 920612236-1
RM Sub-Tidal D ADFG

Last Name	First Name			
DiConstanzo	Carmine			ADF&G
PO Box 25526	Juneau		AK	
920615297. 8 Database Integration. Same As 920608184.1				
TS	Service	D		
Dieckgraeff	Barbara			None
HCR 64 Box 300	Seward		AK	
920616304. 1 Alaska Sealife Center In Seward (saams). Same As 920605137				
MA	Education	D	NOAA	
Dieckgraeff	Frank			None
HCR64 Box 300	Seward		AK	
920615283. 1 Alaska Sealife Center In Seward (saams). Same As 920605137				
MA	Education	D	NOAA	
Dieckgraeff	Tammy			Nnoe
7917 Cranberry St. Apt B	Anchorage		AK	
920616309. 1 Alaska Sealife Center In Seward (saams). Same As 920605137				
MA	Education	D	NOAA	
Diters	Charles	Regional Arceaologist		US Fish and Wildlife Service
1011 East Tudor Rd.	Anchorage		AK	
920615273.14 Archaeological Site Stewardship Program, Combine with 920615298.20				
MA	Archeology	C	ADNR	
Donald	Doreen			
4010 Kingston Drive	Anchorage		AK	
920615297.60 Fort Richardson Pipeline. Same as 920615297.48				
ME	Fish and Shellfish	D		
Donohue	Marke			Kodiak Area Native Association
402 Center Avenue	Kodiak		AK	

Last Name	First Name	

920615279.30 Assessment And Quality Assurance Of Shellfish Resources
RM Fish and Shellfish R ADFG

Dreckgraeff Tammy None

7917 Cranberry, Apt, B Anchorage AK

920616309. 1 Alaska Sealife Center In Seward (saams). Same As 920605137
MA Education D NOAA

Dudiak Nick ADF&G

3298 Douglas Street Homer AK

920615297. 9 Lower Cook Inlet Sockeye Salmon Restoration And Enhancement
ME Fish and Shellfish R ADFG

Dunham Beverly None

P.O. Box 27 Seward AK

920615276. 1 Same As 920605137
MA Education D NOAA

Dunham Meggin None

P.O. Box 1595 Seward AK

920615277. 1 Alaska Sealife Center In Seward (saams). Same As 920605137
MA Education D NOAA

Dunham Willard Seward Marine Center

P.O. Box 730 Seward AK

920605137. 1 SAAMS - Alaska Sealife Center
MA Education R NOAA

Ehret Jim None

6311 DeBarr Road, #403 Anchorage AK

920605124. 1 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D ADFG

Last Name	First Name

Ehret Patricia

P. O. Box 5-378 Ft. Richardson AK

920615297.52 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

920615297.52 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Elvsaas Fred Seldovia Native Association, Inc.

P.O. Drawer L Seldovia AK

920609217. 1 Habitat Acq. Kachemak, combined with 920601051.1
PA Land Acquisition C

Evanoff Gail Chenega Corporation

P.O. Box 8060 Chenega Bay AK

920615294. 1 Restoration Of Mussel Beds, combined with 920615291.2.
ME Fish and Shellfish C ADEC

Fall Jim Subsistence ADF&G

333 Raspberry Rd Anchorage AK

920615297.10 Subsistence Food Safety Testing, Combined with 920615273.37
RM Fish and Shellfish C ADFG

Fallon Michael

9820 Saaya Circle Eagle River AK

920615297.48 Fort Richardson Pipeline.
ME Fish and Shellfish P ADFG 93026

Feder Howard UAF

Institute of Marine Science Fairbanks AK

920615297.11 Develop Protocols For Analysis And Assessment Of Benthic Biological, Physical, And Hydrocarbon Data
TS Sub-Tidal R ADFG

920615297.12 Injury and Recovery of Deep-Benthic Macrofaunal Communities, combined with 920618315.1
RM Sub-Tidal C ADFG

Last Name	First Name			
Fischer	Thom			Whitewater Engineering Corp.
1050 Larrabee Ave, Suite 104-707	Bellingham		WA	
920615286. 1 Silver Lake Hydropower Project				
ME	Air and Water	R		
920615286. 2 Silver Lake Fish Hatchery				
ME	Fish and Shellfish	R	ADFG	
Fraker	Mark			ADF&G
645 G Street	Anchorage		AK	
920615297.13 Synthesis Of Information On Ecology And Injury To River Otters In PWS				
MA	Terrestrial Mammals	R	ADFG	
French	John			UOA-Fishery Industrial Technology Center
900 Trident Way	Kodiak		AK	
920616310. 1 Near Island Fisheries Research Center				
TS	Service	R	ADFG	
Frost	Kathryn	Wildlife Biologist		ADF&G
1300 College Rosd	Fairbanks		AK	
920615297.14 Habitat Use And Behavior Of Harbor Seals In PWS				
RM	Marine Mammals	P	ADFG	93046
920615297.15 Monitoring Trends In Abundance Of Harbor Seals In PWS 1993-1994, combined with 920615297.14				
RM	Marine Mammals	C	ADFG	
Gates	Christopher			City of Seward
P.O. Box 167	Seward		AK	
920615292. 1 Alaska Sea Life Center In Seward (saams). Same As 920605137				
MA	Education	D	NOAA	
Gates	George			
3637 W. 100	Anchorage		AK	
920615297.62 Fort Richardson Pipeline. Same as 920615297.48				
ME	Fish and Shellfish	D		

Last Name	First Name

Gorup Madge

P.O. Box 878397 Wasilla AK

920615297.56 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Graham Marnie Volunteer Volunteer PWS Conservation Alliance

P.O. Box 3224 Valdez AK

920610225. 1 Fund A PWS Nature Center, combined with 920615298.50
MA Education C USDA

Griesy Cheryl

7505 Glen Highway, #116 Anchorage AK

920615297.53 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Griffin Doug City Manager City of Valdez

P.O. Box 307 Valdez AK

920601050. 1 Oil And Grease Separator/Valdez Harbor
ME Service R

920601050. 2 Oil and Grease Separator/Fidalgo
ME Service R

920601050. 3 Oil and Grease Separator/Hazelet
ME Service R

920601050. 4 Valdez Landfill Upgrade
ME Service R

920601050. 5 Valdez Recycling
ME Service R

920601050. 6 Valdez Sewage Treatment Plant Upgrade
ME Service R

920601050. 7 Valdez Garbage Scow Facilities
ME Service R

Last Name	First Name

920601050. 8 Valdez/Remediate Existing Landfills
ME Service R

920601050. 9 Valdez Hazardous Waste Collection
ME Service R

920601050.10 Landfill Liner
ME Service R

920601050.11 Maritime Wing Valdez Museum, combined with 920615298.50
MA Education C ADNR

920601050.12 Oil Spill Cooperative/Training Center
MA Service R

920601050.13 Valdez Oversight of Oil Industry
MA Service R

920601050.14 Increased Access PWS, combined with 920615298.55
ME Recreation C USDA

920601050.16 Assist Valdez in Handling Waste Oil
ME Service R

920601050.17 Train Valdez Personnel for Environmental Incidents
MA Service R

920601050.18 Improve Public Health Facilities, PWS
ME Service R

Grimes Deanna None

P.O. Box 2351 Seward AK

920615282. 1 Alasa Sealife Center In Seward (saams). Same As 920605137
MA Education D NOAA

Hagenstein Randall Prince William Sound Science Center

P.O. Box 100358 Anchorage AK

920608191. 1 Public Access Repository For Oil Spill Geographic Information System, combined with 920608184.1
TS GIS C ADNR 93057

Hamson Dan Chief Coastal Programs National Park Service

2525 Gambell St. Anchorage AK

Last Name	First Name

920615273. 1 Productivity And Survival Of Brown Bears In Katmai National Park
RM Terrestrial Mammals R DOI

920615273. 2 Determine The Extent Of Oil Spill Injuries To Harlequin Ducks In National Parks, combined with 920615297.31
RM Birds C ADFG

920615273. 3 Determine Status Of Marbled Murrelet Populations In Oiled National Parks
RM Birds R DOI

920615273. 4 Recovery Monitoring Of Intertidal Oiled Mussel Beds Outside PWS, combined with 920615258.1
RM Coastal Habitat C NOAA

920615273. 5 Determine The Status Of Bald Eagle Populations In Oiled National Parks, combined with 920615279.16
RM Birds C DOI

920615273. 6 Coastal Archaeological Inventory And Evaluation Of Archaeological, Sites Kenai And Katmai Natl Parks., combined
MA Archeology C ADNR

920615273. 7 Coastal Archaeological Inventory And Evaluation Of Archaeological Sites - Interagency, combined with 920615298.
MA Archeology C ADNR

920615273. 8 Site-specific Archaeological Restoration - Interagency
MA Archeology P DOI 93006

920615273. 9 Site-specific Archaeological Restoration In Kenai And Katmai National Parks, Combine with 920615273.8
MA Archeology C DOI

920615273.10 Archaeological Site Protection-public Education-interagency, Combine with 920615296.3
MA Archeology C USDA

920615273.11 Archaeological Site Protection-public Education-national Park Service, Combine with 920615296.3
MA Archeology C USDA

920615273.12 Archaeological Site Protection-Site Patrol Monitoring-Interagency
RM Archeology P DOI 93008

920615273.13 Archaeological Site Protection-site Patrol And Monitoring-national Park Service, Combine with 920615273.12
RM Archeology C DOI

Harrison Craig Vice Chairman Conserv. Pacific Seabird Group

4001 N. 9th Street #1801 Arlington VA

920603092. 1 Habitat Aquisition Evaluation, Evaluate Pacific Seabird Group List, Eliminate Predators, combined with 9206030
ME Birds P 93060

Last Name	First Name

920603092. 2 Removal Of Alien Predators From Bird Colonies, combined with 920615279.17
ME Birds C DOI

920608200. 1 Seabird Colony Restoration, combined with 920615279.17
ME Birds C DOI

Hartman Jeff Fred Division ADF&G

BOX 3-2000 Juneau AK

920615297.16 Development Of Economic Guidelines And Cost Benefit Analysis Of Oilspill Projects For NEPA And TC
TS Service R USDA

Hauser Bill ADF&G

333 Raspberry Road Anchorage AK

920615294. 5 Chenega Chinook And Silver Salmon Release Program
ME Fish and Shellfish P ADFG 93016

Hauser William ADF&G

333 Raspberry Road Anchorage AK

920615297.17 Quality Assurance For PWS Coded Wire Tagging And Fish Production Records For Improved Mgmt. Ability
MA Fish and Shellfish P ADFG 93014

Helle John None

2427 O'Day Drive Juneau AK

920619321. 1 Acquire Olsen Bay Watershed, 920601051.1
PA Land Acquisition C

Hetrick Jeff Alaska AquaFarm

P.O. Box 7 Moose Pass AK

920514006. 1 Clam Enhancement, combined with 920612242.1
ME Fish and Shellfish C ADFG

Hiffentiaga Bonnie

6224 Eastwood Ct. Anchorage AK

920615297.51 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Last Name	First Name

Highsmith Ray UAA, Institute of Marine Science

None Fairbanks AK

920610228. 1 Herring Bay Experimental And Monitoring Studies. Same As 920615297-19
RM Coastal Habitat D USDA

920610228. 2 Coastal Habitat Comprehensive Intertidal Monitoring Program
RM Coastal Habitat C ADFG

920615297.18 Coastal Habitat Comprehensive Intertidal Monitoring Program
RM Coastal Habitat R USDA

920615297.19 Herring Bay Experimental And Monitoring Studies
RM Coastal Habitat C ADFG

Honnold Steve ADF&G

211 Mission Road Kodiak AK

920615279. 2 Red Lake Mitigation. Same as 920615297.70
ME Fish and Shellfish D ADFG

920615279. 4 Cold Creek Pink Salmon Restoration. Same As 920615297.20
ME Fish and Shellfish D ADFG

920615279. 4 Cold Creek Pink Salmon Restoration. Same As 920615297.20
ME Fish and Shellfish D ADFG

920615297. 5 Larval Herring Age and Growth in PWS Using Otoliths
RM Fish and Shellfish C ADFG

920615297.20 Cold Creek Pink Salmon Restoration
ME Fish and Shellfish P ADFG 93032

920615297.20 Cold Creek Pink Salmon Restoration
ME Fish and Shellfish P ADFG 93032

920615297.21 Horse Marine Creek Pink Salmon Restoration
ME Fish and Shellfish R ADFG

920615297.22 Waterfall Creek Pink Salmon Restoration-Fish Improvement
ME Fish and Shellfish R ADFG

920615297.23 Pink Creek Pink Salmon Restoration, combined with 920615297.20
ME Fish and Shellfish C ADFG

Last Name	First Name

920615297.23 Pink Creek Pink Salmon Restoration, combined with 920615297.20
ME Fish and Shellfish C ADFG

Jackson Paul Environmental Specialist The North Pacific Rim
3300 C Street Anchorage AK

920515016. 1 Toxicological Profile Of PWS
DA Ecosystem R NOAA

Jarrel Gordon University of Alaska Museum
907 Yukon drive Fairbanks AK

920601054. 1 November 91 Request for Immediate Funding for Coastal Habitat Specimens, combined with 920601049.1
TS Coastal Habitat C ADNR

Jewett Stephen UAF
Institute of Marine Science Fairbanks AK

920615297.24 Natural Recovery Monitoring of Subtidal Eelgrass Communities in PWS, combined with 920618315.1
RM Sub-Tidal C ADFG

Johannsen Neil ADNR
P.O. Box 107001 Anchorage AK

920615296. 6 Marine Recreation Plan For Spill Area
MA Recreation R ADNR

920615296. 7 Public Use Cabins In State Marine Parks
ME Recreation R ADNR

920615296. 8 Acquisition Of Important Recreation Lands, combined with 920601051.1
PA Land Acquisition C

Johnson J.D. Fishery Biologist ADF&G
Box 669 Cordova AK

920610231. 6 Monitoring For Recruitment Of Littleneck Clams.
RM D ADFG

920615297.25 Monitoring For Recruitment Of Littleneck Clams.
RM Fish and Shellfish R ADFG

Last Name	First Name		
Joyce	Timothy		None
P.O. Box KKB, Kitoi Bay	Kodiak	AK	
920604115. 1 Kitoi Bay Hatchery Oil Spill (clean-up) Equipment Storage, same as 920615297.26			
TS	Service	D	ADFG
920615297.26 Kitoi Bay Hatchery Oil Spill Equipment Storage			
TS	Service	R	ADFG
Kehrer	Peg	Project Assistant	ADF&G
P.O. Box 3-2000	Juneau	AK	
920615287. 1 Endowment Proposal I, combined with 920604101.1			
TS	Endowment	C	
920615287. 2 Endowment Proposal II, combined with 920604101.1			
TS	Endowment	C	
Kitagawa	Judy		None
P.O. Box 1451	Valdez	AK	
920511138. 1 Oily Bilgewater/Oily Waste Treatment - Several Oil Spill Communities.			
TS	Service	R	
Knepshield	Carol		
17911 Meadow Circle	Eagle River	AK	
920615297.67 Fort Richardson Pipeline. Same as 920615297.48			
ME	Fish and Shellfish	D	
Knepshield	Ronald		
17911 Meadow Circle	Eagle River	AK	
920615297.55 Fort Richardson Pipeline. Same as 920615297.48			
ME	Fish and Shellfish	D	
Kocan	Richard		Univ. of Washington
None	Seattle	WA	
920611234. 1 Herring Embryo Viability Evaluation - Natural and Catastrophic Effects			
DA	Fish and Shellfish	R	ADFG

Last Name	First Name		
Komisar	Jerome	President	University of Alaska
202 Butrovich Bldg.	Fairbanks	AK	
920604101. 1 Endowment of Sinking Fund			
TS	Endowment	E	
Koski	K.V.		NMFS Auke Bay Laboratory
11305 Glacier Highway	Juneau	AK	
920615260. 1 Restoration Recovery Monitoring Of Stream-rearing Anadromous Salmonids, combined with 920603092.1			
PA	Fish and Shellfish	C	USDA
Kroll	Henry		None
P.O. Box 181	Seldovia	AK	
920603093. 1 Build Research and Monitoring Facilities and Program/Cook Inlet, Kodiak			
RM	Fish and Shellfish	R	NOAA
Kuwada	Mark	PI	ADF&G
333 Raspberry Rd	Anchorage	AK	
920615297.27 Stream Habitat Assessment (R47), combined with 920615273.25			
PA	Land Acquisition Identifi	C	
920615297.73 Instream Habitat And Stock Restoration Techniques For Anadromous Fish.			
ME	Fish and Shellfish	R	ADFG
Lawley	Gary		Martech USA, Inc.
300 E. 54th Ave.	Anchorage	AK	
920618316. 3 Kelp Regeneration In The Upper Intertidal			
ME	Sub-Tidal	P	ADFG 93039
Lethcoe	Nancy		Ak Wilderness Recreation & Tourism Assoc
P.O. Box 1353	Valdez	AK	
920602084. 1 Damage Assessment Of Economic Damages To Wilderness-based Tourism			
DA	Land Acquisition Identifi	C	ADNR
920612237. 2 Restore Shorelines Damaged By Beach Berm Relocation			
ME	Coastal Habitat	R	ADNR

Last Name	First Name		

920612237. 5 Watchable Wildlife, combined with 920615298.25
MA Terrestrial Mammals C ADFG

Logan Dan Wildlife Biologist USFS

BOX 280 Cordova AK

920615298.52 Distribution, Abundance, Habitat Use And Phylogeny Of Canada Geese In PWS
PA Land Acquisition Identifi R

920615298.53 Inland Survey Of Marbled Murrelet Habitat Use In PWS, combined with 920615273.25
PA Land Acquisition Identifi C

920615298.54 Restoration Of Second Growth Habitat For Wildlife In PWS
ME Coastal Habitat P USDA 93029

Lusco Robert Ft. Richardson Hatchery

P.O. Box 5156 Ft. Richardson AK

920608204. 1 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Malloy Larry Kodiak Regional Aquaculture Association

P.O. Box 3407 Kodiak AK

920615279.24 Kitoi Bay Hatchery On Afognak Island
ME Fish and Shellfish R ADFG

Matkin Craig None

P.O. Box 15244 Homer Ak

920514005. 1 Restoration of Killer Whales in PWS, combined with 920615261.2
RM Marine Mammals C NOAA

Matkin Olga and Craig The North Gulf Oceanic Society

P. O. Box 15244 Homer AK

920526033. 1 Humpback Whale Project
DA Marine Mammals R NOAA

McCarron Suzanne Fishery Biologist ADF&G

333 Raspberry Rd Anchorage AK

Last Name	First Name

920615297.28 Enhanced Management For Cutthroat Trout And Dolly Varden In PWS. Same As 920615249.1
MA Fish and Shellfish P ADFG 93018

920615297.28 Enhanced Management For Cutthroat Trout And Dolly Varden In PWS. Same As 920615249.1
MA Fish and Shellfish P ADFG 93018

920618315. 1 Monitoring Injury to Rockfish in PWS
RM Fish and Shellfish P NOAA 93047

McConnell Gab

10421 Constitution Anchorage AK

920615297.66 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

McVee Curtis Department of the Interior

1689 C Street, Suite 100 Anchorage AK

920615273.15 Monitoring Of Sea Otter Population Abundance, Distribution, Reproduction, And Mortality.
RM Marine Mammals P DOI 93043

920615273.15 Monitoring Of Sea Otter Population Abundance, Distribution, Reproduction, And Mortality.
RM Marine Mammals P DOI 93043

920615273.16 Habitat Utilization By Sea Otters And Designation Of Protected Areas
PA Marine Mammals P DOI 93044

920615273.17 Feeding Ecology And Reproductive Success Of Black Oystercatchers In PWS
RM Birds P DOI 93035

920615273.18 Monitoring Rate Of Recovery Of Murres In Breeding Colonies Downstream From Oil Spill. Same As 920615279.19
RM Birds P DOI 93049

920615273.20 Removal Of Introduced Foxes To Restore Breeding Seabirds. Same As 920615279-17, combined with 920615279.17
ME Birds C DOI

920615273.21 Radio-Telemetry Project To Monitor Recovery Of Sea Otters
RM Marine Mammals R DOI

920615273.22 Surveys To Monitor Marine Bird And Sea-otter Populations
RM Marine Mammals P DOI 93045

920615273.23 Pigeon Guillemot Recovery Enhancement And Monitoring
RM Birds P DOI 93034

Last Name	First Name

920615273.24 Assessment Of Marbled Murrelet Foraging Habitat Requirements During Breeding Season
RM Birds R DOI

920615273.27 Monitor Population Status Of Seabird Nesting Colonies In The Spill Zone
RM Birds R DOI

920615273.28 Monitor Productivity Of Bald Eagles In PWS Kodiak And Alaska Pen. Pacific Coast, combined with 920615279.16
RM Birds C DOI

920615273.29 Long-term Population Monitoring For Bald Eagles, combined with 920615279.16
RM Birds C DOI

920615273.31 Development Of Managment Strategies For Enhancing Recovery Rate Of Birds And Sea Otter Populations
MA Birds R DOI

920615273.33 Hydrocarbons in Mussels From Coastal Gulf of Alaska, Cook Inlet and Shelikof Strait
RM Fish and Shellfish R NOAA

Mearns Alan NOAA-HMRAD

7600 Sand Point Way N.E. Seattle WA

920615264. 1 Natural Recovery Of Oiled And Treated Shorelines
RM Coastal Habitat P NOAA 93040

920615264. 2 New Field Test of Bioremediation
RM Sub-Tidal R NOAA

Mooney Hope

7401 East 16th #7 Anchorage AK

920615297.57 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Moyer Mike None

5178 Shoreline Drive Ketchikan AK

920527041. 1 Bivalve Shellfish Rehabilitation Project
ME Fish and Shellfish R ADFG

Muehling Eric None

801 Barnette Street Fairbanks AK

Last Name	First Name			
920617314. 1 Press Release Project On Restoration Program Work				
MA	Education	R	USDA	
Murphy	Joyce			None
12531 Old Seward Highway	Anchorage		AK	
920605123. 1 Same As 920605137				
MA	Education	D		
Murphy	Linda			None
Box 843	Seward		AK	
920612241. 1 Same As 920605137				
MA	Education	D	NOAA	
Naulty	Sandra			
P.O. Box 1363	Palmer		AK	
920615297.54 Fort Richardson Pipeline. Same as 920615297.48				
ME	Fish and Shellfish	D		
None	None			Friends of the Earth Northwest Office
4512 University Way NE	Seattle		WA	
920514012. 1 Trans-Alaska Pipeline Removal Project				
ME	none	R	ADNR	
920615262. 1 Distribution Of Prey Species For Apex Predator Species (Murre, Guillemot, Murrelet, Harbor Seal, Etc.)				
RM	Fish and Shellfish	R	NOAA	
920618316. 1 Mussel Bed Treatment				
ME	Fish and Shellfish	R	ADEC	
Norman	Patrick			Port Graham Corporation
P.O. Box P.G.M.	Port Graham		AK	
920615291. 1 Mark 17(b) Easements On Port Graham Land.				
PA	Land Acquisition Identifi	R		
Nowlin	Roy			ADF&G
Division of Wildlife Conservation	Cordova		AK	

Last Name	First Name

920615297.29 Identification Of Critical Upland Wildlife Habitat in PWS, combined with 920603092.1
PA Land Acquisition Identifi C

920615297.30 Develop Harvest Guidelines To Aid Restoration Of Injured Terrestrial Mammals And Seaducks
MA Birds P ADFG 93011

O'Clair Charles Auke Bay Biological Laboratory

11305 Glacier Highway Juneau AK

920615259. 1 Recovery Monitoring of Hydrocarbon-Contaminated Subtidal Marine Sediment Resources, combined with 920618315.1
RM Sub-Tidal C NOAA

Ohlinger Philip None

17928 Meadow Creek Drive Eagle River AK

920605131. 1 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Olito Carmen None

P.O. Box 111486 Anchorage AK

920608202. 1 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Ott Riki Oil Reform Alliance

211 4th Street, Suite 112 Juneau AK

920604104. 1 Develop User Friendly Synopsis Of Oil Spill Information, combine with 920615298.25
MA Education C USDA

920604104. 2 Long-term Epidemiology Study Of Oil Spill Workers
DA Terrestrial Mammals R ADEC

Pagano Frank President Koniag, Inc.

4300 B Street, Suite 407 Anchorage AK

920615257. 1 Acquisition Of Koniag Corp. Inholdings Within The Kodiak National Wildlife Refuge, combined with 920601051.1
PA Land Acquisition C

920618318. 1 Acquisition Of Koniag Corp Inholdings Within The Kodiak State Park, combined with 920601051.1
PA Land Acquisition C

Last Name	First Name

920619323. 1 Habitat Acq. Of Koniag Corp. Inholdings, Kodiak National Wildlife Refuge, 920601051.1
PA Land Acquisition C

Page Clayton SBP Technologies, Inc.

2155-D West Park Court Stone Mountain GA

920615266. 1 Rapid Restoration Of Weathered Crude Contaminated Beach Subsurface Material.
ME Coastal Habitat R ADEC

920615271. 1 Rapid Restoration Of Weathered Crude Beach Subsurface Material.
ME Fish and Shellfish C ADEC

Parker Lisa Regional Citizens Advisory Council

11355 Frontage Road, Suite 228 Kenai AK

920612235. 1 Cook Inlet Comprehensive Monitoring Program
DA Ecosystem R NOAA

920615275. 1 Cook Inlet Comprehensive Environmental Monitoring Program, same as 920612235.1
RM Coastal Habitat D NOAA

Patten Samuel Wildlife Biologist ADF&G

333 Raspberry Rd Anchorage AK

920615297.31 Harlequin Duck Restoration And Monitoring Study
RM Birds P ADFG 93033

Paul A.J. Associate Professor University of Alaska, Fairbanks

P.O. Box 730 Fairbanks AK

920527042. 1 Same As 920605137
MA Education D NOAA

Phipps Alan Ak Center for the Environment

519 W. 8th Ave. #201 Anchorage AK

920615293. 1 Land Acq. PWS, Kodiak, combined with 920601051.1
PA Land Acquisition C

Podolsky Richard None

234 West 56th Street #20N New York NY

Last Name	First Name

920611233. 1 Restoration Of Murres By Way Of Behavioral Attraction And Habitat Enhancement
ME Birds P DOI 93022

920611233. 2 Restoration Of Murres By Way Of Transplantation Of Chicks-Feasibility Study
ME Birds P DOI 93021

920611233. 3 Identification Of Seabird Feeding Areas From Remotely Sensed Data And Impact On Restoration
MA Birds R DOI

920611233. 4 Marbled Murrelet Vocalizations In Conjunction With Artificial Nests
ME Birds R DOI

920611233. 5 Establishment Of User-friendly GIS And Remote-sensing Demonstration Center For Public-5 Communities, combined w
TS GIS C ADNR

920611233. 6 Quantification Of Stream Habitat For Harlequin Ducks From Remotely Sensed Data, combined with 920615297.31
PA Land Acquisition Identifi C

Redman Wendy Vice President University of Alaska Statewide System

None Fairbanks AK

920601049. 1 Coastal Habitat Specimens, University of Alaska Museum
TS Coastal Habitat R ADNR

920601049. 2 Bird and Mammal Specimens, University of Alaska Museum, combined with 920601049.1
TS Birds C ADNR

920601049. 3 Archaeological Specimens, University of Alaska Museum, combined with 920601049.1
TS Archeology C ADNR

Rice Stanley NOAA

11305 Glacier Highway Juneau AK

920608184. 3 Management Of Restoration Database, Sample Archiving, Chemical Interpretation, combined with 920608184.1
TS Service C ADFG

920615258. 1 Recovery Monitoring Of Intertidal Oiled Mussel Beds In PWS And Gulf Of Alaska
RM Coastal Habitat P NOAA 93036

920615258. 3 Injury to Salmon Eggs and Pre-emergent Fry in PWS, Laboratory Verification
MA Fish and Shellfish P ADFG 93003

Rodgers Harry Valdez City Schools

P.O. Box 398 Valdez AK

Last Name	First Name

920615251. 1 Valdez City Schools
ME Education R

Rolland Richard Chugachmiut

3300 C Street Anchorage AK

920612242. 1 Seward Shellfish Hatchery
ME Fish and Shellfish P ADFG 93020

Rosier Carl Commissioner ADF&G

P.O. Box 3-2000 Juneau AK

920615273.37 Survey Of EVOS Impacted Native Communities-Subsistence
MA Fish and Shellfish P ADFG 93017

Royer Thomas Professor of Marine Sci. University of Alaska, Fairbanks

None Fairbanks AK

920526039. 1 Long-term Monitoring Of Marine Environment Of Resurrection Bay. Combined with 920615262.2
DA Ecosystem C ADFG

Rusher Jerry Rusher's Services

hC 33 box 2866 Wasilla AK

920601059. 1 Natural Product Natural Life Restoration
ME Coastal Habitat R ADEC

920601061. 1 Natural Product Natural Life Restoration, combined with 920601059.2.
ME Coastal Habitat C ADEC

920601062. 1 Natural Product Natural Life Restoration, combined with 920601059.1
ME Coastal Habitat c ADEC

920601063. 1 Shoreline Worm Life Monitoring, combined with 920601059.1
ME Coastal Habitat C ADEC

Russo Fred

1505 W. 35th Ave. Anchorage AK

920615297.58 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Last Name	First Name

Schmid Dave USFS-Cordova Ranger District

BOX 280 Cordova AK

920615298.36 Stream Channel Type Classification And Fish Habitat Assessment
PA Fish and Shellfish R USDA

920615298.37 Montague Island Chum Salmon Restoration
ME Fish and Shellfish P USDA 93025

920615298.38 Anadromous Cutthroat And Dolly Varden Char Habitat Inventory, Evaluation, And Restoration, combined with 920615
PA Fish and Shellfish C USDA

Schmidt Dana Fred Div., ADF&G

34828 Kalifornsky Beach Rd., Suite B Soldotna AK

920605128. 1 Sockeye Salmon Overescapement Studies
DA Fish and Shellfish D ADFG

920615297.32 Sockeye Salmon Overescapement
DA Fish and Shellfish P ADFG 93002

Seeb Jim ADF&G

333 Raspberry Rd Anchorage AK

920615297.33 Genetic Risk Assessment Of Injured Salmonids
MA Fish and Shellfish P ADFG 93004

920615297.34 Genetic Stock Identification For Herring In PWS
MA Fish and Shellfish R ADFG

920615297.35 Genetic Stock Identification Of Kenai River Sockeye For Protection In Mixed Harvest Areas
MA Fish and Shellfish P ADFG 93012

920615297.36 Genetic Monitoring of Kodiak Island Sockeye Salmon
RM Fish and Shellfish R ADFG

920615297.36 Genetic Monitoring of Kodiak Island Sockeye Salmon
RM Fish and Shellfish R ADFG

Seeb Lisa ADF&G

333 Raspberry Rd Anchorage AK

Last Name	First Name

920615297. 3 PWS Herring Spawn Deposition Survey
MA Fish and Shellfish R ADFG

Selby Jerome Mayor, Kodiak Borough Borough Mayor, Kodiak Island Borough
710 Mill Bay Road Kodiak AK

920601058. 6 Uganik River Fish Counting Weir, Combined with 920615279.11
MA Fish and Shellfish C DOI

920601058. 7 Use And Productivity Of Bald Eagle Nest Sites, Kodiak
RM Birds C DOI

920601058. 8 Sea Otters In Kodiak Archipelago - Population Status,trends. Combined with 920615273-15
RM Marine Mammals C DOI

920601058.10 Land Exchange Shuyak For Kodiak Land On Road System, combined with 920601051.1
PA Land Acquisition C

920601058.11 Acquisition Of Recreational Sites On Kodiak Road System, combined with 920601051.1
PA Land Acquisition C

920601058.12 Public Education/interpretation Of Archaeological Resources In State Parks, Combine with 920615296.3
MA Archeology C ADNR

920615279. 8 Habitat Acq., North Afognak Island, combined with 920601051.1
PA Land Acquisition C

920615279. 9 Kodiak Bear Refuge Stream Mouth Inholdings Acq., combined with 920601051.1
PA Land Acquisition C

920615279.12 Habitat Acq., Kodiak Island, combined with 920601051.1
PA Land Acquisition C

920615279.13 Bald Eagle Productivity Survey And Catalog, combined with 920615279.16
RM Birds C DOI

920615279.14 Sea Otter Population Survey And Trends, combined with 920615273.15
RM Marine Mammals C DOI

920615279.16 Bald Eagle Nesting Surveys-Alaska Pen. Pacific Coast
RM Birds R DOI

920615279.18 Reduce Disturbance Near Murre Colonies Damaged By Oil Spill, combined with 920615273.19
RM Birds C DOI

Last Name	First Name

920615279.19 Monitoring The Rate Of Recovery Of Murres In Breeding Colonies In Or Downstream From Oil Spill. Combined with 9
RM Birds C DOI

920615279.20 Acquisition Of Inholdings In Shuyak Island State Park, combined with 920601051.1
PA Land Acquisition C

920615279.20 Acquisition Of Inholdings In Shuyak Island State Park, combined with 920601051.1
PA Land Acquisition C

920615279.23 Villages Kitoi Bay Hatchery and Other Site Prevention and Response
TS Service R ADFG

920615279.25 Thirteen Commercial Species Assessment
MA Coastal Habitat R NOAA

920615279.27 Archaeological Outreach-Curator Position.
MA Archeology R USDA

920615279.28 Alutiiq Museum And Culture Center-phase I Construction, combined with 920615298.17
MA Archeology C ADNR

920615279.31 Archaeological Site Inventory And Assessment, combined with 920615298.19
MA Archeology C ADNR

920615279.32 Environmental Learning Resource Center
MA Education R ADNR

Sharr Sam ADF&G

Division of Wildlife Conservation Cordova AK

920615297.38 Coded Wire Tagging Of Wild Stock Pink Salmon For Stock Identification
MA Fish and Shellfish R ADFG

920615297.38 Coded Wire Tagging Of Wild Stock Pink Salmon For Stock Identification
MA Fish and Shellfish R ADFG

920615297.38 Coded Wire Tagging Of Wild Stock Pink Salmon For Stock Identification
MA Fish and Shellfish R ADFG

920615297.39 Inventory And Effects Of Straying Hatchery Pink Salmon On Wild Pink Salmon Populations In PWS
MA Fish and Shellfish P ADFG 93013

920615297.40 Pink Salmon Escapement Enumeration, combined with 920615297.39
MA Fish and Shellfish C ADFG

Last Name	First Name

920615297.41 Adult Tagging To Determine Distribution, Migratory Timing And Rate Of Movement Of Pink Salmon In PWS
MA Fish and Shellfish R ADFG

920615297.41 Adult Tagging To Determine Distribution, Migratory Timing And Rate Of Movement Of Pink Salmon In PWS
MA Fish and Shellfish R ADFG

920615297.42 Coded Wire Tag Recoveries From Commercial Catches In PWS Salmon Fisheries, Combined with 920615297.41
MA Fish and Shellfish C ADFG

Shasby Mark B. Chief USGS EROS AK Office USGS EROS Alaska Field Office
4230 University Dr. Anchorage AK

920615273.34 CD-ROM Publication Of Digital Spatial Data From Exxon Valdez Oil Spill Mapping Activities, combined with 92060
TS GIS C DOI

Shigenaka Gary NOAA-HMRAD
7600 Sand Point Way N. E Seattle WA

920615265. 1 PWS Long-Term Monitoring Program-Acute and Chronic Toxicity of Residual Hydrocarbons to Littleneck Clams
RM Fish and Shellfish R NOAA

Simonson Bruce ADF&G
P.O. Box 25526 Juneau AK

920608184. 1 Database Integration
TS Service P ADFG 93053

920608184. 2 Database Management - NRDA FS30, combined with 920608184.1
TS Service C ADFG

Smith Thomas None
PO BOX 2484 Seward AK

920609219. 1 Same As 920605137
MA Education D

Steffan Wallace University of Alaska Statewide Systems
910 Yukon Drive Fairbanks AK

920601065. 1 Archive Biological and Archaeological Specimens - Revised Proposal, combined with 920601049.1
TS Coastal Habitat C ADNR

Last Name	First Name

Stekoll Michael UAA, School of Fisheries & Ocean Science

11120 Glacier Highway Juneau AK

920610229. 1 Fucus Restoration Feasibility Study, combined with 920618316.3
ME Coastal Habitat C USDA

920610229. 2 Fucus Recovery In Upper Intertidal Zones (continuation Of Study)
RM Coastal Habitat C USDA

920610229. 3 Coastal Habitat Injury Assessment - Intertidal Algae
DA Coastal Habitat R USDA

920610229. 4 Remote Monitoring Of Intertidal Recovery
RM Coastal Habitat R USDA

Sterne Charla Wildlife Biologist USFS

BOX 129 Girdwood AK

920615298. 3 Oilspill Injured Resources Literature Research And Review
TS Service R USDA

920615298.39 Eyes On Wildlife-injured Resources And Their Restoration, combined with 920615298.25
MA Education C USDA

920615298.40 Migratory Waterfowl And Shorebird Monitoring, combined with 920603092.1
PA Birds C USDA

920615298.45 Vegetation And Stream Classification And Mapping Of Western PWS, combined with 920615273.25
PA Land Acquisition Identifi C

920615298.46 Wetland Habitat Classification, Mapping And Assessment, combined with 920603092.1
PA Land Acquisition Identifi C

920615298.47 Geographic Information System Mapping Of Natural Resources In Western PWS, combined with 920608184.1
TS GIS C ADNR

Sturgulewski Arliss Alaska State Legislature

3111 C Street, #550 Anchorage AK

920603094. 1 Exxon Valdez Oil Spill Marine Sciences Endowment I, combined with 920604101.1
TS Endowment C

920603094. 2 Exxon Valdez Oil Spill Marine Sciences Endowment II, combined with 920604101.1
TS Endowment C

Last Name	First Name

920615272. 1 Sturgulewski Endowment, combined with 920604101.1
TS Endowment C

Swartz Karen, Robert None

P.O. Box 172 Seward AK

920615281. 1 Alaska Sealife Center In Seward (saams). Same As 920605137
MA Education D NOAA

Tarbox Jeanne None

19744 Meadow Creek Drive Eagle River AK

920616305. 1 Fort Richardson Pipeline.
ME Fish and Shellfish D ADFG

Tarbox Kenneth ADF&G

34828 Kalifornsky Beach Road, Suite B Soldotna AK

920608185. 1 Kenai River Sockeye Salmon Restoration (#53). Same As 920615297-43
MA Fish and Shellfish D ADFG

920615297.43 Kenai River Sockeye Salmon Restoration
MA Fish and Shellfish P ADFG 93015

Thomas G.L. Director PWS Science Center

P.O. Box 705 Cordova AK

920622326. 1 Workshop To Identify Critical Habitats In PWS Temporate Rain Forest, combined with 920622326.1
PA Land Acquisition Identifi P 93059

920622326. 2 Full Funding For Oil Spill Recovery Institute
TS Technical Support R NOAA

920622326. 4 Testing Of Patch-Response Patch Dependence Hypothesis-Testing of an Ecosystem Model
MA Ecosystem R NOAA

920622326. 5 Develop Video Library Of Intertidal Habitat And Biota To Assess Impact And Determine Recovery, combined with 92
TS Technical Support C USDA

920622326. 6 Experimental Designs and Statistical Procedures for Damage for Oilspill Cleanup and Restoration Projects
TS GIS R ADNR

Last Name	First Name

920622326. 7 Characterization Of Near-shore Bottom Habitat
RM Sub-Tidal R ADFG

920622326. 8 Multi-agency University Ecosystem Study Of PWS
RM Ecosystem R USDA

920622326. 9 Interactive Public Access to Oil Spill and Related Environmental Data in PWS Science Center GIS
TS GIS R ADNR

920622326.11 Establish Natural Resource Library And Computer Support Technical Service In Cordova, combined with 920615298.2
TS Technical Support C USDA

920622326.12 Cordova Mini-imaginarium, combine with 920615298.25
MA Education C USDA

920622326.13 Science Of The Sound- Education Program, combined with 920615298.25
MA Education C USDA

920622326.14 Alaska Oil Spill Curriculum Rewrite And Reprint, combine with 920615298.25
MA Education C USDA

Thomas Loren None

HC03 Box 8364-Y Palmer AK

920605135. 1 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Tileston Jules None

4780 Cambridge Way Anchorage AK

920604114. 1 Map Of Spill Area By Resource, combined with 920615298.25
MA Education C ADNR

Totemoff Charles President

PO Box 60 Chenega Bay AK

920615294. 2 Restoration Of Chenega Village Site
ME Archeology R ADNR

920615294. 3 Chenega Bay Subsistence Restoration Project (Remove Oil)
ME Coastal Habitat P ADEC 93027

920615294. 5 Chenega Chinook And Silver Salmon Release Program
ME Fish and Shellfish P ADFG 93016

Last Name	First Name

920615294. 6 Chenega Bay Replacement Subsistence Resource Project
MA Fish and Shellfish C USDA

Totemoff Philip Chenega Bay I.R.A. Council

3300 C Street Anchorage AK

920615274. 1 Construction Of Chenega Bay Marine Service Center
TS Service R ADNR

920617313. 1 Construction Of Chenega Marine Service Center, combined with 920615274.1
TS Service C ADNR

Trowbridge Charlie Fishery Biologist ADF&G

Division of Wildlife Conservation Cordova AK

920615297.44 PWS Spot Shrimp Recovery Management Plan
MA Fish and Shellfish R ADFG

920615297.45 PWS Spot Shrimp Survey
RM Fish and Shellfish R ADFG

Unterberg John None

HC04 Box 9026-C Palmer AK

920605132. 1 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Van Zee Bruce USDA-Forest Service

201 E. 9th Ave., Suite 206 Anchorage AK

920615298. 4 PWS Large Format Photographic Book, combined with 920615298.25
MA Education C USDA

920615298. 5 PWS Family Of Brochures, combined with 920615298.25
MA Education C USDA

920615298. 6 PWS Family Of Video Programs, combined with 920615298.25
MA Education C USDA

920615298. 7 PBS Program On PWS, combined with 920615298.25
MA Education C USDA

Last Name	First Name

920615298. 8 PWS Kayak Trail, combined with 920615298.55
ME Recreation C USDA

920615298. 9 PWS Implementation Of Interpretive Plan, combined with 920615298.25
MA Education C USDA

920615298.10 Protect Resources And Enhance Visitor Enjoyment Through Increased Administrative Presence
MA Recreation R USDA

920615298.11 PWS Scenic Byway-- Nomination And Interpretive Plan, combined with 920615298.25
MA Education C USDA

920615298.12 Sustainable Tourism In PWS, Combine with 920615298.28
DA Recreation C USDA

920615298.14 Prince William Sound Campground, combined with 920615298.55
ME Recreation C USDA

920615298.15 PWS Recreation Facilities, combined with 920615298.55
ME Recreation C USDA

920615298.16 Enhanced Trail Opportunities, Including Columbia And Blackstone Glacier Trails, combined with 920615298.55
ME Recreation C USDA

920615298.17 Nuchek Heritage Interpretive Center
MA Archeology R USDA

920615298.18 Vandalized Cultural Resources--inventory, Evaluation, Interpretation, Combine with 920615296.3
MA Archeology C USDA

920615298.19 PWS Landmarks--Evaluation And Interpretation
MA Archeology R USDA

920615298.20 PWS Site Stewardship Program
MA Archeology P DOI 93007

920615298.21 Chugach Natural Forest Heritage Interpretive Centers, combined with 920615298.17
MA Archeology C USDA

920615298.22 Passports In Time--Cultural Resource Patterns In PWS, Combine with 920615296.3
MA Archeology C DOI

920615298.25 Public Information and Education
MA Education P USDA 93009

920615298.26 Interpretation Of PWS, combined with 920615298.26
MA Recreation C USDA

Last Name	First Name

920615298.27 Cordova Environmental Education Center, combined with 920615273.25
MA Education C USDA

920615298.33 Fish Limiting Factors Analysis, combined with 920615298.36
PA Fish and Shellfish C USDA

920615298.34 Wild Fish Stock Information Assessment, combined with 920615297.28
MA Fish and Shellfish C USDA

920615298.35 Restoration And Mitigation Of Essential Wetland Habitats For PWS Fish And Wildlife
ME Birds P USDA 93028

920615298.44 Characterization And Identification Of Habitats Important To Upland Species (Harlequin, Murrelet, etc), combine
PA Land Acquisition Identifi C

920615298.48 Communication System for Oil Spill Program
TS Service P USDA 93048

920615298.49 Oil Spill Restoration Support Service And Facilities
TS Service R USDA

920615298.50 Environmental Education Center In PWS.
MA Education R USDA

920615298.55 Low Impact Recreation Development Nellie Juan, College Fiord Wilderness Study Area
ME Recreation R USDA

Varanasi, Collier Usha, Tracy NOAA-NMFS, N.W. Fisheries Science Center
2725 Montlake Blvd. E. Seattle WA

920615263. 1 Natural Recovery of Subtidal Species in PWS, combined with 920618315.1
RM Sub-Tidal C NOAA

Vining Ivan ADF&G, Commercial Fisheries
333 Raspberry Road Anchorage AK

920610223. 1 Intertidal/shallow Subtidal Crustacean (decapod) Composition. Same As 920615297-47
RM Fish and Shellfish D ADFG

920610224. 1 Juvenile Spot Shrimp Habitat. Same As 920615297-46
RM Fish and Shellfish D ADFG

920615297. 1 Restoration Of PWS Rockfish And Lingcod Resources
MA Fish and Shellfish R ADFG

Last Name	First Name		

920615297.46 Juvenile Spot Shrimp Habitat, Combined with 920615297.44
MA Fish and Shellfish C ADFG

920615297.47 Intertidal/Shallow Subtidal Crustacean (Decapod) Composition
MA Fish and Shellfish R ADFG

Viteri Alex ADEC

410 Willoughby Ave. Juneau AK

920615289. 1 Field Study Of Bioremediation Enhancement Treatment Methods
MA Sub-Tidal R ADEC

Walker William City of Valdez

P.O. Box 307 Valdez AK

920615252. 1 Tanker Inspection Facility
TS Service R

920615253. 1 Oil Spill Response Valdez Cleanup Co-Op
TS Service R

920615254. 1 Cold Weather Oil Spill School
TS Education R

920615256. 1 Payoff Debt of Valdez Fisheries Development Association
TS Endowment R

Wedemeyer Kate Fisheries Biologist USFS--Glacier Ranger Station

BOX 129 Girdwood AK

920615298.41 Feasibility Of Fish Passes As Oilspill Restoration, combined with 920615297.73
ME Fish and Shellfish C USDA

920615298.42 PWS Salmon Stock Genetics. Combine with 920615297.33
MA Fish and Shellfish C ADFG

920615298.43 Stream Channel Capability Modeling, combined with 920615298.36
PA Fish and Shellfish C USDA

Weiland Anne Kachemak Bay Citizens Coalition

Box 1395 Homer AK

Last Name	First Name

920612246. 1 Purchase Of Seldovia Native Assoc, Timber Trading Co, Cook Inlet Region, Inholdings Kachemak Bay, combined with
PA Land Acquisition C

West George None

P.O. Box 841 Homer AK

920612250. 1 Study Impact Of Clearcut Logging Operations On Bird Populations, Katchemak Bay State Park, combined with 920615
PA Land Acquisition Identifi C

West William None

138 West Marydale Drive Soldotna AK

920514007. 1 Transplant Project For Deer And Elk
ME Terrestrial Mammals R ADFG

White Lonnie Area Biologist ADF&G

211 Mission Road Kodiak AK

920615279.99 Monitoring Sites - Collector Beaches and Lagoons.
RM Coastal Habitat R ADFG

White Lorne ADF&G

211 Mission Road Kodiak AK

920615279. 1 Red Lake Salmon Restoration. Same As 920615297.69
ME Fish and Shellfish D ADFG

920615297.69 Red Lake Salmon Restoration
ME Fish and Shellfish P ADFG 93030

920615297.70 Red Lake Mitigation.
ME Fish and Shellfish P ADFG 93031

Whitmore Katy None

14932 East Lake Ridge Eagle River AK

920605133. 1 Fort Richardson Pipeline. Same as 920615297.48
ME Fish and Shellfish D

Wickstrom Gordon None

P.O. Box 1795 Seward AK

Last Name	First Name			
920514013. 1 Same As 920605137				
MA	Education	D	NOAA	
Wiley	Mike & Arlene			Seward Waterfront Lodging
550 Railway	Seward		AK	
920514009. 1 Same As 920605137				
MA	Education	D	NOAA	
Willette	Mark	Fishery Biologist		ADF&G
P.O. Box 669	Cordova		AK	
920615297.11 Develop Protocols For Analysis And Assessment Of Benthic Biological, Physical, And Hydrocarbon Data				
TS	Sub-Tidal	R	ADFG	
920615297.71 Fry Rearing To Improve Survival And Restore Wild Pink And Chum Salmon Stocks				
ME	Fish and Shellfish	R	ADFG	
920615297.71 Fry Rearing To Improve Survival And Restore Wild Pink And Chum Salmon Stocks				
ME	Fish and Shellfish	R	ADFG	
920615297.72 Restoration Of The Coghill Lake Sockeye Salmon Stock.				
ME	Fish and Shellfish	P	ADFG	93024
920615297.74 Otolith Mass Marking As An Inseason Stock Separation Tool To Reduce Wild Stock Salmon Exploitation				
MA	Fish and Shellfish	R	ADFG	
Winchester	James			KCHU Radio
P.O. Box 467	Valdez		AK	
920601064. 1 Cordova Environmental Reporter				
MA	Education	R	USDA	
				Kodiak Area Native Association
	Kodiak		AK	
920615279.29 Enhancement Of The Pacific Herring				
ME	Fish and Shellfish	R	ADFG	