

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

Title of Project:

Herring Embryo Viability Evaluation: Natural + Catastrophic Effects

Justification: (Link to Injured Resource or Service)

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

Estimated Duration of Project: 3 years - start Jan 1-'93

Estimated Cost per Year: \$189,000

Other Comments:

Name, Address, Telephone:

Richard M. Kocan
School of Fisheries HF-15
University of Washington
Seattle, WA 98195

Oil spill restoration is a public process. Your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

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PLACE
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Exxon Valdez Trustee Council
645 G St.
Anchorage, Alaska 99501

Attn: 1993 Work Plan

UNIVERSITY OF WASHINGTON
SEATTLE, WASHINGTON 98195

College of Ocean & Fishery Science
School of Fisheries HF-15
Ph. (206) 685-2984
Fax (206) 685-3275

7 June 1992

Document ID Number
920611234
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<input type="checkbox"/> D-PAG
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Dr. David R. Gibbons
Interim Administrative Director
Exxon Valdez Oil Spill Restoration Team
645 "G" Street
Anchorage, AK 99501

Dear Dr. Gibbons:

Enclosed is a copy of a PWS Restoration Project proposal which I would like to submit to the Trustee Council for consideration. I have been working with Evelyn Biggs and her herring team at ADF&G for the past two years on the effects of sublethal damage to herring embryos and larvae. If this proposal is accepted for funding I would like to continue this affiliation. As a result of our past studies, we have found that there is a potential for significant losses of herring embryos/larvae in the wild which normally go unnoticed. I feel that if our studies were continued for several more years, we could make a substantial contribution to the field which would allow for more precise predictions of herring success or loss due to heretofore unmeasured parameters.

If this project is funded, I would like to request that consideration be given to an early start-up date of 1 January 1993, rather than the proposed June '93 date. I request this early start date because herring begin spawning in PWS in March/April and some lead time is required for the field season. My present contract with ADF&G covers the 1992 spawning season and I feel that it would be a major loss if those fish which were in the most sensitive stage of their life-history during the spill were not examined carefully when they returned as four-year-olds to spawn for the first time.

I appreciate your consideration of this proposal and look forward to hearing from you.

Sincerely,



RICHARD M. KOCAN, Ph.D.
Aquatic Toxicology

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
FORMAT FOR IDEAS FOR RESTORATION PROJECTS

Title of Project: Herring Embryo Viability Evaluation: Natural and Catastrophic Effects.

Justification: The customary method of evaluating the health of a herring fishery is to measure "miles of spawn", "tonns of spawning biomass", "skein weight", etc. Because natural variability fluctuates so widely from year to year, and embryo viability can be effected right up to the time of hatching, it is unlikely that these types of measurements possess the sensitivity necessary to accurately measure small but significant changes in fertility and fecundity of a specific year class. This is particularly true when trying to evaluate the effects of natural and man-made disasters such as the EVOS, and becomes extremely important in 1993 when the embryos and larvae which were exposed to the EVOS will return for the first time as spawning four-year-olds. By determining the fecundity of individual females as well as site-specific effects, it should be possible to determine if sublethal damage has increased embryo mortality, decreased percent hatch, or increased larval mortality and defects. All of these would result in subtle but significant reductions in year-class production which would not be easily detected by the standard methods of measurement, but could influence long-term herring productivity.

Project Description: Ripe herring from multiple year classes will be collected from multiple sites during their spawning season in PWS, and individually spawned onto artificial substrates, which will then be used to conduct two types of embryo/larval survival studies. (1) The developing embryos from each female will be incubated separately until hatching, then evaluated for fertilization success, embryo mortality, hatching success, gross larval defects and larval biomass. (2) Pooled embryos from several females will be deployed at various known spawning sites around PWS to evaluate individual site effects on the success and development of viable herring larvae. These will also be compared with the success of naturally spawned embryos at the same sites. Study 1 will supply variability data on year-class fecundity, while study 2 will supply data on site effects which may be influenced by a variety of natural and man-made phenomena. In combination with standard biomass data, this new data could be factored into models of overall reproductive success and expected fecundity for each year class. By using experimentally spawned embryos, it should be possible to precisely evaluate the success of individual eggs from individual females to become viable larvae and successfully enter that year's cohort. From a scientific perspective, this methodology allows for a more reliable statistical evaluation of fecundity.

The majority of the work will be done on-site at Prince William Sound in collaboration with Alaska Department of Fish & Game's annual spawn deposition studies. Artificial spawning will take place on-site in Cordova, AK. Incubation of the embryos and larvae will take place at the Prince William Sound Science Center or the University of Washington's Friday Harbor Marine Laboratory's new Larval Fish Lab. I have successfully conducted similar artificial herring spawning studies using PWS herring, Puget Sound herring and Baltic and North Sea herring since 1985, and have perfected the various techniques to where they are easily used in both the field and laboratory.

Estimated Duration of Project: 3 years (Jan. 1, '93 - Dec. 31, '95)

Estimated Cost per Year: \$189,000

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Fisheries HF-15
UNIVERSITY OF WASHINGTON
Seattle, Washington 98195

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Dr. David R. Gibbons
Exxon Valdez Oil Spill Restoration Team
645 "G" Street
Anchorage, Alaska

99501

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ID # 920611234

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

Checked for Completeness

- ID stamped/Input completed
- Name
- Affiliation
- Costs

Category

Damage Assessment

Lead Agency

AD FV G

Cooperating Agency(ies)

Y N Passed initial screening criteria

type FIS

RANKING H M L Rank Within Categories

H M L Rank Overall

_____ Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- 1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

Document ID Number

920610231-0

A-92 WPWG

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Title of Project:

Prince William Sound (PWS) Herring Egg Loss Survey

Justification: (Link to Injured Resource or Service)

Herring embryos, larvae, adults were injured by the Exxon Valdez oil spill.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

The spawn deposition model, used to estimate the total spawning biomass in PWS on an annual basis, includes an egg loss component as a direct multiplier. Eggs are deposited and lost to predation and wave action, prior to getting counted by divers, and must be accounted for in the final estimate. Two years of sampling have provided an egg loss database but an additional year of data is needed to precisely define egg loss rates for PWS and to employ the rates and variance estimates in the model. Improved calculations of egg loss will improve the level of accuracy in resulting stock assessment and forecasting procedures. The egg loss survey can also provide information pertaining to eventual stock recruitment such as egg density and egg survival. The information derived can be used, along with the spawn deposition survey results, to direct and monitor restoration. The techniques employed are a repeat from the techniques used in 1990 and 1991. Randomly placed transects are repeatedly sampled for egg density at the same stations at two depths (one intertidal and one subtidal) over the course of egg incubation until hatch. Five egg density estimates are made at each station during each visit and one calibration sample is collected per depth per visit (similar to the spawn deposition survey). Estimates of egg loss over time can be made with variance calculations and related by area, habitat type, exposure, and depth. Yearly differences can be compared. Variance measurements of egg loss will contribute to the overall variance estimated about the spawning biomass estimate.

Estimated Duration of Project: One final year (third year of data)

Estimated Cost per Year: \$ 90,000

Other Comments: This project falls within the category of management of human use since the information derived will be used directly in the stock assessment and management of the resource (Restoration Option No. 2. Intensify Management of Fish and Shellfish). In addition, this project falls within the category of Restoration Option No. 31, development of a comprehensive monitoring program (see spawn deposition survey).

Name, Address, Telephone:

Evelyn Biggs, Herring Research Biologist, Alaska Department of Fish and Game
Division of Commercial Fisheries, Box 669, Cordova, AK 99574-0669. (907)424-3213

ID # 920610231-02

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

✓ Checked for Completeness

- ID stamped/Input completed
- Name
- Affiliation
- Costs

✓ Category Other - Science
~~Restoration - management activity~~

Lead Agency

ADFG

Cooperating Agency(ies)

N Passed initial screening criteria

type FIS

RANKING H M L Rank Within Categories

 H M L Rank Overall

Project Number - if assigned _____

1993 PROJECT SCORING SHEETCritical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- | | | | |
|-------------------------------------|--------------------------|--------------------------|---------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Linkage to resources and/or services injured by the <u>Exxon Valdez</u> oil spill. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. Technical feasibility.* |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Consistency with applicable Federal and State laws and policies.* |

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
FORMAT FOR IDEAS FOR RESTORATION PROJECTS

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Title of Project:

Prince William Sound (PWS) Herring Egg Loss Survey

Justification: (Link to Injured Resource or Service)

Herring embryos, larvae, adults were injured by the Exxon Valdez oil spill.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

The spawn deposition model, used to estimate the total spawning biomass in PWS on an annual basis, includes an egg loss component as a direct multiplier. Eggs are deposited and lost to predation and wave action, prior to getting counted by divers, and must be accounted for in the final estimate. Two years of sampling have provided an egg loss database but an additional year of data is needed to precisely define egg loss rates for PWS and to employ the rates and variance estimates in the model. Improved calculations of egg loss will improve the level of accuracy in resulting stock assessment and forecasting procedures. The egg loss survey can also provide information pertaining to eventual stock recruitment such as egg density and egg survival. The information derived can be used, along with the spawn deposition survey results, to direct and monitor restoration. The techniques employed are a repeat from the techniques used in 1990 and 1991. Randomly placed transects are repeatedly sampled for egg density at the same stations at two depths (one intertidal and one subtidal) over the course of egg incubation until hatch. Five egg density estimates are made at each station during each visit and one calibration sample is collected per depth per visit (similar to the spawn deposition survey). Estimates of egg loss over time can be made with variance calculations and related by area, habitat type, exposure, and depth. Yearly differences can be compared. Variance measurements of egg loss will contribute to the overall variance estimated about the spawning biomass estimate.

Estimated Duration of Project: One final year (third year of data)

Estimated Cost per Year: \$ 99,000

Other Comments: This project falls within the category of management of human use since the information derived will be used directly in the stock assessment and management of the resource (Restoration Option No. 2. Intensify Management of Fish and Shellfish). In addition, this project falls within the category of Restoration Option No. 31, development of a comprehensive monitoring program (see spawn deposition survey).

Name, Address, Telephone:

Evelyn Biggs, Herring Research Biologist, Alaska Department of Fish and Game
Division of Commercial Fisheries, Box 669, Cordova, AK 99574-0669. (907)424-3213

ID # 920615297.02

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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- ✓ ID stamped/Input completed
- ✓ Name
- ✓ Affiliation
- ✓ Costs

✓ Category

~~Other~~ ~~Science~~

✓ Lead Agency

ADF & G

Cooperating Agency(ies)

Y N Passed initial screening criteria

type F/S

RANKING H M L Rank Within Categories

H M L Rank Overall

Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- 1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

Title of Project:

Database projects - 3 projects

Justification: (Link to Injured Resource or Service)

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

01) Database Integration - ADF+g and NOAA, NMFS etc.

(if this funded - no need for # 02, 03)

02) Database management (previously NRDA FS30) (ADF+)

03) management of Restoration Database, Sample Archiving, and Chemical Interpretation

(NOAA, NMFS etc.)

Estimated Duration of Project:

Estimated Cost per Year:

Other Comments:

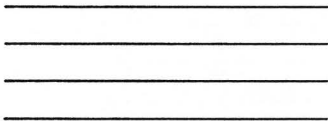
Name, Address, Telephone:

Bruce Simonson
Commercial Fish Div.
ADF+g
PO 25526
Juneau, AK 99802

Stanley Rice
NMFS - Juneau

Oil spill restoration is a public process. Your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

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Exxon Valdez Trustee Council
645 G St.
Anchorage, Alaska 99501

Attn: 1993 Work Plan

EVOS TRUSTEE COUNCIL IDEAS FOR RESTORATION PROJECTS - 1993 920608184.6**Title of Project: Database Integration**

Carmine DiCostanzo
 Bruce P. Simonson
 ADF&G, POB 25526
 Juneau, AK 99802-5526
 (907) 465-4150 (voice)

Stanley Rice
 NOAA, NMFS, Alaska Fisheries Center, ABL
 11305 Glacier Highway
 Juneau, AK 99801
 (907) 789-6020 (voice)

Justification:

Considerable NRDA/R effort and expense has gone into establishing data sets which will ultimately play a key role in validating restoration efforts. In general, these data sets have been generated through separately conceived and executed studies and projects. As the NRDA/R process goes forward, projects will rely on integrated views of these disparate sets to provide baseline, assessment, historical, and monitoring information. This project proposes to integrate datasets associated with the NRDA/R effort into a unified system, and to provide access to consolidated data in a variety of electronic formats.

Description of Project:

This project addresses the integration of three major data sets required by the NRDA/R effort:

- 1.) TS-1 : the hydrocarbon database (containing assessment & restoration samples)
- 2.) FS-30's consolidated database system, which will include study and project data from ADF&G's NRDA/R finfish, shellfish, and subtidal assessment studies and restoration projects. (Some 20 separate database systems, as of 6/1/1992).
- 3.) ADF&G historical and ongoing research and management databases not funded through the EVOS settlement, but necessary to the NRDA/R effort.

The principal investigators of TS-1 and FS-30 work in close cooperation to ensure future compatibility of data funded through the NRDA/R effort. In addition, this joint project expects to take advantage of ADF&G's separately funded and maintained computer network to allow PI's direct access to consolidated data in a variety of electronic formats.

Estimated Duration of Project / Cost:

This project requires intensive up-front work with PI's to ensure that individual project datasets will be compatible with an integrated system. The first year of this project requires additional work at the agency level, during which time ADF&G and the ABL will prepare existing NRDA/R datasets for integration. During 1994, work will then proceed with inter-agency database integration. An integrated system should be in place by October 1995.

Phase 1: Mar 1, 1993 - Sep 30, 1993 - database preparation at agency level	
FS-30 - finalizes database work with ADF&G PI's	\$ 104 K
TS-1 - consolidates assessment/restoration HC samples	44 K
Phase 2: Oct 1, 1993 - Sep 30, 1994 - initial database integration begins	
ADFG - ADF&G NRDA/R database integration, ADF&G non-settlement data	\$ 147 K
ABL - continued HC database management, chemistry analysis	75 K
Phase 3: Oct 1, 1994 - Sep 30, 1995 - database access completes, other data reviewed	
ADFG - ongoing database access and support, ADF&G separately funded data	\$ 100 K
ABL - ongoing database access and support, chemistry analysis	75 K

Comments: See the separately submitted proposals on FS-30 and TS-1 for additional information on these projects. The PI's associated with this joint proposal recognize the need to integrate data from other agencies, and welcome continued dialogue on this issue.

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

/ Checked for Completeness

/ID stamped/Input completed
/Name
/Affiliation
/Costs

/ Category

Tech Services - database Integration

/ Lead Agency

ADFG

/ Cooperating Agency(ies)

NOAA , NMFS

N Passed initial screening criteria

type service

RANKING H M L Rank Within Categories

 H M L Rank Overall

_____ Project Number - if assigned _____

1993 PROJECT SCORING SHEETCritical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

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| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | 1. Linkage to resources and/or services injured by the <u>Exxon Valdez</u> oil spill. |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | 2. Technical feasibility.* |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | 3. Consistency with applicable Federal and State laws and policies.* |

Comments:

* Restoration Framework, 1992, pp 43-44.

EVOS TRUSTEE COUNCIL: IDEAS FOR RESTORATION PROJECTS - 1993

Title of Project: **Database Management** (previously NRDA Project FS-30)

Carmine DiCostanzo
Bruce P. Simonson
(907) 465-4150 (voice)
(907) 465-2604 (FAX)
June 12, 1992

Alaska Department of Fish and Game
Division of Commercial Fisheries
Computer Services Section
P.O. Box 25526
Juneau, AK 99802-5526

Abstract:

NRDA project FS-30 has been charged with archiving and cataloguing electronic data generated by some 20 ADF&G NRDA/R studies and projects. It is also charged with providing access to certain ADF&G historical and baseline data not funded through settlement monies.

The work FS-30 does goes beyond what can be expected of PI's within the scope of individual projects; in particular, FS-30 works to ensure future compatibility of data between projects, an issue which is not normally part of the design of individual projects.

FS-30 forms ADF&G's initial component of the integrated database system proposed jointly by NOAA (Auke Bay Lab) and ADF&G. This integrated database will combine ADF&G data with the Hydrocarbon Database. The strategies adopted by this joint ADF&G / NOAA effort are key to the integration of data from the diverse projects funded by the restoration effort.

Justification:

It is assumed that data play a fundamental role in the NRDA/R effort. Assessment, baseline, monitoring, and historical data are all crucial to demonstrating the success of restoration projects. Significant quantities of data have been collected at considerable expense (ca \$25M through OY3) assessing the damage to spill-affected areas. **Unless this data is properly catalogued and archived, there is no guarantee it will remain accessible to future NRDA/R efforts.**

It is assumed that an ecosystem approach to restoring damaged resources ultimately will be integral to the restoration process. This approach requires that data generated by separately conceived and executed projects be integrated into a common usable format. Much of this data is not GIS in nature, and would not be suitable for integration in a mapping context.

Much of the restoration effort depends on ADF&G research and management programs not funded through settlement monies. FS-30 provides access to this information, as well as certain confidential data and departmental services which normally would not be at the NRDA/R effort's disposal.

FS-30 works directly with principal investigators to archive and catalogue electronic data sets. This hands-on approach with some 20 NRDA/R individually conceived and executed projects is the best way to ensure data can be integrated into a uniform system, while at the same time allowing PI's direct access to their original data.

The archive of data ensures its availability after projects close or personnel transition to other work.

The catalogue ensures that data is useful across projects, between agencies, to the public, and through time.

Estimated duration and cost:

March 1, 1993 through September 30, 1995. This project scales down each year as the data from various projects is archived and catalogued.

Mar 1, 1993	- Sep 30, 1993 (7 months)	\$ 104 K
Oct 1, 1993	- Sep 30, 1994 (12 months)	147 K
Oct 1, 1994	- Sep 30, 1995 (12 months)	100 K

The costs of this project are almost exclusively dedicated to personnel and in-state travel expenses allowing direct interaction with the PI's who generate NRDA/R data.

In-kind Services:

FS-30 currently enjoys a close working relationship with ADF&G, particularly those divisions which manage and research fisheries and habitat in Alaska. This relationship guarantees access to certain information not funded through settlement monies, as well as access to considerable computer and telecommunications support which otherwise would not be available to the NRDA/R effort.

Comments:

FS-30 has consistently received the support of investigators, peer reviewers, and NRDA/R work groups. It has been perceived as the most cost effective means of preserving NRDA/R data for future restoration efforts, and ensuring access to ongoing ADF&G efforts not funded through settlement monies.

- 1.) FS-30 assists in providing access to data in a variety of electronic forms. This technical service is extremely cost-effective, particularly as data exchange between projects and agencies increases.
- 2.) Data is not necessarily GIS in nature, and is not normally suitable for integration into mapping and cartographic systems.
- 3.) FS-30 has established working relationships and procedures for data management with a large number of principal investigators. It would be costly and difficult to recreate this working relationship.
- 4.) FS-30 is working directly with TS-1 to ensure that future directions of essential databases will be compatible, at considerable savings to the NRDA/R effort.
- 5.) FS-30 personnel are well-trained in database technology, which will allow for future integration of data that will be necessary for ecosystem views of restoration efforts.
- 6.) Additional information on this project is available in its OY4 detailed study plan, published Restoration Framework documents, and various interim status reports prepared for peer review and NRDA/R work groups. (See, in particular, the related 5 page Restoration Proposal for this project dated June 8, 1992).

Related Studies and Projects:

This project forms the ADF&G component to ensuring that data collected through the NRDA/R effort will be available and usable to future restoration work. A separate proposal ensures the TS-1 Hydrocarbon Database (NOAA/ABL) is designed to work in close cooperation with this project. Additional databases from other agencies can be considered for integration as well.

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

✓ Checked for Completeness

- ✓ ID stamped/Input completed
- ✓ Name
- ✓ Affiliation
- ✓ Costs

✓ Category

Tech Services - Database Management

✓ Lead Agency

ADFG

✓ Cooperating Agency(ies)

.

Y

N Passed initial screening criteria

type Services

RANKING H M L Rank Within Categories

 H M L Rank Overall

 Project Number - if assigned

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.

2. Technical feasibility.*

3. Consistency with applicable Federal and State laws and policies.*

Comments: NRDA FS-30

* Restoration Framework, 1992, pp 43-44.

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL**IDEAS FOR RESTORATION PROJECTS-1993****Title of Project:**

Management of Restoration Database, Sample Archiving, and Chemical Interpretation.

Justification:

We have already developed the procedures and expertise for these functions during the 3 years of NRDA efforts. This study would merge the extensive NRDA database with Restoration needs and would serve the needs of past NRDA PI's and new Restoration projects by quaranteeing a bridge for access, archiving, interpretation, and mapping of H.C. data. NRDA sample archiving/management would continue until disposition is figured out and implemented.

Description of Project:

We propose to continue management of restoration samples, including: archiving of sample materials, database entry , chemical interpretation and mapping services for PI's using the same procedures developed for damage assessment. Specifically we propose to:

- 1) Merge damage assessment, restoration and response data into 1 database patterned after the damage assessment database (DAD). Place on database server for easy access for remote users. Merge new incoming restoration data using standard DAD procedures.
- 2) Archive restoration samples and continue archiving NRDA unanalyzed samples at Auke Bay until NRDA sample disposition is figured out. Procedures would again be from NRDA.
- 3) Provide chemical analysis interpretation and data mapping services to PI's as done in NRDA ST8. This would support new Restoration needs but would use the entire database and would provide access to all of the old data.

Estimated Duration of Project:

This effort will continue as long as restoration studies and analysis of samples continue. We believe the issue of sample archiving for NRDA samples can not be completed until final reports are finished. Then NRDA samples can be moved to their final archival location.

Estimated Cost per Year:

Item	Cost
6 mm Database and Incoming Sample Management	35
2 mm Archival of Samples	8
2 mm Chemical Interpretation	12
2 mm Mapping of Analytical Data	10
Database Server Software and Support	10
Total	75

NAME, ADDRESS, TELEPHONE

Stanley Rice 907 789-6020

National Marine Fisheries Service, Alaska Fisheries Center,
11305 Glacier Highway, Juneau AK 99801

ID # 920608184-03

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

✓ Checked for Completeness

- ✓ ID stamped/Input completed
- ✓ Name
- ✓ Affiliation
- ✓ Costs

✓ Category

Tech Services

✓ Lead Agency

ADFTG

Cooperating Agency(ies)

NMFS

N Passed initial screening criteria

type services

RANKING H M L Rank Within Categories

 H M L Rank Overall

Project Number - if assigned _____

1993 PROJECT SCORING SHEETCritical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

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|---------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>1. Linkage to resources and/or services injured by the <u>Exxon Valdez</u> oil spill.</p> |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>2. Technical feasibility.*</p> |
| <input checked="" type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/> | <p>3. Consistency with applicable Federal and State laws and policies.*</p> |

Comments:

* Restoration Framework, 1992, pp 43-44.



JUN 09 REC'D

Alaska Department of Fish and Game
Division of Commercial Fisheries

P.O. Box 25526 • Juneau, AK 99802-5526 • Phone: (907) 465-4210 • Fax: (907) 465-2604

Fax Transmittal Sheet

To: Dave Gibbons Date: 6/9/92

Fax#: 276-7178

Phone#: 278-8012

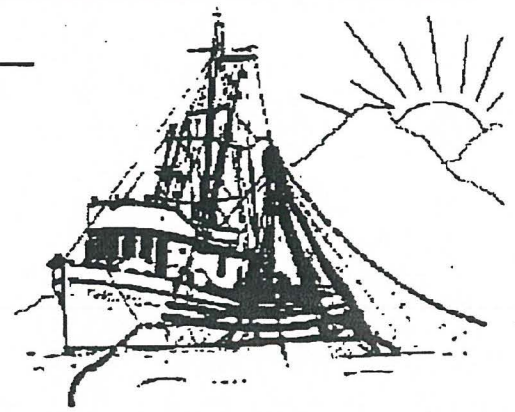
From: BRUCE P. SIMONSON
ADF&G - FS-30 - Database Management

Number of pages following this page: 7

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<input checked="" type="checkbox"/> B-93 WPWG
<input type="checkbox"/> C-RPWG
<input type="checkbox"/> D-PAG
<input type="checkbox"/> E-MISC.

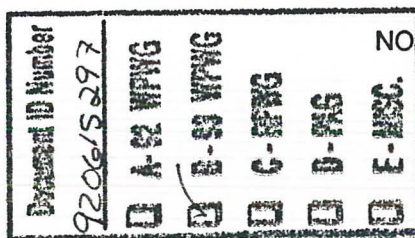
Memo: I have been asked to submit a 2 page
synopsis of this project for review in the near-term.
Please include the top two pages in the set which
will be reviewed by the RT. Thanks!

Bruce



Title of Project: **Database Integration**

Carmine DiCostanzo
 Bruce P. Simonson
 ADF&G, POB 25526
 Juneau, AK 99802-5526
 (907) 465-4150 (voice)



Stanley Rice, Sid Korn
 NOAA, NMFS, Alaska Fisheries Center, ABL
 11305 Glacier Highway
 Juneau, AK 99801
 (907) 789-6020 (voice)

Justification:

Considerable NRDA/R effort and expense has gone into establishing data sets which will ultimately play a key role in validating restoration efforts. In general, these data sets have been generated through separately conceived and executed studies and projects. As the NRDA/R process goes forward, projects will rely on integrated views of these disparate sets to provide baseline, assessment, historical, and monitoring information. This project proposes to integrate datasets associated with the NRDA/R effort into a unified system, and to provide access to consolidated data in a variety of electronic formats.

Description of Project:

This project addresses the integration of three major data sets required by the NRDA/R effort:

- 1.) TS-1 : the hydrocarbon database (containing assessment & restoration samples)
- 2.) FS-30's consolidated database system, which will include study and project data from ADF&G's NRDA/R finfish, shellfish, and subtidal assessment studies and restoration projects. (Some 20 separate database systems, as of 6/1/1992).
- 3.) ADF&G historical and ongoing research and management databases not funded through the EVOS settlement, but necessary to the NRDA/R effort.

The principal investigators of TS-1 and FS-30 work in close cooperation to ensure future compatibility of data funded through the NRDA/R effort. In addition, this joint project expects to take advantage of ADF&G's separately funded and maintained computer network to allow PI's direct access to consolidated data in a variety of electronic formats.

Estimated Duration of Project / Cost:

This project requires intensive up-front work with PI's to ensure that individual project datasets will be compatible with an integrated system. The first year of this project requires additional work at the agency level, during which time ADF&G and the ABL will prepare existing NRDA/R datasets for integration. During 1994, work will then proceed with inter-agency database integration. An integrated system should be in place by October 1995.

Phase 1: Mar 1, 1993 - Sep 30, 1993 - database preparation at agency level		
FS-30	- finalizes database work with ADF&G PI's	\$ 115 K
TS-1	- consolidates assessment/restoration HC samples	44 K
Phase 2: Oct 1, 1993 - Sep 30, 1994 - initial database integration begins		
ADFG	- ADF&G NRDA/R database integration, ADF&G non-settlement data	\$ 147 K
ABL	- continued HC database management, chemistry analysis	75 K
Phase 3: Oct 1, 1994 - Sep 30, 1995 - database access completes, other data reviewed		
ADFG	- ongoing database access and support, ADF&G separately funded data	\$ 100 K
ABL	- ongoing database access and support, chemistry analysis	75 K

Comments: See the separately submitted proposals on FS-30 and TS-1 for additional information on these projects. The PI's associated with this joint proposal recognize the need to integrate data from other agencies, and welcome continued dialogue on this issue.

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

✓ Checked for Completeness

- ✓ ID stamped/Input completed
- ✓ Name
- ✓ Affiliation
- ✓ Costs

✓ Category
Tech Services - database management

✓ Lead Agency
ADFG

Cooperating Agency(ies)
NDAA, NMFS

N Passed initial screening criteria

type services

RANKING H M L Rank Within Categories

 H M L Rank Overall

Project Number - if assigned _____

1993 PROJECT SCORING SHEETCritical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- | | | | |
|---|---|---|---------------------------------------------------------------------------------------|
| / | _ | _ | 1. Linkage to resources and/or services injured by the <u>Exxon Valdez</u> oil spill. |
| / | _ | _ | 2. Technical feasibility.* |
| / | _ | _ | 3. Consistency with applicable Federal and State laws and policies.* |

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

Document ID Number 920615279	<input type="checkbox"/> A-92 WFWG	<input checked="" type="checkbox"/> B-93 WFWG	<input type="checkbox"/> C-RFWG	<input type="checkbox"/> D-PAG	<input type="checkbox"/> E-MISC.
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Title of Project:

Pink Creek Pink Salmon Restoration

Justification: (Link to Injured Resource or Service)

Pink Creek drains into Afognak Bay which was oiled in 1989 due to the Exxon Valdez oil spill.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

Pink Creek (252-342) is located on Afognak Island and drains into Afognak Bay. Afognak Bay was directly impacted by oil in 1989. Restoration Study 105 surveyed this system in 1992 to determine fishpass feasibility. A falls blocks pink salmon from reaching a potential spawning area in this tributary to Afognak River. Survey results indicate that this barrier could be altered to allow pink salmon passage. Spawning area above the falls was determined to be of good to excellent quality and in sufficient quantity to support several thousand pink salmon.

This project would require steep pass sections resulting in approximately a 15' rise to bypass the falls. A channel also would be cut leading into the upstream end of the steep pass. Water diversion structures such as gabions reinforced with steel pipe and rebar, would divert water into the channel and steep pass. Cable would be anchored into the rock substrate to secure the steep pass. This project would be evaluated by stream surveys during the peak pink salmon spawning period.

Estimated Duration of Project: 2 years

Estimated Cost per Year: 10,000

Other Comments: This proposal addresses Option 18 in the Exxon Valdez Oil Spill Restoration Framework, Volume I.

Name, Address, Telephone:

Steve Honnold
 AK Dept. of Fish & Game/FRED Div.
 211 Mission Rd.
 Kodiak, AK 99615

Oil spill restoration is a public process. Your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

ID # 297-23

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

✓ Checked for Completeness

- ✓ ID stamped/Input completed
- ✓ Name
- ✓ Affiliation
- ✓ Costs

✓ Category
Restoration Manipulation & Enhancement

✓ Lead Agency
ADF & G

Cooperating Agency(ies)

(Y) N Passed initial screening criteria

type F/S

RANKING H M L Rank Within Categories

 H M L Rank Overall

Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- 1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

See ~~separate~~ letter to Adice Island Borough
92 0615279

* Restoration Framework, 1992, pp 43-44.

Mark Donohue 5/5/92
Kodiak Area Native Association

Project
Suggestion
#1

Enhancement of the Pacific Herring in Uyak Bay

Lead Agencies: Alaska Department of Fish and Game
Kodiak Area Native Association

no
code -
see 1992
(2)

The *Exxon Valdez* oil spill impacted large areas of coastline containing spawning habitat for the Pacific Herring, *Clupea harengus pallasii*. In Uyak Bay, large amounts of oil mousse were present at the same time herring traditionally aggregate, spawn and during the three weeks the eggs develop and hatch. VECO workers removed approximately 70,000 bags of oiled marine macroalgae.

Oil in Uyak Bay influenced herring selection of spawning substrate, egg mortality and larval survival. ADF&G stock assessment has been limited by manpower and funding to aerial surveys of schooling stocks. The individual management units will provide a comparison of potentially impacted three year old herring from Uyak/ Spiridon Bays with unoiled herring spawning areas. If there exists damage to this year class the EVOS is the probable cause and we recommend the following restoration/ enhancement effort.

The goal of this project is to enhance herring populations by providing additional substrate and tended in vivo incubation of the eggs.

Com #	Top/op	Issue
1	30	

code 1993

In the USSR, spawning habitat enhancement has increased the biomass of one generation of herring 60,000 tons at age five. Their efforts include constructing artificial spawning grounds, the incubation of eggs deposited on trap nets, the collection of storm scattered eggs and the placement of macroalgae substrate in spawning areas.

Alaskan efforts are, thus far, limited to requiring that herring pound sites be left intact until the eggs have hatched. In Washington state some success has been described by the Klallam-Port Gamble tribe in a bay denuded of vegetation by sawmill operations. Longlines of *Macrocystis integrifolia* are cultured for use in the roe on kelp fishery. Additional longlines of the roe laden kelp are held until they hatch. In 1990, the Washington Department of Fish and Game increased the harvest allotment from five to 100 tons of herring for the tribe.

Mark Donohue 5/5/92
Kodiak Area Native Association

Project
Suggestion
2

Assessment and Quality Assurance of Shellfish Resources

Lead Agencies: Alaska Department of Environmental Conservation
Kodiak Area Native Association

During the *Exxon Valdez* oil spill Razor Clam, *Siliqua patula* habitat on the Alaskan Peninsula (Swikshak, Big River and Village beaches; Hallo, Kashvik, and Puale Bays) and other shellfish resources on Kodiak Island were impacted by oil.

Oil buried in this sandy, surf swept habitat and was not removed by cleanup workers. Buried oil has retained its toxicity and may be an ongoing source of damage to intertidal and subtidal populations of this economically important resource. While finfish have been shown to more rapidly metabolize the hydrocarbons, bivalves, such as the Razor Clam, have been shown to accumulate the compounds and only slowly release them in the absence of ongoing contamination.

As the prey species of many mammals (brown bears, fox, otters), waterfowl and fish Razor Clams may be a continuing source of contamination or a diminished resource for these populations. The Razor Clam is also a commercial, subsistence and recreational resource. In 1974, 198,000 pounds of razor clams were harvested from the Kodiak Management Area.

In cooperation with the Alaska Department of Environmental Conservation, The National Park Service, National Marine Fisheries Service, The University of Alaska, The U.S. Food and Drug Administration and the Alaska Department of Fish and Game, the Kodiak Area Native Association will:

1. implement an assessment of the contamination and health of Razor Clam stocks based on a comparison of existing baseline data with surveys and local testing leading to FDA certification under guidelines established by the National Shellfish Sanitation Program and
2. institute a program of market quality assurance to include the site selection, purchase and construction of relay and shorebased facilities to hold and test shellfish.

The site selection and development of shorebased facilities and laboratory capabilities begin in March (Year 1). The assessment of Razor Clam populations begin in May (Year 1) until October (Year 1) and from May (Year 2) until October (Year 2).

Preliminary cost estimate is \$500,000.

Enhancement will consist of the construction of a towable netpen, the culture of appropriate algal substrate, the capture and transfer of herring to the netpen, the towing of the netpen to a protected site, the installation of predator barriers, transfer of algae to the net pen, the spawning of herring on the substrate, the release of spawned herring, the protection of fertilized herring spawn through incubation and the release of substrate after incubation is complete.

The macroalgae culture activities should begin June Year 1. Net pen construction should begin in September Year 1 with operations targeted for the April Year 2 spawning season.

Preliminary initial cost estimate is \$120,000 and \$40,000 annually.

Appropriation of the State's restitutionary receipts to Exxon Valdez Oil Spill

Submitted by
 Chip Thoma,
 #2 Marine Way
 Juneau, 99801

for submission
 to the habitat +
 acquisition process
 team - for
 consideration after
 Governor's vetos

Request that
vetoed items
 be voted on by
 team and Council
 for acquisition +
 restoration projects
 in 1992-93

5/28/92
 Juneau Restoration
 Team Meeting

Unless Governor
 acts in next
 few days -
 before
 6-11, we
 must respond
 to these in
 '93 comments.
 Peg + Carol

Section	Location of Habitat Acquisition	Amount
154	Eyak	\$4,350,000
155	Tatitlek	1,675,000
156	Chenega	1,675,000
157	Cape Suckling	8,000,000
158	Kachemak Bay plus interest of \$1.2-1.7 million	9,274,315
159	Kenai River	2,800,000
160	Kodiak weir sites	75,000
162	Afognak Island	7,000,000
163	Afognak Island	1,300,000
164	Kodiak weir sites	350,000
Habitat Acquisition Subtotal		\$38,000,000

Section	Fisheries Restoration	Amount
165	PWS Herring spawn study	\$175,000
166	Cook Inlet sockeye test netting	560,000
167	Cook Inlet sockeye stock id.	100,000
168	Kenai River sockeye forecast ver.	30,000
169	Kenai River sockeye genetic id.	300,000
170	Resurrection Bay sockeye smolt growth	250,000
175	PWS salmon projects	1,140,000
176	Coghill sockeye restoration	65,000
177	PWS early marine salmon monitoring	30,000
178	Hatchery improvements (Big Lake, Fort Rich., Noatak, Gulkana, Nenana)	1,285,000
180	Seward Shellfish Hatchery	800,000
183	Main Bay Hatchery Improvements	1,000,000
184	PWS juvenile salmon migration study	130,000
185	PWS remote salmon fry release study	85,000
186	Alaska Fisheries Development Foundation (endowment)	4,000,000
187	Kodiak sockeye salmon dev.	190,685
Fisheries restoration subtotal		\$10,140,685

Section	Misc. Restoration Projects	Amount
160	PWS Science Center (ecosystem monitoring)	\$800,000
171	Killer whale monitoring study	60,000
172	Chenega area oil removal, beach grass revegetation	200,000
174	Fishery Technology Center design and planning	100,000
179	Chenega Bay herring saltery removal and cleanup	585,000
181	Alaska Sea Life Center dev.	500,000
188	Bristol Bay Buy Back Coalition	100,000
173	Archaeological resource inventory	800,000
182	Valdez city storm drain oil/grease separators	215,000
Misc. restoration subtotal		\$3,360,000

Totals		
Habitat acquisition subtotal		\$38,000,000
Fisheries restoration subtotal		10,140,685
Misc. restoration subtotal		3,360,000
GRAND TOTAL		\$51,500,685

Appropriation of the State's restitutionary receipts to Exxon Valdez Oil Spill

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175	PWS salmon projects	1,140,000
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GRAND TOTAL		\$51,500,685

Submitted by
Chip Thoma,
#2 Marine Way
Juneau, 99801

for submission
to the habitat +
acquisition process
team - for
consideration after
Governor's vetos

Request that
vetoed items
be voted on by
team and Council
for acquisition +
restoration projects
in 1992-93

5/28/92
Juneau Restoration
Team Meeting

Can't be coded yet
as we don't know
what will be vetoed.

This document includes a budget list of projects - projects listed are duplicates of project ideas which have another number.

Kodiak Island Borough

710 MILL BAY ROAD
KODIAK, ALASKA 99615-6340
PHONE (907) 486-5736

June 12, 1992

Document ID Number
920615279
<input type="checkbox"/> A-92 WPWG
<input checked="" type="checkbox"/> B-93 WPWG
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Exxon Valdez Oil Spill Trustee Council
645 G Street
Anchorage, AK 99501

Dear Council members:

On behalf of the Kodiak Island Borough Exxon Valdez Restoration Committee, enclosed is a summary Project Funding Plan and a description of all of the projects identified on the summary, which are written in the format issued by the council earlier this year. The Kodiak Restoration Committee has worked very hard for the last several months to develop a master plan for funding high priority projects throughout the duration of the availability of settlement funds from the Exxon Valdez oil spill. We would sincerely appreciate your careful consideration of fully funding these projects at the requested level for 1993.

As you are aware, the Kodiak Island Borough Exxon Valdez Restoration Committee consists of interested parties from all of the impacted agencies and groups during the Exxon Valdez oil spill and those who will be actively involved in any restoration effort that goes forward. The only projects on the funding plan for which we have not included project descriptions are the Federal Parks Service projects. Although the Federal Parks Service has been actively participating in the Kodiak Restoration Committee meetings, we were unable to obtain their descriptive information concerning the three projects for inclusion in this packet. I am confident that these three projects have been submitted directly to the Trustee Council for your consideration.

We have included a request for \$5 million to be set aside for an endowment fund, and we would be glad to work with the Council in determining what form an endowment fund should take. If a decision is made to create an endowment fund for Kodiak Island, we request that the \$5 million be established this year and we would like to work with the Council on establishing the management and long-term plan for that endowment fund. If instead, the Council prefers to establish a spill-wide endowment fund, we would like to work cooperatively with the Council on the establishment of that fund.

The total funding for each year for the Kodiak Island Borough area is in the range of \$22 million for FY 1993 and \$30 million per year for each of the remaining eight years that Exxon Valdez settlement funds will be available. This is approximately one third of the funds that would be available which, in the view of the Kodiak Island Restoration Committee, is a very conservative apportionment of the total settlement

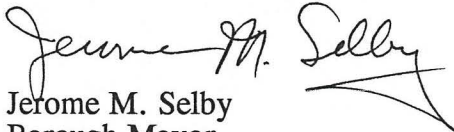
funds since we were heavily impacted throughout the Kodiak Island Borough area from the Exxon Valdez oil spill. Substantially more than one third of the overall damage was sustained in the Kodiak Island Borough area, and we would appreciate your serious consideration of funding in the \$30 million range for Kodiak Island Borough areas during each of the next nine years.

Please recognize that over the course of the next nine years additional high priority projects may become apparent which we have not addressed at this point and may well be introduced as priority funding proposals in the future. I am assuming that the Council will continue to request proposals on an annual basis. We wish to continue to provide project proposals according to an annual funding cycle, but within the framework of our nine year Project Funding Plan. Additionally, the issue of restoration of human impact has not been addressed in the Framework For Restoration as it now stands. When the Council adds human restoration projects to the eligible list, we have some high priority projects in need of funding. The negative impact on the people living in the spill area has remained ignored and needs to be addressed by the Council.

The Kodiak Island Borough Exxon Valdez Restoration Committee has worked very hard to provide you with high quality projects eligible for settlement funds which would be very significant in terms of restoration of the damage done during the Exxon Valdez oil spill. We appreciate the opportunity to work with the Council in providing additional information you may need in your review of these projects. Please carefully consider funding all of these projects at the levels requested. We appreciate your consideration.

Sincerely,

KODIAK ISLAND BOROUGH



Jerome M. Selby
Borough Mayor

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EXXON VALDEZ RESTORATION COMMITTEE

Kodiak Island Borough

PROJECT FUNDING PLAN

Document ID Number 9206/5279	<input type="checkbox"/> A-92 WPWG	<input checked="" type="checkbox"/> B-93 WPWG	<input type="checkbox"/> C-RPWG	<input type="checkbox"/> D-PAG	<input type="checkbox"/> E-MISC.
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do not rely on these numbers

PROJECT	1992	1993	1994	1995	1996	1997	1998	1999	2000	2001
Alaska Dept. of Fish & Game										
01 Red Lake Mitigation		191K	129K	138K	140K					
02 Red Lake Restoration		53K	54K	56K						
03 Weir acquisition			1.02M	600K	700K					
04 Cold Creek Pink Salmon Restor.		15K	15K							
05 Horse Marine Creek Salmon Restor.		25K	25K							
06 Waterfall Creek Pink Salmon Restor.		50K	50K	50K						
07 Pink Creek Pink Salmon Restor.		10K	10K	10K						
U.S. Fish & Wildlife										
08 N. Afognak acquisition			4M	10M	10M	10M	10M	10M	10M	10M
09 Stream mouth individual holdings			1M	1M	1M	1M	1M	1M	1M	1M
10 Ayakulik River Sockeye Eval.		6K	6K	6K						
11 Uganik fish weir		28K	28K	28K						
12 Bear refuge inholding hab. acquis.		5M	5M	5M	5M	5M	5M	5M	5M	5M
13 Bald eagle productivity		10K	22.5K	22.5K						
14 Sea otters (infra. equip)		145K								
15 Harlequin Ducks status		25K	25K				25K			
16 Bald Eagle Nesting - Peninsula		22K	22K	22K						
17 Fox removal			500K	460K	460K	460K	460K	460K		
18 Reduce Murre Colony Disturbance		40K	40K	40K						
19 Monitor Murre Recovery		340K	340K	340K	340K	340K	340K			
National Parks										
Oil persistence		176K								
Brown bear		60K								
Inholdings acquisition			300K							
State Parks										
20 Shuyak purchase-exchange			70K							
21 Recreation sites		500K	500K	500K	500K	500K	500K	500K	500K	500K

No f sent

PROJECT 1992 1993 1994 1995 1996 1997 1998 1999 2000 2001

RCAC

Prevention & response capabilities (see KRAA)

NMFS/DEC/USF&W/ADF&G

22 Monitoring sites
Collector beaches, lagoons 500K 500K 500K 500K 500K 500K 500K 500K 500K 500K

KRAA

23 Villages, Kitoi Hatchery/DEC/RCAC
Prevention and response 250K 500K 500K 500K 500K 500K 500K 500K
24 Salmon habitat 45K 45K 45K 45K 45K 45K 45K 45K 45K 45K

DEC

25 Testing, monitoring 13 species 200K 200K 200K 200K 200K 200K 200K 200K 200K 200K

26 **FITC**

3.5M 3.5M .5M

KANA

27 Curator/outreach archeologist 60K 60K 60K 60K 60K 60K 60K 60K 60K 60K
28 Cultural resource museum 5M 4M
29 Herring impact 120K 40K 40K 40K 40K 40K 40K 40K 40K 40K
30 Shellfish (clam) impact 300K 200K
31 Archeology assessment 250K 200K 200K

Kodiak College

32 Learning center 90K 810K

Kodiak Island Borough

33 Endowment 5M 8M 10M 11M 12M 12M 12M 12.5M 12.5M

Document ID Number	920615279
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<input checked="" type="checkbox"/> B-93 WPWG	
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<input type="checkbox"/> E-MISC.	

POST OFFICE TO ADDRESSEE EXPRESS MAIL NEXT DAY SERVICE®



68187154440US

For Postal Use

ORIGIN	Date / M / D In: 6/12/82	Postage \$ 1.25
Post Office ZIP Code 97415	Time In: 1:10 P.M.	Return Receipt \$
Initials of Receiving Clerk Y	Weight lbs. 11 oz.	C.O.D. \$
ACCEPTANCE	<input type="checkbox"/> International Country Code	
<input type="checkbox"/> Next Day Delivery or <input type="checkbox"/> Second Day Delivery		Total Postage & Fees \$ 1.25
<input type="checkbox"/> By 12 Noon or <input type="checkbox"/> By 3:00 P.M.		
<input type="checkbox"/> Military 2nd Day or <input type="checkbox"/> Military 3rd Day		

For Postal Use

DESTINATION	Date of Delivery: 6/13/82	Time of Delivery: 2:12 P.M.
<input checked="" type="checkbox"/> Signature of Addressee or Agent John Mauro		
DELIVERY WAS ATTEMPTED	Date: 6/13/82	Time: 11:00 P.M.
Signature of Delivery Employee 1.		
Waiver of Signature and Indemnity (Domestic Only)	<small>I wish delivery to be made without obtaining the signature of the addressee or the addressee's agent (if in the judgement of the delivery employee, the article can be left in a secure location) and I authorize the delivery employee to sign that the shipment was delivered and understand that the signature of the delivery employee will constitute valid proof of delivery.</small> SIGNED: _____	

For Customer Use

Express Mail Corporate Account No.: _____

Federal Agency Account No.: _____

FROM:

Jerome H. Selby, Mayor
Kodiak Island Borough
710 Mill Bay Road
Kodiak, AK 99615

ADDRESSEE'S COPY

TO: Telephone Number: 278-8012

Exxon Valdez Oil Spill Trustees
645 "G" Street
Anchorage, AK 99501

Document ID Number
920615279

A-C-1000 For Customer Use

B-99 WPWG

C-RPWG

D-PAG

E-MISC

ENHANCEMENT OF THE PACIFIC HERRING

Document ID Number	920615279
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<input checked="" type="checkbox"/>	B-93 WPWG
<input type="checkbox"/>	C-RPWG
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<input type="checkbox"/>	E-MISC.

JUSTIFICATION:

The Exxon Valdez oil spill impacted areas of Kodiak and the Shelikof Straits coastline containing spawning habitat for the Pacific Herring, *Clupea harengus pallasii*.

DESCRIPTION OF PROJECT:

Enhancement of these impacted stocks will consist of the construction of a towable netpen, the culture of appropriate algal substrate, the capture and transfer of herring to the netpen, the towing of the netpen to a protected site, the installation of predator barriers, transfer of algae to the netpen, the spawning of herring on the substrate, the release of spawned herring, the protection of fertilized eggs through incubation and hatching.

ESTIMATED DURATION OF PROJECT: 9 Years.

ESTIMATED COST PER YEAR:	FY 93	\$120,000
	1994 - 2001,	\$40,000 per year
	Total	\$440,000

OTHER COMMENTS:

This proposal addresses Options 2 and 3 in the Exxon Valdez Restoration Framework, Volume I.

NAME, ADDRESS, TELEPHONE:

Mark Donohue
Kodiak Area Native Association
402 Center Ave.
Kodiak, AK 99615

907-486-5725

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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Name
Affiliation
Costs

Category
Restoration Manipulation + Enhancement

Lead Agency
ADFG

Cooperating Agency(ies)

Y N Passed initial screening criteria

type F/S

RANKING H M L Rank Within Categories

 H M L Rank Overall

_____ Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- 1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR PUBLIC IDEAS FOR RESTORATION PROJECTS

Title of Project: Monitoring Injury to Rockfish in Prince William Sound

Justification: Rockfish were one of the few species of fish found dead after the Exxon Valdez oil spill. Necropsies of five of these fish concluded that crude oil was the cause of death for these fish. Sampling later in the summer of 1989 found that rockfish from oiled areas were exposed to oil within the two weeks prior to collection. In addition, histopathological evaluations were conducted of tissue samples of rockfish, collected in 1990 and 1991 from oiled and controlled areas. These evaluations revealed a higher level of cellular abnormalities in samples from oiled sites than in the control sites. The pathologists at the laboratory conducting the histopathological evaluation, UC Davis, School of Veterinary Medicine, expressed a high level of concern about the presence and potential persistence of these pathological lesions. Therefore, it is necessary to conduct further sampling of these populations to determine the persistence of these damages. Rockfish continue to be harvested in both sport and commercial fisheries. This may be imprudent, with respect to proper management of these populations, in light of the damage detected in individual fish.

Description of Project: The goal of this project is to determine if sublethal effects, specifically histopathological lesions and mixed function oxidase enzymes (MFOs) are still present in rockfish from oiled areas. The approach will be to sample 20 rockfish from six sites, four sites in Prince William Sound (two oiled and two nonoiled areas), and two additional control sites outside Prince William Sound. The same three demersal rockfish species targeted in 1991 will be collected in 1993. These samples will be evaluated for histopathological lesions and MFOs in the same manner as those collected in 1990 and 1991. Results of the evaluations will be statistically tested to determine if differences between oiled and unoiled area persist.

Estimated Duration of Project: 1 year

Estimated Cost per Year: 117,000

Name, Address, Telephone

Suzanne McCarron
Alaska Department of Fish and Game
333 Raspberry Road
Anchorage, Alaska 99518

Because the Oil Spill Restoration is a public process, your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

(907) 267-2148

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State of Alaska
Department of Fish and Game
Administration
333 Raspberry Road
Anchorage, Alaska 99518-1599

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<input type="checkbox"/> E-MISC.

~~Dana Schmidt-Soldotna FRED~~
~~May 20, 1992~~
~~From: M. Fraker/J. Sullivan~~

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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Name
Affiliation
Costs

Category ~~Wetland~~
~~Rest. Manag. Actions~~

Lead Agency
ADFG

Cooperating Agency(ies)

N Passed initial screening criteria

type ~~Birds~~ fish

RANKING H M L Rank Within Categories

H M L Rank Overall

Project Number - if assigned

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.

2. Technical feasibility.*

3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

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<input type="checkbox"/> D-PAG	<input type="checkbox"/> E-MISC.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
 FORMAT FOR IDEAS FOR RESTORATION PROJECTS

Title of Project: Monitoring Sites - collector beaches and lagoons.

Justification: When the EXXON VALDEZ disaster occurred no oil monitoring sites on Kodiak Island Archipelago or Alaska Peninsula shores of the Shelikof Strait existed. Concerned agencies were forced to establish sites on an emergency basis to collect baseline data in the path of the oil. Because the above areas are washed by the Alaska Coastal Current and downstream from Prince William Sound, many of the sites were eventually oiled and oil is still present at some of them. Samples from these sites are under analysis. Monitoring presence of EXXON VALDEZ oil is essential to understanding short and long term effects on intertidal and adjacent upland or freshwater habitats. These habitats include spawning areas for salmon, herring, capelin, and sand lance; habitat for clams, mussels, dungeness crab and juveniles of numerous species as well as an extremely productive intertidal ecosystem. Adjacent upland areas contain sea bird rookeries, haulouts and rookeries for the northern sea lion and harbor seals, numerous bald eagle nest sites, and important portions of the habitats of brown bears, sitka blacktail deer foxes and others. Upland areas also include portions of the Katmai National Monument, the Kodiak National Wildlife Refuge and the Alaska Maritime Wildlife Refuge. Adjacent marine areas provide extensive fisheries and habitat for sea otters and other marine mammals. Monitoring of these sites is essential both relative to the EXXON VALDEZ spill and to collect baseline information relative to other oil related activities in the area.

Description of Project: Intertidal sites that were exposed to oil and for which there are specific resource concerns would be monitored four times per year. Twenty sites were identified by the Kodiak Exxon-Valdez Restoration Committee as a preliminary list of critical areas. These will be reviewed by concerned agencies (National Marine Fisheries Service, Alaska Department of Fish and Game, U.S. Fish and Wildlife Service, Alaska Department of Environmental Conservation) and the Kodiak Island Borough. After final sites are determined, sites will be monitored through collection of sediment, representative organisms, intertidal transacts and counts of birds and mammals. Chemical analysis of sediments and representative organisms would be used to determine the presence and concentration of oil until it declines to background levels.

Estimated Duration of project: 1993-2001

Estimated Cost per Year: \$500 K

Comments: This proposal addresses Options 27 and 31 in the Exxon Valdez Oil Spill Restoration Framework, Volume I.

CONTACT: Lonnie White, Area Biologist, FRED Division, Alaska Department of Fish & Game, 211 Mission Road, Kodiak, AK 99615
 486-4791

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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- ID stamped/Input completed
- Name
- Affiliation
- Costs

Category Restoration Monitoring

Lead Agency NOAA ADFG

Cooperating Agency(ies) USFS ~~ADFG~~

Y N Passed initial screening criteria

type FIS

RANKING H M L Rank Within Categories

 H M L Rank Overall

_____ Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- | | | | |
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| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Linkage to resources and/or services injured by the <u>Exxon Valdez</u> oil spill. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. Technical feasibility.* |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Consistency with applicable Federal and State laws and policies.* |

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
FORMAT FOR IDEAS FOR RESTORATION PROJECTS

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<input type="checkbox"/> E-MISC.

Title of Project: Seward Shellfish Hatchery

Justification: (Link to Injured Resource or Service) Shellfish beds in Prince William Sound were destroyed by the spill and lost economic opportunities.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

Many shellfish beds were adversely impacted by the spill. Mariculture, or shellfish farming, holds great promise as a way of recreating lost subsistence resources and creating long term employment and business opportunities in the impacted areas. Initial development work with oyster culture in the villages has met with great success. However, in order to obtain commercial size production levels, a reliable source of shellfish seed needs to be developed in Alaska. After investigations by the Alaska Department of Fish and Game (ADF&G) and the Alaska Shellfish Grower's Association, Seward emerged as an excellent place to locate a shellfish hatchery from both a biological and accessibility standpoint. Another attractive aspect of Seward is that the Institute of Marine Science (IMS) is located there and has agreed to provide space and technical assistance in the development of this hatchery. In addition, the (ADF&G) is requesting \$1.8 million from the state to construct a mariculture research and development center. When funding becomes available, a qualified shellfish hatchery development specialist will be hired to manage the project.

Estimated Duration of Project: Design and engineering, construction, and shakedown: 2 years

Estimated Cost per Year: Capital cost: \$1.3 million Operating: \$350,000 per year.

Other Comments: Within six years the facility will be able to support itself.

Name, Address, Telephone:

Richard Rolland

Chugachmiut

3300 C Street

Anchorage, AK 99503

(907) 562-4155

Oil spill restoration is a public process. Your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

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Exxon Valdez Trustee Council
645 G St.
Anchorage, Alaska 99501

Attn: 1993 Work Plan

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ID # 9206/2242

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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- ID stamped/Input completed
- Name
- Affiliation
- Costs

_____ Category
Restoration Manipulation and/or Enhancement

_____ Lead Agency
ADFG

_____ Cooperating Agency(ies)

Y N Passed initial screening criteria

type F/S

RANKING H M L Rank Within Categories

 H M L Rank Overall

_____ Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- 1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

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Title of Project:

Larval Herring Age and Growth in Prince William Sound (PWS) Using Otoliths

Justification: (Link to Injured Resource or Service)

Herring embryos, larvae, adults were injured by the Exxon Valdez oil spill.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

In 1989, a larval fish trawl survey was conducted resulting in a collection of larval herring from 52 sampling locations within PWS over three depths and a three month period. A selection of approximately 600 otoliths stratified over areas, depths and time could be processed and analyzed for age and daily incremental growth. The information obtained could be used to examine the effects of oil on growth and, with two additional years of data, shed light on processes affecting growth which may in turn affect recruitment. The conclusions from the first year's pilot sampling would go toward designing sample sizes needed to detect and test for differences between areas and years. The information gained would be used in conjunction with results of the larval trawl survey as well as long term population trends in abundance and age composition to further define and understand population dynamics. The conclusions could be used to direct and monitor restoration of the stock. Techniques employed would be similar to those used by Moksness and Wespestad (Fishery Bulletin, U.S. 87:509-513, 1989) where otoliths are ground and prepped for digitizing on a computerized scanner. Peaks mapped between individual rings are analyzed for differences in size and frequency. Ages are back calculated from incremental growth analysis and compared to estimated ages using known spawning dates.

Estimated Duration of Project: Three years (no sample collection necessary the first year)

Estimated Cost per Year: \$ 54,000 during the first year; \$120,000 for years two and three.

Other Comments: This project falls within the category of management of human use since the information derived will be used directly in the stock assessment and management of the resource (Restoration Option No. 2. Intensify Management of Fish and Shellfish). This project also falls within the confines of Restoration Option No. 31 in terms of the development of a comprehensive monitoring program. Data collection and analysis could be coordinated with the collection of other larval fish and shellfish, and macroplankton.

Name, Address, Telephone:

Evelyn Biggs, Herring Research Biologist, Alaska Department of Fish and Game
Division of Commercial Fisheries, Box 669, Cordova, AK 99574-0669. (907)424-3213.

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

✓ Checked for Completeness

- ✓ ID stamped/Input completed
- ✓ Name
- ✓ Affiliation
- ✓ Costs

✓ Category

Other Science

✓ Lead Agency

ADFIG

Cooperating Agency(ies)

Y N Passed initial screening criteria

type F/S

RANKING H M L Rank Within Categories

H M L Rank Overall

Project Number - if assigned

1993 PROJECT SCORING SHEETCritical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- | | | | |
|---|---|---|---------------------------------------------------------------------------------------|
| / | _ | _ | 1. Linkage to resources and/or services injured by the <u>Exxon Valdez</u> oil spill. |
| / | _ | _ | 2. Technical feasibility.* |
| / | _ | _ | 3. Consistency with applicable Federal and State laws and policies.* |

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
FORMAT FOR IDEAS FOR RESTORATION PROJECTS

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<input type="checkbox"/> C-RPWG
<input type="checkbox"/> D-PAG
<input type="checkbox"/> E-MISC.

Title of Project:

Prince William Sound (PWS) Herring Spawn Deposition Survey

Justification: (Link to Injured Resource or Service)

Herring embryos, larvae, adults were injured by the Exxon Valdez oil spill.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

The spawn deposition survey program provides a real time estimate of the spawning herring population by measuring egg deposition within PWS. The survey period was extended by sampling more intensively in 1989 as a direct result of the spill to improve the accuracy of the estimate. Maintaining the spawn deposition survey at the current level of effort will help in maintaining the level of accuracy in the resulting stock assessment and forecasting procedures. The survey can also provide information pertaining to eventual stock recruitment such as egg density, egg survival, and age composition details. The information derived can be used to direct and monitor restoration. The techniques employed are standard in Southeast Alaska and British Columbia for spawn deposition surveys. Transects are allocated randomly over the spawning areas and run perpendicular to the shoreline across the width of spawn deposited. Egg densities are estimated every five meters and average egg deposition is expanded over an area. Diver calibration curves (used to correct the diver estimates) are developed by sampling eggs on kelp samples and comparing the actual count of eggs to diver estimates. Variance measurements can be estimated at each step in the model and confidence intervals can be applied to the resulting biomass estimate.

Estimated Duration of Project: Continuing

Estimated Cost per Year: \$210,000

Other Comments: This project falls within the category of management of human use since the information derived will be used directly in the stock assessment and management of the resource (Restoration Option No. 2. Intensify Management of Fish and Shellfish). In addition, this project falls within the category of Restoration Option No. 31, development of a comprehensive monitoring program. Since herring constitute a large portion of the fish biomass in PWS and since they are an important prey item for many species of birds, mammals and other fish, the health of the herring population may be tied to the health and reproductive success or growth of other species in PWS.

Name, Address, Telephone:

Evelyn Biggs, Herring Research Biologist, Alaska Department of Fish and Game
Division of Commercial Fisheries, Box 669, Cordova, AK 99574-0669. (907)424-3213

ID # 920610231-01

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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- ID stamped/Input completed
- Name
- Affiliation
- Costs

Category Other - Science
~~Restoration - Management Action~~

Lead Agency

ADFG

Cooperating Agency(ies)

N Passed initial screening criteria

type FIS

RANKING H M L Rank Within Categories

 H M L Rank Overall

Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.

2. Technical feasibility.*

3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

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<input type="checkbox"/> C-RPWG
<input type="checkbox"/> D-PAG
<input type="checkbox"/> E-MISC.

Title of Project:

Prince William Sound (PWS) Herring Spawn Deposition Survey

Justification: (Link to Injured Resource or Service)

Herring embryos, larvae, adults were injured by the Exxon Valdez oil spill.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

The spawn deposition survey program provides a real time estimate of the spawning herring population by measuring egg deposition within PWS. The survey period was extended by sampling more intensively in 1989 as a direct result of the spill to improve the accuracy of the estimate. Maintaining the spawn deposition survey at the current level of effort will help in maintaining the level of accuracy in the resulting stock assessment and forecasting procedures. The survey can also provide information pertaining to eventual stock recruitment such as egg density, egg survival, and age composition details. The information derived can be used to direct and monitor restoration. The techniques employed are standard in Southeast Alaska and British Columbia for spawn deposition surveys. Transects are allocated randomly over the spawning areas and run perpendicular to the shoreline across the width of spawn deposited. Egg densities are estimated every five meters and average egg deposition is expanded over an area. Diver calibration curves (used to correct the diver estimates) are developed by sampling eggs on kelp samples and comparing the actual count of eggs to diver estimates. Variance measurements can be estimated at each step in the model and confidence intervals can be applied to the resulting biomass estimate.

Estimated Duration of Project: Continuing

Estimated Cost per Year: \$231,000

Other Comments: This project falls within the category of management of human use since the information derived will be used directly in the stock assessment and management of the resource (Restoration Option No. 2. Intensify Management of Fish and Shellfish). In addition, this project falls within the category of Restoration Option No. 31, development of a comprehensive monitoring program. Since herring constitute a large portion of the fish biomass in PWS and since they are an important prey item for many species of birds, mammals and other fish, the health of the herring population may be tied to the health and reproductive success or growth of other species in PWS.

Name, Address, Telephone:

Evelyn Biggs, Herring Research Biologist, Alaska Department of Fish and Game
Division of Commercial Fisheries, Box 669, Cordova, AK 99574-0669. (907)424-3213

ID # 297-03

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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- ✓ Name
- ✓ Affiliation
- ✓ Costs

✓ Category
Restoration Monitoring Manage actions

✓ Lead Agency
ADF&G

Cooperating Agency(ies)

N Passed initial screening criteria

type F/S

RANKING H M L Rank Within Categories

 H M L Rank Overall

Project Number - if assigned _____

1993 PROJECT SCORING SHEETCritical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

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| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Linkage to resources and/or services injured by the <u>Exxon Valdez</u> oil spill. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. Technical feasibility.* |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Consistency with applicable Federal and State laws and policies.* |

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

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<input type="checkbox"/> C-RPWG	
<input type="checkbox"/> D-PAG	
<input type="checkbox"/> E-MISC.	

Title of Project:

Prince William Sound (PWS) Herring Tagging Feasibility Study

Justification: (Link to Injured Resource or Service)

Herring embryos, larvae, adults were injured by the Exxon Valdez oil spill.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

Herring tagging information can be used in conjunction with herring genetic stock identification information to define population distribution and migration. The information derived can aid in calculation of immigration and emigration rates. In addition, tag information may provide insight toward catch rates. Conclusions obtained will improve stock assessment models and forecasting procedures. The information derived can be used in conjunction with spawn deposition information, to direct and monitor restoration. During the first year, different tags and tagging techniques will be tested. Tagged fish will be released and will return for retrieval in future years, however, the primary goal for the first year will be to define the technique. In addition, tagging mortality and tag loss will be measured by releasing fish into impoundments, used in the herring pound fishery, and monitoring them over the course of the spawning season. Herring tagging literature will be reviewed to determine the best course of action. The final product will be a sampling design for the next two years of intensive tagging and four years of recovery.

Estimated Duration of Project: Five years. Year one is tagging feasibility, years two and three would include a full tagging effort, while years four and five would concentrate on tag retrieval and data analysis.

Estimated Cost per Year: \$ 102,000 first year; increasing to \$150,000 for years two and three and decreasing to \$ 60,000 for years four and five.

Other Comments: This project falls within the category of management of human use since the information derived will be used directly in the stock assessment and management of the resource (Restoration Option No. 2. Intensify Management of Fish and Shellfish).

Name, Address, Telephone:

Evelyn Biggs, Herring Research Biologist
Alaska Department of Fish and Game, Div.
Commercial Fisheries, Box 669
Cordova, AK 99574-0669
(907)424-3213

Oil spill restoration is a public process. Your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

ID # ~~XXXXXXXXXX~~

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

 ✓ Checked for Completeness

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- ✓ Name
- ✓ Affiliation
- ✓ Costs

 ✓ Category
Restoration - monitoring

 ✓ Lead Agency
ADF & G

 Cooperating Agency(ies)

 Ⓜ N Passed initial screening criteria

 type F/S

RANKING H M L Rank Within Categories

 H M L Rank Overall

 Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- 1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

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<input type="checkbox"/> C-RPWG
<input type="checkbox"/> D-PAG
<input type="checkbox"/> E-MISC.

Title of Project:

Prince William Sound (PWS) Herring Tagging Feasibility Study

Justification: (Link to Injured Resource or Service)

Herring embryos, larvae, adults were injured by the Exxon Valdez oil spill.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

Herring tagging information can be used in conjunction with herring genetic stock identification information to define population distribution and migration. The information derived can aid in calculation of immigration and emigration rates. In addition, tag information may provide insight toward catch rates. Conclusions obtained will improve stock assessment models and forecasting procedures. The information derived can be used in conjunction with spawn deposition information, to direct and monitor restoration. During the first year, different tags and tagging techniques will be tested. Tagged fish will be released and will return for retrieval in future years, however, the primary goal for the first year will be to define the technique. In addition, tagging mortality and tag loss will be measured by releasing fish into impoundments, used in the herring pound fishery, and monitoring them over the course of the spawning season. Herring tagging literature will be reviewed to determine the best course of action. The final product will be a sampling design for the next two years of intensive tagging and four years of recovery.

Estimated Duration of Project: Five years. Year one is tagging feasibility, years two and three would include a full tagging effort, while years four and five would concentrate on tag retrieval and data analysis.

Estimated Cost per Year: \$ 112,000 first year; increasing to \$150,000 for years two and three and decreasing to \$ 60,000 for years four and five.

Other Comments: This project falls within the category of management of human use since the information derived will be used directly in the stock assessment and management of the resource (Restoration Option No. 2. Intensify Management of Fish and Shellfish).

Name, Address, Telephone:

Evelyn Biggs, Herring Research Biologist
Alaska Department of Fish and Game, Div.
Commercial Fisheries, Box 669
Cordova, AK 99574-0669
(907)424-3213

Oil spill restoration is a public process. Your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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- / Affiliation
- / Costs

 / Category

Restoration monitoring

 / Lead Agency

ADFG

 Cooperating Agency(ies)

N Passed initial screening criteria

type FIS

RANKING H M L Rank Within Categories

 H M L Rank Overall

 Project Number - if assigned

1993 PROJECT SCORING SHEETCritical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
2. Technical feasibility.*
3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
FORMAT FOR IDEA FOR RESTORATION PROJECTS

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<input type="checkbox"/> E-MISC.

Title of Project: Herring Bay Experimental and Monitoring Studies

Justification:

Many intertidal plant and animal species were damaged directly by the fresh crude oil of the EVOS and/or the subsequent clean-up activities. Previous work has shown that some populations continued to decrease in 1991 (1992 data are not in yet), suggesting continuing expression of the original impact or additional damage due to residual oil.

Description of Project:

Goals: The goals of the proposed work are to elucidate the impacts of the oil/clean-up on recruitment dynamics and biological interactions influencing intertidal community structure and recovery rates.

Objectives:

1. To determine recruitment rates of barnacles and other sessile species on oiled, oiled and cleaned, and non-oiled substrates and at oiled and non-oiled sites.
2. To determine the recovery rate of important community members dependent upon other species reduced or eliminated by the spill; i.e. second-order impacts.
3. To determine the recovery rate of species with poor dispersal capabilities.

Location: The experiments will be conducted in Herring Bay, Knight Island, Prince William Sound.

Rationale: 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 are continuing in 1992. Some species were found to be less abundant in 1991 than in 1990, suggesting that recovery has not yet begun. At this time, 1992 results are not yet available. Second-order relationships are complex and can only be understood by manipulative experiments and close monitoring of established sites.

Approach: Population dynamics of *Fucus*, sessile invertebrates, and grazers (limpets) will continue to be quantified in established quadrats at oiled and unoiled sites. 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. Recruitment of algae and invertebrates on tarred, cleaned, and control substrates 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 exclosures and enclosures.

Estimated Duration of Project: Two years

Estimated Cost per Year: \$450,000

Other Comments: This project would be a continuation of the Herring Bay restoration studies being done with Dr. Mike Stekoll and includes his portion of the work.

Name, Address, Telephone:

Dr. Ray Highsmith
Institute of Marine Science
University of Alaska Fairbanks
Fairbanks, AK 99775-1080
(907) 474-7836

Oil spill restoration is a public process. Your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
FORMAT FOR IDEA FOR RESTORATION PROJECTS

Document ID Number
920610228
<input type="checkbox"/> A-92 WPWG
<input checked="" type="checkbox"/> B-93 WPWG
<input type="checkbox"/> C-RPWG
<input type="checkbox"/> D-PAG
<input type="checkbox"/> E-MISC.

Title of Project: Coastal Habitat Comprehensive Intertidal Monitoring Program

Justification:

The Coastal Habitat study showed damage to the intertidal community in all three oil-spill regions: Prince William Sound, Kenai Peninsula, Kodiak/Alaska Peninsula. The impacts by tidal height and by species were different in the three regions. In 1991, some species showed signs of the recovery process while others continued to decline or showed no sign of recovery.

Description of Project:

Goals and Objectives: The goal of the study is to conduct a comprehensive monitoring program of intertidal communities in the area impacted by the EVOS. To be comprehensive, the study will include oiled and matched control sites (already established), from which we have a valuable historical record of post-spill data, in all three regions impacted by the oil spill, and a variety of habitats (e.g. sheltered rocky, coarse textured). Within these sites, we will focus on the recruitment and population dynamics of key species as determined by their role in the community (indicator species, spatial dominants, annual vs perennial algae, grazers, predators).

Location:

The study would be conducted in all three oil spill regions or could be conducted in one or two regions per year.

Rationale: See Justification and Goals. The Coastal Habitat sites were not visited in 1992. A selected subset of matched oiled and control sites should be monitored to determine the extent to which recovery is occurring, or not occurring, among major intertidal species. The greater the period between visits to quantify recovery or continued impacts, the more difficult it will be to relate the findings to the oil spill and to distinguish between oil spill impacts and natural events.

Approach: A subset of matched sites in sheltered rocky and coarse textured habitats will be studied. We will utilize a repeated measures design for floral and faunal censuses in existing permanent quadrats to track recovery. Key organisms will be identified and counted in the field and the data recorded on-site. To analyze interannual recruitment variability, supplemental quadrats will be cleared each year (sheltered rocky only).

Estimated Duration of Project: 3 years

Estimated Cost per Year: \$500,000 per region

Other Comments: Dr. Mike Stekoll will participate in this project.

Name, Address, Telephone:

Dr. Ray Highsmith
Institute of Marine Science
University of Alaska Fairbanks
Fairbanks, AK 99775-1080

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D. A. DOUDNA
UNIVERSITY OF ALASKA FAIRBANKS
 Institute of Marine Science
 School of Fisheries and Ocean Sciences
 Fairbanks, Alaska 99775-1080



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UNIVERSITY OF ALASKA FAIRBANKS
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 FAIRBANKS, ALASKA 99775-1080

To EXXON VALDEZ OIL SPILL
 RESTORATION TEAM
 645 "G" STREET
 ANCHORAGE, AK. 99501

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FIRST CLASS MAIL

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

Checked for Completeness

ID stamped/Input completed
Name
Affiliation
Costs

Category
Restoration Monitoring

Lead Agency
USFS

Cooperating Agency(ies)
ADF&G

Y N Passed initial screening criteria

type CH

RANKING H M L Rank Within Categories

 H M L Rank Overall

_____ Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- 1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR PUBLIC IDEAS FOR RESTORATION PROJECTS

Title of Project: Herring Bay Experimental and Monitoring Studies

Justification: (Link to Injured Resource or Service) Many intertidal plant and animal species were damaged by the oil spill and/or subsequent clean-up. Previous work has shown that some populations continued to decrease in 1991 (1992 data is not in yet), suggesting continuing expression of the original impact or additional damage due to residual oil.

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

Goals: The goals of the proposed work are to elucidate the impacts of the oil/clean-up on recruitment dynamics and biological interactions influencing intertidal community structure and recovery rates.

Objectives:

1. To determine recruitment rates of barnacles and other sessile species on oiled, oiled and cleaned, and non-oiled substrates and at ciled and non-oiled sites.
2. To determine the recovery rate of important community members dependent upon other species reduced or eliminated by the spill, i.e. second-order impacts.
3. To determine the recovery rate of species with poor dispersal capabilities.

Location: The experiments will be conducted in Herring Bay, Knight Island, Prince William Sound.

Rationale: 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 are continuing in 1992. Some species were found to be less abundant in 1991 than in 1990, suggesting that recovery has not yet begun. At this time, 1992 results are not yet available. Second-order relationships are complex and can only be understood by manipulative experiments and close monitoring of established sites.

Approach: Population dynamics of Fucus, sessile invertebrates, and grazers (limpets) will continue to be quantified in established quadrats at oiled and unoiled sites. 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. Recruitment of algae and invertebrates on tarred, cleaned, and control substrates 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 exclosures and enclosures.

Estimated Duration of Project: Two (2) years

Estimated Cost per Year: \$495,000

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<input type="checkbox"/> E-MISC.	

Other Comments: This project would be a continuation of the Herring Bay restoration studies being done with Dr. Mike Stekoll and includes his portion of the work.

Name, Address, Telephone

Dr. Ray Highsmith
Institute of Marine Science
University of Alaska Fairbanks
Fairbanks AK 99775
(907) 474-7836

Because the Oil Spill Restoration is a public process, your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

✓ Checked for Completeness

- ✓ ID stamped/Input completed
- ✓ Name
- ✓ Affiliation
- ✓ Costs

✓ Category

DAMAGE ASSESSMENT

✓ Lead Agency

~~USFS~~ ADFEG

✓ Cooperating Agency(ies)

~~ADFG~~ USFS

N Passed initial screening criteria

type CH

RANKING H M L Rank Within Categories

 H M L Rank Overall

 Project Number - if assigned

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.

2. Technical feasibility.*

3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
FORMAT FOR IDEAS FOR RESTORATION PROJECTS

Document ID Number
920514007

A-92 WPWG
 B-93 WPWG
 C-RPWG
 D-PAG
 E-MISC.

Title of Project:

Transplant Project

Justification: (Link to Injured Resource or Service)

Replace or enhance a damaged resource

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)


Transplant Blacktail deer and Roosevelt
Elk to Southern Kenai Peninsula and
or Alaskan Peninsula.
Transplant Goat (Rocky Mtn.) to
Montague Island.

Estimated Duration of Project: 2 year minimum

Estimated Cost per Year: not provided

Other Comments:

Name, Address, Telephone:


 DR. WM WEST
WEST CHIRO CLINIC
138 W. MARYDALE DR.
SOLDOTNA, AK 99669

phone # not supplied

Oil spill restoration is a public process. Your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

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 WILLIAM O WEST
138 W MARYDALE
SOLDOTNA, AK
99669

MAY 06 REC'D



Exxon Valdez Trustee Council
645 G St.
Anchorage, Alaska 99501

Attn: 1993 Work Plan

ID # 920514007

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

✓ Checked for Completeness

✓ ID stamped/Input completed
✓ Name
Affiliation
Costs

✓ Category

Restoration - Enhancement

✓ Lead Agency

ADFG

Cooperating Agency(ies)

(Y) N Passed initial screening criteria

type TM

RANKING H M L Rank Within Categories

 H M L Rank Overall

Project Number - if assigned

1993 PROJECT SCORING SHEETCritical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- | | | | |
|-------------------------------------|--------------------------|--------------------------|---------------------------------------------------------------------------------------|
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 1. Linkage to resources and/or services injured by the <u>Exxon Valdez</u> oil spill. |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 2. Technical feasibility.* |
| <input checked="" type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | 3. Consistency with applicable Federal and State laws and policies.* |

Comments:

* Restoration Framework, 1992, pp 43-44.

RESTORATION PROJECT

920615294 05

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<input type="checkbox"/>	C-RPWG
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<input type="checkbox"/>	E-MISC.

TITLE OF PROJECT:

Chenega Chinook And Silver Salmon Release Program.

JUSTIFICATION:

Due to the oil spill, stocks of salmon were seriously impacted on account of gross pollution.

DESCRIPTION OF PROJECT:

- A. Goals: To replace subsistence resources by permitted private releases of chinook and silver salmon at sites to be designated by Chenega from stock of Prince William Sound Aquaculture Corporation Hatchery at Main Bay.
- B. Objective: To replant subsistence and sport salmon stock.
- C. Location: Southwestern Prince William Sound, at Deadend Bay to be designated by Chenega.
- D. Rationale: The replenishment of chinook and silver salmon is consistent with restoration of the Sound.
- E. Technical Approach: Knowledge of hatchery projects, and release and feeding of stock.

ESTIMATED DURATION OF PROJECT: Upwards to 10 years.

ESTIMATED COST PER YEAR: \$3,000-\$5,000.

OTHER COMMENTS:

Chenega Corporation has a lease agreement with Prince William Sound Aquaculture Corporation with regard to the San Juan Hatchery. Under the terms of the agreement, PWSAC is required to provide salmon fry for release. The fry to be supplied to Chenega include chinook and silver salmon. Chenega Corporation is responsible for the holding pens and feed, the fry to be supplied by PWSAC. Therefore, the cost is low. However, licensing, holding pens, and feed as well as caretakership have not yet been covered.

NAME, ADDRESS, TELEPHONE:

CHENEGA CORPORATION
Charles W. Totemoff, President
P.O. Box 60
Chenega Bay, Alaska 99574
(907) 573-5118

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

Checked for Completeness

ID stamped/Input completed
Name
Affiliation
Costs

Category
Rest. Manip. and/or enhancement

Lead Agency
ADFDG

Cooperating Agency(ies)

N Passed initial screening criteria

type F/S

RANKING H M L Rank Within Categories

 H M L Rank Overall

_____ Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- 1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.

92069240-01
02
03
04
05

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

Title of Project:

5 Projects

Justification: (Link to Injured Resource or Service)

Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)

- 01.) Habitat Acquisition - a comment
- 02.) Restore shorelines damaged by beach berm relocation
- 03.) Institute program to annually clean garbage from oil spill impacted area beaches
- 04.) Publish + distribute brochures on damaged species and ways to prevent additional stress.
- 05.) Institute watchable wildlife survey program to give and receive information with Tourism and Recreation users.

Estimated Duration of Project:

Estimated Cost per Year:

Other Comments:

Name, Address, Telephone:

Nancy Letheve, Pres.
 Alaska Wilderness
 Sailing Safaris
 Alaska Wilderness
 Recreation and Tourism
 Assoc.

Oil spill restoration is a public process. Your ideas and suggestions will not be proprietary, and you will not be given any exclusive right or privilege to them.

PO Box 1353
Valdez, AK 99686

Alaska Wilderness Recreation and Tourism Association

Board of Directors

Nancy Lethcoe
President
Alaskan Wilderness
Sailing Safaris

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Vice President
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Todd Miner
Secretary
Alaska Wilderness Studies
U of A Anchorage

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Recreation

Kirk Hoessle
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Adventures

Bob Jacobs
St. Elias Alpine Guides

Karla Hart
Rainforest Treks & Tours

Marcie Baker
Alaska Mountaineering &
Hiking

Gayle Ranney
Fishing & Flying

Dave Gibbons
EVOS Restoration Team
645 "G" Street,
Anchorage, AK 99501

Dear Dave,

On behalf of our members operating tourism businesses or recreationally using the oil spill impacted area, AWRTA would appreciate it if the Restoration Team would consider recommending to the Trustee Council the following projects designed to restore lost natural resources and services:

1. Timber buybacks to provide habitat protection for recovery of species damaged by the spill and to protect the area's scenic qualities damaged by the spill from additional harm. — 01
2. Restoration of shorelines damaged by beach berm relocation including the removal of logs and rock debris pushed into adjacent uplands areas and re-planting of damaged beach and uplands areas with local species. — 02
3. Institution of a program to annually clean garbage from oil spill impacted area beaches to help enhance damaged visual quality and habitat. — 03
4. Publication of high quality, full-color brochures on damaged species aimed at recreational users and tourism operators that give information on the following topics: 1) significant aspects of a species' life history and behavior that may be adversely affected by human contact; 2) damages suffered by the species from spill and other causes (disease, human disturbance, etc.); 3) ways to prevent additional stress such as not disturbing seals during pupping and molting periods, use of hydrophones to enhance whale watching at a distance, etc. Distribute the fliers to harbors, Visitor Centers, Tour and Charter boat operators, kayak rental outlets, recreational equipment stores, etc. — 04
5. Institution of a watchable wildlife survey program soliciting input from tourism companies and others on the following topics: a) species observed, — 05

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E-MISC.

date and number; and b) anecdotal information on human/animal encounters. This information could help document the possible changes and movements in marine mammal populations, give tourism operators and tourists a chance to "participate" in the recovery, 3) document changes, both positive and adverse, in human/animal encounters, and 4) provide planners with information that may be helpful in developing additional programs.

Tourism and recreational users have suffered considerably from the visual damage done to marine and shoreline areas through the loss of marine mammals, removal of intertidal and shoreline zone flora and fauna, beach relocation, and staining and sterilization of beaches. The U.S. F.S. recognizes visual quality as a natural resource; the state and tour operators have spent considerable amounts of money to market Alaska's superscenery and superwildlife viewing opportunities, and consumers choose destinations on the bases of visual quality and wildlife viewing experiences. The ability of the tourism industry to recover from economic damages sustained as a result of the spill depends on the ability of tour operators to deliver a product that lives up to consumer expectations and is competitive with other superscenery/superwildlife areas in the world.

Respectfully submitted,



Nancy R. Lethcoe

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<input type="checkbox"/> C-RPWG
<input type="checkbox"/> D-PAG
<input type="checkbox"/> E-MISC.



DAVE GIBBONS
 EVDS RECREATION TEAM
 645 "G" STREET
 ANCHORAGE, AK 99501

AWRTA
 P.O. Box 1353
 Valdez, ALASKA 99686

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<input type="checkbox"/>	D-PAG
<input type="checkbox"/>	E-MISC.

ID # 920612240-05

Watchable Wildlife Program

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

Checked for Completeness

- ID stamped/Input completed
- Name
- Affiliation
- Costs

Category
Restoration Management Actions

Lead Agency
ADFG

Cooperating Agency(ies)

Y N Passed initial screening criteria

type TM

RANKING H M L Rank Within Categories

 H M L Rank Overall

Project Number - if assigned _____

1993 PROJECT SCORING SHEET

Critical Factors

Potential projects must meet all of the following to be considered further. Check the blank for "yes", "no", or "unknown".

YES NO UNKNOWN

- 1. Linkage to resources and/or services injured by the Exxon Valdez oil spill.
- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

* Restoration Framework, 1992, pp 43-44.