

EXXON VALDEZ CIL SPILL TRUSTEE COUNCIL ADMINISTRATIVE RECORD

1993

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PROJECT IDEAS

VOLUME I

ID # 920610229-03

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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Category Damay Assessment

Lead Agency USFS

Cooperating Agency(ies)

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H M L Rank Overall

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Project Number - if assigned __

920610229-03

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

Comments:

EXXON VEZ OIL SPILL TRUSTEE COUL	Decument ID Number 920610229	U3
Title of Project: Coastal Habitat Injury Assessment - Intertidal Algae	LI A-92 WPWG EI B-93 WPWG I] C-8PWG	
Justification: (Link to Injured Resource or Service) This is a continuation of the NRDA CHIA project which is documenting the injury fro EVOS in the intertidal zone, funded through the U.S. Forest Service.	III thQ • PAG III E • MISC.	

Description of Project: (e.g. goal(s), objectives, location, rationale, technical approach) <u>Goals</u>: To quantify damage to the algal resources in the intertidal zones in Prince William Sound (PWS), Cook Inlet/Kenai (CIK) and Kodiak/Alaskan Peninsula (KAP) caused by the EVOS and clean-up.

Objectives:

- 1. To quantify the damage to the intertidal algae in four different habitats of the three areas affected by the EVOS.
- 2. To compare percent covers of all algal genera in oiled and control sites.
- 3. To assess the biomass of all algal genera from oiled and control sites.
- 4. To determine damage to *Fucus* in oiled areas.
- 5. To determine differences in biodiversity between oiled and control sites.
- 6. To determine the persistence of the damage over time.

<u>Location</u>: Field work is completed in PWS, CIK, and KAP. Lab work-up will be done at the Juneau Center for Fisheries and Ocean Sciences.

<u>Rationale</u>: The intertidal zone was the major area of impact as a result of the EVOS. Substantial amounts of oil hit the coastline from Prince William Sound to the Alaskan Peninsula. Extensive cleaning activities following the spill were concentrated in the intertidal zone, creating large bare areas. The intertidal areas are habitat to hundreds of species of algae, invertebrates, fish, birds, and mammals. The foundation of the intertidal is composed of the algal and sessile invertebrate communities. Impact to this foundation will have far-reaching ramifications to the other users of the habitat. A quantitative assessment of the impact of the EVOS and clean-up is essential to understand the true effects (damage) of the spill.

<u>Technical Approach</u>: Samples have already been collected for the field seasons of 1989-91 according to previously submitted Standard Operating Procedures. Lab work-up is partially finished. For this proposal the lab work-up, data entry, data analyses, and preparation of a final report will be completed.

Estimated Duration of Project: One Year

Estimated Cost per Year: \$620,000

Other Comments: This is a cooperative project with Dr. Ray Highsmith of the University of Alaska, Fairbanks and Coastal Resources Associates.

Name, Address, Telephone:

Dr. Michael S. Stekoll University of Alaska 11120 Glacier Highway Juneau, AK 99801 907-789-4579

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 # 920602084-01

COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS Checked for Completeness /ID stamped/Input completed Name / Affiliation Costs Category - Recreation DAMAGE ASSESSMENT Lead Agency DFEG Cooperating Agency(ies) OOI Passed initial screening criteria Ν has 1220 Rank Within Categories RANKING Η Μ \mathbf{L} Rank Overall Н Μ \mathbf{L} Project Number - if assigned _

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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:

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

Title of Project: to willeness - base (Darrage Assessment of limmin darrage Justification: (Link to Injured Resource or Service) necessary to consider restaration action "to compensate tolost restruces and services important to recreation of users lut Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach) for addition assessmen clamp tour and ater Doa inst 2c18122 conged as price Larm Estimated Duration of Project: 2007 Estimated Cost per Year: Other Comments:

Name, Address, Telephone: res. Lethc Wilderes adurth creation ourism Arsh. Box AIK 99686 Valies,

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.

Alaska Wilderness Recreation and Tourism Association

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May 30, 1992

Dave Gibbons Restoration Team 645 G Street Anchorage, AK 99501



Dear Mr. Gibbons,

The Alaska Wilderness Recreation and Tourism Association (AWRTA), formerly the Alaska Wilderness Guides Association, represents a business membership of approximately one hundred and fifty companies whose economic endeavor is natural resource dependent. In addition, we have a large group of individual members who use Alaska's back-country resources for recreation.

1.Concern about inadequate damage assessment studies of the impact of EVOS on wilderness-based recreational use and tourism: AWRTA is concerned the services provided by areas impacted by EVOS to the natural resource-dependent tourism industry (boating tour operators, charterboat (drop off) companies, hunting and sports fishing guides and outfitters, natural history tour operators, sea kayaking companies and schools, outdoor education schools, etc.) were not adequately documented during the damage assessment process. Although some attention was paid to recreation (8 lines in the Restoration Framework document, p. 37 - the least space given to any damaged resource or service), no damage assessment was done of the impact of the oil spill on dispersed or back-country tourism operators in order to avoid duplication or double-counting damages "which are the subject of private economic claims." Economics Study No. 5 - Recreation (The 1991 State/Federal Natural Resource Damage Assessment and Restoration Plan for the Exxon Valdez Oil Spill, Vol.

P.O. Box 1353, Valdez, AK 99686. Phone: 907-835-5175. Fax: 907-835-5395 Printed on recycled paper 01

	Document ID Number 920602084
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AWRTA, P.O. Box 1353, Valdez, AK 99686	Ep. B - 93 WPWG
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Restoration Plan for the Exxon Valdez Oil Spill, Vol. II: Res Public Commont Appondix D. p. D. 152 response to first common	porte Eduisc.

However, the federal courts (precedent and Judge Holland) and the administrator for TAPFL (former Judge Gibbon) have ruled against naturalresource dependent tourism companies receiving compensation for economic losses resulting from the oil spill. Thus, the natural-resource dependent tourism industry has fallen through the legal and Trustee framework designed to deal justly with the oil spill. In his August 1991 Memorandum of Law, Gibbon actually argues that it is right for some segments of the public, specifically the natural resource dependent tourism industry, to be treated unjustly so that the majority, commercial fishermen, can be more justly compensated.

Shipping Company.)

AWRTA requests that additional damage-assessment studies be undertaken to evaluate the economic damage done to wilderness-based tourism, (including tour and charter boat operators, hunters, sports-fishermen, outdoor education schools, etc.) in the oil spill impacted area.

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2. Perception that the land acquistion process does not provide for acquiring non-habitat land needed by the tourism industry Because inadequate damage assessment studies of the impact of EVOS on the naturalresource dependent tourism industry exist, the land acquisition process considers only "habitat protection and acquisition" without considering the need to acquire some non-habitat sensitive lands to compensate for lost resources and services important to recreational users and the tourism industry. AWRTA is particularly concerned with #12 "Drop from Imminent Threat Process". The statement "Nominations that do not contain essential habitat components will be dropped from this process." AWRTA certainly supports the requirement that land acquisition should be for habitat which supports watchable wildlife, sports fish, and hunting opportunities. However, the definition of Step 12 seems to imply that habitat acquisition is the only reason for acquiring land. Natural resource dependent tourism has land needs that go beyond just habitat for fish and wildlife. EVOS damaged lands that were used for their general scenic-wilderness quality, for close-up sightseeing of lands undisturbed by man, geological areas of interest (turbidite sequences, pillow basalts, beach formations, etc.), campsites, drinking water (i.e. nonsalmon streams), etc. Limiting the definition of #12 to just habitat

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AWRTA, P.O. Box 1353, Valdcz, AK 99686	□ A-92 WPWG □ ^p B ³ 93 WPWG
protection excludes the justifiable needs of natural-resource of recreational users and the tourism industry for the acquisition on the basis of some non-habitat criteria.	Of lands D. D. PAG

We request that this definition be expanded to include these other **E**. MISC. needs. Perhaps the addition of the phrase "or areas related to injured resources or services" in item (3) of Proposed Threshold Criteria Set A (04/20/92) would be suitable if amended to "or areas related to injured resources (other than biological) and services (other than biological)."

3. AWRTA is concerned that the Acquisition of Equivalent Resources may be employed to change the nature of existing recreational and tourism activities. The construction of tent platforms would have an adverse impact on outdoor recreation schools which teach low-impact camping (Option 12). Option 12 is an excellent example of the type of restoration or enhancement project opposed by AWRTA because its effect is to further damage recreational users, outdoor education schools, and tourism businesses already hurt by the spill. More acceptable options would be: 1) acquisition of comparable lands from private landowners to be managed in an undeveloped manner; 2) development of a clean beaches program for removing garbage from beaches used by recreational boaters and the tourism industry (most of this garbage drifts ashore and is not left by recreational users and tourism companies); and 3) Option 6.

4. It is unclear to us how the monitoring of the effects of an action on other resources will be done. We are concerned that planning for the restoration of one resource may be done by resource experts in that field without adequate analysis of the effects of the proposed project on other resources. We are also concerned about how a project once it is undertaken will be monitored to determine the effects on other resources. For example, Agayuut Bay in Eaglek Inlet used to be a popular destination for recreational boaters and commercial outfitters. However, since the siting of a commercial shellfish operation in the bay, commercial tourism operators have ceased using this bay. How can the absence of a use be monitored especially if responsible resource agencies have not collected data on preexisting use? Or another example - the construction of hatcheries tends to lead to a reduction in watchable wildlife such as river otters, mink, deer, bear, harbor seals, etc. in the area. How will adverse effects on the recreation and tourism industry's ability to find watchable wildlife be monitored?

AWRTA requests that an analysis of the effects of any proposed action on another resource or resource user be included in the decision-making

AWRTA, P.O. Box 1353, Valdez, AK 99686

process and be an integral part of a required monitoring element of any project undertaken. It is possible that this could be achieved through the NEPA process, at least for the planning aspect.

5. AWRTA prefers concurrent consideration of the habitat and land acquisition alternative in the restoration process.Restoration of natural resources (scenic quality, wilderness, etc.) and services lost by recreational users and the tourism industry should not be postponed until after all resources lost by other groups are first satisfied.

6. AWRTA prefers "Proposed Threshold Criteria Set A (04/20/92) version A with the following changes:

(3) The parcel contains key habitats ADD: "or areas related to injured resources (other than biological) and services (other than biological)"

In the explanation of (3) we are concerned about the meaning of the phrase "substantially similar service." There needs to be some criteria for determining what is a "substantially similar service." As noted above, AWRTA's members would regard additions to the Chugach National Forest's proposed wilderness area a "substantially similar service" whereas we would not regard the construction of tent platforms or cabins a "substantially similar service."

Thank you for the opportunity to comment.

Respectfully submitted,

Many to ficture

Nancy R. Lethcoe, President

cc: Connell Murray, Division of Tourism Karen Cowart, Alaska Visitors Association Marilyn Hoeddel, Prince William Sound Tourism Coalition

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Mr. Dave Sibbons Restration Tham 645 6 Street Queborage, Alaska 99501

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1993 OJECT 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:

	Document ID Number
EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL	920615297
FORMAT FOR IDEAS FOR RESTORATION PROJECTS	A-S2 WPWG B-93 WPWG
Title of Project:	C-RPWG
DAMAGE ASSESSMENT)	D E-MISC.

Sockeye Salmon Overescapement

Justification: Following the closure of commercial fisheries after the EXXON Valdez oil spill, excessive escapement of sockeye salmon into the Kenai and Kodiak systems may have overtaxed the lake rearing or spawning areas creating poor survival and possibly major declines in future sport, subsistence and commercial fisheries. Detailed justification is outlined on page 75 of the April 1992 Draft Work Plan. This is a continuation of existing projects.

Description of Project: Smolt enumeration and fry abundance on important sockeye salmon lakes on Kodiak Island and the Kenai Peninsula are continuing. These include systems that have had overescapement as well as those that have not. In addition, the limnology of the lakes is being studied to determine the relationship of food resources, nutrient status, and physical parameters to failing sockeye salmon production. Detailed methods and project description are contained in page 75 through 82 of the April 1992 Draft Work Plan.

Estimated Duration of Project: Through 1996, started in 1990

Estimated Cost per Year: Current costs are approximately \$641K including administration. Future costs depend upon this years findings. No major increases are anticipated. Significant decreases are possible. See comment below.

Other Comments: A proposed expansion to further investigate cause of the Kenai sockeye salmon decline is proposed (47 K). This is primarily for obtaining sophisticated plankton counting equipment for determining vertical distribution of zooplankton throughout the season in selected major Kenai Peninsula glacial lakes that received excessive numbers of spawners or are acting as controls. An attached description of the problem is included.

Name, Address, Telephone: Dr. Dana Schmidt Mr. Ken Tarbox 34828 Kalifornsky Beach Rd., Suite B ALaska Dept. of Fish and Game Soldotna, AK 99669 (907) 262-9368

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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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.*
- 2. Consistency with applicable Federal and State laws and policies.*

Comments:

	Document ID Number
EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL	920615297
	A-S2 WPWG
FORMAT FOR IDEAS FOR RESTORATION PROJECTS	B-93 WPWG
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Title of Project:	D D-PAG
Genetic Risk Assessment of Injured Salmonids	
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Salmonids, including pink and chum salmon, Dolly Varden, and cutthroat trout, suffered both direct lethal and sublethal injuries as a result of the Exxon Valdez oil spill (EVOS). Pink salmon embryos and alevins suffered increased mortality, diminished growth, and a high incidence of somatic cellular and genetic abnormalities as a result of spawning ground contamination and rearing in oil areas. Dolly Varden and cutthroat trout also showed substantial increased mortality in the oil-affected areas. Additionally, cutthroat trout from oiled sites grew up to 68% slower than fish from control sites.

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

Reproductively isolated populations are by definition self-recruiting--the adults generally do not stray to repopulate depleted areas. Therefore, basing management decisions on known population and genetic structure is critical to facilitate successful restoration and to guide restoration management decisions including commercial harvest management and sportfish regulations. This project would provide the necessary information to define the genetic structure of pink and chum salmon, Dolly Varden, and cutthroat trout in the EVOS-affected area; identify those population segments which are most critical to the species; and to provide genetic risk assessment and monitoring of management and supplementation programs for each species.

Pink salmon sampling will be designed to include both early and late stocks and intertidal and upstream-spawning stocks. Chum salmon will be collected from the one hatchery broodstock and approximately ten wild stocks. Ten Dolly Varden populations and approximately five cutthroat populations will be sampled in a non-lethal manner. Genetic techniques will be utilized to survey both nuclear and mitochondrial markers.

Estimated Duration of Project: 4 years

Estimated Cost per Year: \$ 408,000

Name, Address, Telephone: Jim Seeb, Principal Geneticist Lisa Seeb, Statewide Geneticist Alaska Dept. of Fish and Game 333 Raspberry Road Anchorage, AK 99518 267-2385

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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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:

EXXON VALUEZ OIL SPILL TRUSTEE COUNC EXXON VALDEZ OIL SPILL TRUSTEE COUNC

tle of Project:

jury to salmon eggs and pre-emergent fry in Prince William Sound laboratory verification.

Justification:

Field evidence collected under NRDA project FS2 indicates possible genetic damage resulting from exposure to oil during early developmental life-stages. The observed consequence of this putative genetic damage is increased sterility. This hypothesis is consistent with previous laboratory experiments and observations on herring chromosomes made by NRDA project FS11.

Description of Project:

The proposed project involves 3 separate experiments that will assess the amount of genetic damage in pink salmon caused by exposure to crude oil. The first experiment examines the effects of six levels of intertidal gravel contamination and two durations of exposure on responses to various life history stages, including fertility. Salmon will be exposed while incubating in contaminated gravel, and reared to maturity. The second experiment will determine if fish fed oiled food for 6 weeks experience similar biological responses to those in experiment one. The third experiment determines if there is evidence of differential gamete survival to emergence between ten randomly paired families for five different treatment regimes.

sults from the first study relates the amount of genetic damage and osequent loss of vigor to the experience of the 1989 brood year in Prince William Sound. The second study develops similar relationships for the fish that emerged, in April 1989, immediately after the oilspill (1988 brood year). The final experiment detects differences between families and assesses the potential for genetic damage among pink salmon on the population level in Prince William Sound.

Estimated Duration of Project:

The total time required for this study is 3.5 years. Experiments 1 and 2 require that fish be raised to maturity, and the progeny be incubated to emergence. Experiment 3 will be completed when the F1 emerge in the early winter of 1992-1993.

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Estir	nate	d Cost	per Year:	
		NMFS	ADFG	
Year	1:	54.2	86.6	
Year	2:	322.1	135.4	
Year	3:	200.4	79.4	
Year	4:	107.4	57.6	

Name Address and Telephone:

Dr. Stanley Rice National Marine Fisheries Service, Alaska Fisheries Center 11305 Glacier Hwy, Juneau, Ak. 99821

907-789-6020

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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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- 2. Technical feasibility.*
- 3. Consistency with applicable Federal and State laws and policies.*

Comments:

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

FORMAT FOR IDEAS FOR RESTORATION PROJECTS

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Name, Address, Telephone: <u>Richard M. Kocan</u> <u>Schol of Ficheries HF-15</u> <u>Liniversity of Wishington</u> <u>Scattle</u>, 1009 981 195

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.

UNIVERSITY OF WASHINGTON SEATTLE, WASHINGTON 98195

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7 June 1992

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

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, Luca.

RICHARD M. KOCAN, Ph.D. Aquatic Toxicology

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

<u>Title of Project</u>: 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 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

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

Phone (206) 685-2984 FAX (206) 685-3275

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UNIVERSITY OF WASHINGTON Seattle, Washington 98195 JUN 11 REC'D

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Dr. David R. G. bbons Document ID Number Exxon Valdez Oil Spill Restoration Team 645 "G" Street Anchorage, Alaska 99501

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Lead Agency . ADF & G

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

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Comments:

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL	<u>42061529+</u> 02
FORMAT FOR IDEAS FOR RESTORATION PROJECTS	A-S2 WPWG
	B-93 WPWG
Title of Project:	🖸 C-RPWG
Prince William Sound (PWS) Herring Egg Loss Survey	D-PAG
Justifications (Link to Injured Descurse or Service)	U E-HISC.

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

991. Randomly placed transects are repeatedly sampled for egg density at the same stations at .wo 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).

™ame, Address, Telephone:

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

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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:



- Justification: (Link to Injured Resource or Service) A series of confounding variables in data and other problems in various projects are making it difficult to interpret results and develop appropriate statistical procedures. Data from various disciplines must be considered jointly to understand where oil accumulated after the EVOS and to determine to what extent that oil affected benthic organisms. Some of the oil data presently available are not consistent with the known EVOS trajectory and the bays known to have been oiled. Nevertheless, data from several projects suggest the presence of Exxon Valdez oil from 40-100 m in bays considered to be, or observed to have been, oiled. For example, bile samples from benthic fishes within selected oiled bays within PWS suggest that fluorescent aromatic compounds occur in fishes at these sites. Ultraviolet fluorescence data for 1990 sediment samples reported by Dr. D. A. Wolfe (NOAA) semiquantitatively indicate the presence of oil at 40 and 100 m at sites sampled for benthos. Dr. Joan Braddock's data on hydrocarbon degrading bacteria generally showed presence of oil at most oiled sites sampled for deep benthos. Deep benthic macrofaunal data suggest oil effects at 40 and 100 m at sites sampled by Dr. Wolfe and some sites sampled by Dr. Braddock and the NOAA flatfish studies, but sediment data introduces confounding effects that must ultimately be separated from oil effects.
- Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach) The intent of this project is to convene a workshop to discuss and resolve the many problems that exist in interpretation of benthic data. Oil data must be discussed and its reliability assessed. In particular, the workshop should address statistical procedures that would enable investigators to effectively interpret their data. It will be especially important, relative to shallow and deep benthic projects, to develop statistical procedures that will separate sediment effects from oil effects on the benthic macrofauna. A minimum of three days should be allotted to the workshop and a working paper should emerge as the workshop output. The workshop should be lead by a proven, successful workshop leader.

Estimated Duration of Project: A minimum of three (3) working days

Estimated Cost per Year: <u>Approximately 3300,000</u>(This presupposes that all of the agency personnel in the above list and those with funded projects will support their salaries, per diem, and travel.)

Other Comments:

Name, Address, Telephone Howard M. Feder Institute Marine Science University of Alaska Fairbanks Fairbanks AK 99775 (907) 474-7956

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.

ID # 9206/0230-02

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	COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS	• #
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1993 PROJECT SCORING SHEET

920610230-02

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	1.	Linkage to	resources	and/or	services	injured	bγ	the	Exxon	Valdez	oil	spill.
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2. Technical feasibility.*

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

Comments:

* <u>Restoration Framework</u>, 1992, pp 43-44.

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL

IDEAS FOR RESTORATION PROJECTS Same as 920615297-77

Title of Project: Experimental Studies of Interactions Between Subtidal Epifaunal Invertebrates.

Justification: (Link to Injured Resource or Service)

Changes in the population structure of subtidal epibenthic invertebrates occurred as a result of the EXXON VALDEZ oil spill. Many of these changes persist, and their impact on other trophic levels and potential for recovery are difficult to predict.

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

<u>Goals</u>: Determine ecological interactions among key species in the shallow subtidal community in order to assess direct and indirect impacts of the oil on these and associated species, and to predict the rate and course of recovery.

<u>Objective</u>: Conduct experiments to examine interactions among eelgrass, mussels (*Musculus*), helmet crabs, and starfish in the shallow subtidal community. Determine feeding relationships among species, determine the impact of decreased crab and leather star abundance on the population density of other species, and determine the importance of increased *Musculus* abundance on other species.

<u>Location</u>: Experiments will be carried out at one site (either Herring Bay or Sleepy Bay) within the eclgrass habitat in Prince William Sound.

<u>Rationalc</u>: Population densities of several species (eg. celgrass, helmet crabs, and leather stars) declined as the result of oiling, while others (juvenile Pacific cod, juvenile sunflower sea stars, and mussels (*Musculus*) increased. Many of these changes persist. We suspect that the changes observed are a result of direct effects of oil as well as indirect effects such as predator-prey interactions. However, the interactions among species and the effects of changes on higher trophic levels are poorly understood. As a result, interpretation of the overall ecological effect of the changes to subtidal populations, and assessment of recovery, are limited.

<u>Technical Approach</u>: Three or more experiments will be conducted to examine the interactions among epibenthic species in the shallow subtidal colgrass community. These experiments will entail the removal of erabs, the removal of *Musculus*, and the removal of starfish from within experimental plots in the shallow subtidal, and the subsequent monitoring of the effects of removal on other species. In addition, we will make quantitative observations of feeding by fish and birds; larvae settlement by *Musculus*, juvenile cod, and juvenile starfish; and gut contents of fish, starfish, and crabs within the experimental plots and at the site in general.

Estimated Duration of Project: One year

Estimated Cost per Year: \$90,000

Other Comments: This project will benefit from possible shared logistical costs with other restoration projects being carried out in Prince William Sound. This will be a cooperative effort with Mr. Stephen Jewett of the University of Alaska.

Name, Address, Telephone:

Dr. Thomas A. Dean Coastal Resources Associates 2270-L Camino Vida Roble Carlsbad, CA 92009 619/438-0588

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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COVER WORKSHEET FOR 1993 IDEA SUBMISSIONS

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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:

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
FORMAT FOR IDEAS FOR RESTORATION PROJECTS
Title of Project: ". Long - tein opidemiology study to montor health
Justification: (Link to Injured Resource or Service) of Oil spill workers Direct link to injuries caused by cleanup
Description of Project: (e.g. goal(s), objectives, location, rationale, and technical approach)
See 676 in 104-01
Estimated Duration of Project:
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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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Illness tied to Exxon cleanup is cited in spate of lawsuits

By William P. Coughlin CLOBE STAFF

A handful of volunteer Alaska oilspill workers and a tugboat captain, who have filed suits claiming they were poisoned by exposure to a combination of crude oil vapor and toxic cleanup agents after the Exxon Valdez spill, may constitute the tip of a legal iceberg.

Three suits seeking millions of dollars in damages have been filed in Alaska and federal courts. Environmentalists and people involved in the cleanup say many more such suits may be filed as potential victims trace illnesses back to their oil spill work.

Randall Scarlett, a partner in Melvin Belli's San Francisco law firm, is bringing one of the three suita, "and we are getting five calls a day on these types of cases.... We alone could end up with 200 to 300 of these cases."

. Belli said his firm already has upwards of 1,600 suits stemming from the spill, most of them sgainst Exxon Corp. on behalf of fishermen, cannerics, and other businesses that, had losses.

Named as defendants in the three personal injury suits are Exxon Corp. and two subsidiaries, Exxon Shipping Co. and Exxon Pipeline Co.; Veco Inc. of Anchoruge, Exxon's hired supervisory. cleanup firm, and Arctic Tug and Barge Co., also of Anchorage.

An Exton spokesmun in Houston declined comment, saying he wondered "why the toxic exposure lawsuits made news." However, officers for other firms explained their posttions in interviews.

Scarlett and George M. Kapolchok, an Anchorage lawyer, have filed one suit on behalf of Timothy Jon Burt of Juneau and his wife, Laurie Anne. Burt worked for Martech Inc., a firm employed by Exxon to assist in the cleanup, cleaning sludge inside large enclosed tanks with high pressure jet eprayers.

The complaint says Burt suffered "devastating permanent and totally diabling injuries" and "must rely on compressed or concentrated oxygen to sustain his life." In accusing Excon of negligence in hiring an "incompetent firm," Burt's claim also says that his wife had to quit her job to cure for him. In a complaint filed against Veco, Curmen Olsen of Fairbanke says she becume severly ill while she was working for Veco using chemical solvents to clean clothes used by workers who had used the chemical Inipol to help clean up the oil spill. She said she continues "to this day to suffer diminished lung capacity, dizziness, skin lesions, headaches and neurological disorders."

Veco's president, Pete Leathard, commenting on the suit, said, "We're in the process of working to determine if people really got sick as a result of Inipol." Leathard said the chemical is a fertilizer used to promote bacteris growth to break down the oil.

Leathard conceded that other suits have been filed by people who describe similar symptoms. "But whether it was caused by the fertilizer or some other reason, I don't know," Leathard said. He said Veco provided safeguards, protective clothing and breathing sparatus for its workers, and "our position is we don't see how it could have caused any problems."

In the third case, a federal suit filed against Arctic Tug and Barge Co., Thomas Pickworth of Anchorage, son of one of the owners of the company, makes claims similar to Olsen's. Pickworth's suit says that after "exposure to toxic compounds ..., he became extremely ill... and is

We are getting five calls a day on these types of cases.... We alone could end up with 200 to 300 of these cases.'

> RANDALL SCARLETT San Francisco lawyer

completely disabled from duty as a seaman in any capacity."

His tugboat and barge were leased by Exxon for the cleanup.

Jo Anne Pickworth, secretary treasurer of the firm and Thomas Pickworth's stepmother, said he became sick after Exxon sprayed some chemical from a helicopter.

"They thought it was flu," Jo Anne Pickworth said, and later arJo Anne Pickworth said Thomas eventually was examined by a doctor who diagnosed his symptoms as those of chemical reaction, and he was sent to a Dallas clinic where he is under treatment.

"Everyone who sustained damage was injured by either aspiration of oil itself – that is, actually getting liquid into their lungs – or by inhalation of fumes evaporating from the product," Scarlett said.

He said the victims were poisoned by a "synergistic" combination of toxins - fumes, including benzine, toluene, xylene, and other components of crude oil, and by fumes from supposedly harmless cleaning agents the workers were given to scour away the oil itself.

"There is no doubt some of these individuals are going to die," he suid.

He said only one treatment center in the nation, headed by Dr. William Res in Dallas, specializes in these casen, and they now are getting "increasing numbers of calls from people who were exposed up there." Rea declined to comment.

David Driver of Augusta, Ga., said he became sick after he managed a Veco Co. barge that housed oil spill workers, but hus recovered. He estimates that 12,000 people were "unnecessarily" exposed to toxins.

The crucial part of the sloty, he said, "is that these people volunteered and were trying to clean up the environment, and now they are getting very sick."



Oil Reform Alliance 211 4th Street, Suite 112 Juneau, Alaska 99801 THE BOSTON SUNDAY GLOBE . MAY 10, 1992.

Valdez cleanup linked to ailments

13

Doctor blames exposure to combination of oil, cleaning agents; 1 death cited

By William P. Coughlin

A doctor who specializes in treating victims of petrolenin-related poisonings says he knows of one death and he expects a growing toll among those who cleaned up the Exxon Valdez of spill.

The cardiovascular surgeon said he is treating six serious cases and expects "hundreds more patients" suffering from the combined exposure to oil and toxic cleanup agents used to combat it. In a telephone interview Friday, Dr. William

J. Res of Dallas, said he could confirm one death. "This is extremely serious. People need to wake up." Rea's Texas clinic is the nation's only facility specializing in treating victims of the combined toxins from crude oil and cleanup themicals The Globe reported last month that a number of people who participated in the cleanup had become ill, and that their illnesses were being attributed to the combined toxic effects of the oil spill and chemicals used in the cleanup. Rea said two more persons, it 54-year-old woman and her 20-year-old son, have been diagnosed by him, in addition to the victims identified; in the earlier report.

The two new patients, Jacqueline X. Payne of Kenai, Alaska, and her son, Jacob, of Soldotna, Alaska, contacted the Globe and urged that the paper publicize the problem. Both said they believe there has been an oil industry coverup of the Illnesses.

Both mother and son were volimiteers on an Excon cleanup barge, and say they worked with out protective masks or respirators cleaning the Dr. William Rea said the worst case his clinic is treating from the spill is that of a 24-year-old man who 'is on oxygen because he can't breathe.'

equipment used by other workers. The Paynes cleaned the oil with Inipol, an agent that Excon and its contractor, Veco, Inc. brought in to clean on the spill

In a signed diagnosis prepared for invyers in Melvin Bellia San Francisco office which the Faynes released to the Globe - Rea said the Paynes symptoms "began after working in the Alaska oil spill." In addition to other linestits apainst Exkon, the Paynes will join other allegod victims in a separate suit being filed by Bellis firm

Both said in Interviews that theirs are not iso lated cases, and Jacqueline Payne said she knows of "hundreds more people who volunteered, to work on the spill who are now getting sick because of it."

Rea said the Alaska situation was particularly disturbing because of the so-called synergistic effect of combined poisons. No one knows which toxins or which combinations will be synergistic. But, there will be a situation where one adds to we another ... and another, and so on "

The doctor said it was "ridiculous" for Pete Leathard, president of Veco, to deny that Inipol is toxic. Last month, in an interview with the Globe, Leathard, citing protective steps be said the firm took; said of Inipol: "Our position is we don't se how it could have caused any problems."

According to an Exxon Co. document obtained by the Globe, Inipol is not only carcinogenic, but if inhaled, "may result in dizziness, headache and respiratory irritation, to unconsciousness and possibly death." The document contains a federal Odcupational Safety and Health Administration warning that exposure to the product may cause "eye and skin irritation and blood and kidney damage."

Rea said the worst case his clinic is treating from the spill is that of a 24-year old man who, as a result of his exposure to oil and the cleanup agent, "is on oxygen all the time because he can't breathe."

Asked why patients are turning up at his cli with oil-spill-related symptoms three years af the March, 1989 spill, Rea said, "if you look at them, you can see they had started getting sick when they worked on that spill."

Rea said afflicted persons have been gradually getting sicker, "I know there's a lot of people out there with similar circumstances ... but it's a long way from Alaska to Dallas," he said.

ef-He said the Alaska spill-related illnesses are ich Dike a textbook of medicine. We have seen ich people with arthritis, heart irregularities, stroke to symptoms, colon, problems, bladder problems, muscle aches, and all sorts of pains."

And Daily Raiss 4/10/92 Oil-spill workers sue, claim chemicals made them sick

By ROSANNE PAGANO The Associated Press

A group of Exxon Valdez cleanup workers is seeking millions of collars in compensation for illnesses they say are linked to exposure to truce oil fumes and cleaning agents.

The suits filed in federal and state courts name Exxon Corp., Exxon Shipping Corp. and Exxon Pipeline Co., as well as two local contractors



that supplied cleamup help following the it-million-gallon spill in 1989.

An Excon spokesman in Anchorage declined comment Wednesday on the pending lawsuits, except to

say that throughout the cleanup - which is entering its fourth year - the compaay believed it and its contractors had complied with salety regulations.

One of the lawsuits is set for trial in state court here next month. It asks unspecifled camages for an Augusta, Ga, man who came north tomanage a barge that housed cil-spill workers.

Anchorage-based lawyer

George M. Karolchok said Wednesday his client, Cavid Dr.ver. has lingering skin problems caused by exposure that Kapolchok says violated Occupational Safety and Health Administration rules.

Driver's suit names the local oilfield service company Veco International

Yeee was Excens prime contractor for the multibil-tion dollar clearup stem?

ming from the Excon Valdez tanker accident. It was the worst oil spill in U.S. histo-TY.

Pete Leathard, Vaco president, said Wednesday the company tested its workers and provided protective clothing and gear to guard against toxic exposure.

"To my knewledge, everything was deemed safe," Leathard raid.

Please and Page B-3, SPILL

SPILL: Exxon Valdez cleanup workers file lawsuits, allege chemicals make them sick

Continued from Page 8-1

Driver told Valdes radio KCHU he was caplain of a barge that housed workers cleaning oily beaches with a chemical known as Inipol.

Although the crew wastold it was sale, Driver said he rejused to work anywhere near an inipol site after he found out the chemical occasionally caused blood to show up in workers' urine.

Kapolebok said he also was representing Timothy

he get sick two years ago while working at a cleanup site in Seldevia, about 150 miles southwest of Anchorare on Kachemak Bay.

The suit asks for compensation for pain and suffering for Burt and his wife, Laurie-Ann, as well as the costs of . , medical care and rehabilitatlen.

"I believe Tim is worse of! than 'a quadriplegic,' Kapolchok said.

"We've got a guy who is permanently disabled at 52 and child. He has severe headaches, he's not to drag groupd an exygen tank and he's got a whole host of other problems," Kapo.chok said.

Burt says he was working for Anchorage-based Martech Inc. in June 1989 when be was given only a rain suit and a paper filter mask as he was sent in to clean crude oll residue collected in two tanks.

The lawsuit says one of the tanks was 14 feet tall Burt of Juneau, who claims years old, who's got a wife and had a hatch in the root

spent about three hours in one tark and about 90 minutes in the other. He used a high-pressure steam hose that, Kapolchek claims, forced toxic vapors into the air for Burt to inhale.

Complaints about improper gear and safety procedures date to the earliest phases of cleanup, when crews returning from olly Prince Will.am Sound beaches said crude oil furnes were making them sick.

Ercie Piper, who was assigned to monitor the clean-

for ventilation Burt says he "up is an aide to then Gov. Steve Cowper, jaid Wednesday the first six weeks lollowing the spill were "a confusing time."

"My personal bellef is there was insufficient monitoring of workers then but not knowingly, or negligent-

ly, '-P.per said. "It was just that noncdy knew what they were dealing with. It was a confusing. time."

Piper, who recently resigned after nearly two years as the states on-scene coordinator, said he did not

know specifics of the latest tow sults.

Bul he said workers assigned as late as July following the spil, in March might still have been exposed to erude oil irr.tints such as benzene.

""'ve been plenty critical of Exzon for a lot of things," Piper said, "but for the most part, given the hardships of what was out there and minning a safety program, they did a pretty good job. They were genu-.nely careful.'



Workers allege illnesses tied to Exxon Valdez cleanup

By RCSANNE PAGANO

ASSCICATED PEESS

A group of Exxon Valdez cleanup workers is seeking millions of dollars in compensation for illnesses they say are linked to exposure to crude oil turnes and cleaning agents.

The suits filed in federa: and state courts name Exxon Corp., Excen Shipping Corp. and Excen Pipeline Co., as well as two local contractors that supplied cleanup help following the nearly 11 million gallon spill in 1989. It was the worst oil spill in U.S. history.

An Econo spokesman in Anchorage declined comment Wednesday on the pending lawsuits, except to say that throughout the cleanup — which is entering its fourth year — the company believed it and its contractors had complied with safety regulations.

Cne of the lawsuits is set for trial in state court here next month. It asks unspecified damages for an Augusta, Ga., man who came north to manage a barge that housed oil spill worker3.

Anchorage-based lawyer George M. Kapolchok said Wednesday bis client, David Driver, has lingering skin protlems caused by exposure that Kapolchok says violated Occupational Safety and Health Administration rules

Dr.ver's suit names the local

oilfield service company VECO International

VEOD was Exxon's prime contractor for the multibillion-dollar cleanup stemming from the Exxon Valdez tanker accident. VECO International is owned by Bill Allen.

Pete Leathard, VECO preai-See Cleanup, back p

Cleanup

Continued from page A1

dent, said Wednesday the company tested its workers, and provided protective clothing and gear to guard against toxic exposure.

"To my knowledge, everything was deemed safe," Leathard said.

Driver told Valdez radio KCHU he was capping of a barge that housed workers cleaning oily beaches with a chemical known as Inipol.

Although the crew was told it was safe, Driver said he refused to work anywhere near an Inipol site after he found out the chemical occasionally caused blood to show up in workers' urine.

Kapolchok said he also was representing Timothy Burt of Juncau who claims he got sick two years ago while working at a cleanup site in Seldovia, about 160 miles southwest of Anchorage or Kachemak Bay.

The suit asks for compensation, for pain and suffering for Bort and his wife, Laurie Ann, as well as the costs of medical care and rehabilitation.

"I telieve Tim is worse off than a quadriplezic," Kapolchok said.

"We've got a guy who is pennanently disebled at 32 years old, who's got a wife and child. He has severe headaches, he's got to drag around an oxygen tark and he's got a whole host of other problems," Kapolchok said.

Burt says he was working for Anchorego-based Martech Inc. in June 1959 when he was given only a rain suit and a paper filter mask as he was sent in to clean crude oil residue collected in two tanks.

The lawsuit says one of the

tanks was 14-feet-tall and had a hatch in the roof for ventilation. Burt says he spent about three hours in one tank and about 30minutes in the other. He used a high-pressure steam hose that. Kapoichok claims, forced toxic vapors into the air for Burt to imhale.

The Boston Globe reported Sunday that Melvin Belli's San Francisco law firm was receiving cells daily from former cleanup workers and had taken at least one of the lawsuits.

Complaints about improper gear and safety procedures date to the earliest phases of cleanup, when crews returning from oily Prince William Sound beaches said crude oil fumes were making them sick.

Ernie Piper, who was assigned to monitor the deanup as an aide to then-Go*. Steve Cowper said Weinesday the first six weeks fol-

lowing the spill were 'a confusing time."

"My personal belief is there was insufficient monitoring of workers then, but not knowingly, or negligently," Piper said.

"It was just that nobody knew what they were dealing with: It was a confusing time."

Piper, who recently resigned after nearly two years as the state's on-scene courdinator, said he did not know specifics of the latest lawsuits.

But he said workers assigned as late as July following the apill in March might still have been exposed to cruce oil irritants such as benzene.

"I've been plenty critical of Excon for a lot of things," Piper said, "but for the most part, given the hardships of what was out there and running a safety program, they did a pretty good job. They were genuinely careful."

