ALASKA DEPARTMENT OF FISH AND GAME
HABITAT AND RESTORATION DIVISION
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FAX COVER SHEET

TO: Rod Kuhn Date: 5/16

No. of Pages: 14
(following this page)

☐ R1 ☐ R2 - Hab. ☐ R2 - Rest. ☐ R3 ☐ SPCO ☐ CACI ☐ All Rest. Team ☐ All Trustee Council

FROM: Jerome

MESSAGE: Hard Copy to follow

Exxon Valdez Oil Spill Trustee Council

Restoration Office
645 "G" Street, Anchorage, AK 99501
Phone: (907) 278-8012 Fax: (907) 276-7178

13 May 1994

TO: Rod Kuhn, EIS Coordinator

FROM: for Carl Rosier, Commissioner ADF&G Kevin Brooks

SUBJECT: Review of Preliminary Draft Environmental Impact Statement

Pursuant to your memorandum of April 30 attached is the Alaska Department of Fish and Game's review comments on the preliminary Draft Environmental Impact Statement for the Exxon Valdez Oil Spill Restoration Plan. While we reviewed the document principally for policies, assumptions, and conclusions, we made grammatical changes where they helped to clarify the sentence yet did not change the intent. We kept grammatical changes to a minimum. The comments are of both general and specific nature. Should you have questions about our comments, please contact Ken Chalk, Habitat and Restoration Division, Anchorage directly at 267-2421. He coordinated the internal review process. Detailed, department-wide, review comments will be provided during the formal DEIS review period.

I am impressed with the work you and other members of the interdisciplinary team did on this document. To stay within the compressed time schedule and still do a thorough job is a commendable accomplishment. Please pass on my appreciation to other members of the team.

Attachment

cc: C. Meacham
F. Rue
J. Montague
K. Chalk
B. Hauser

ADF&G Review of pre-DEIS for EVOS Restoration Plan

General Comments

Need Glossary to explain technical terms

amphipod — order	callianassid —	cataract
emergence — sub-order	escapement	eyed stage
gammarid —	isopod	juvenile
long-term	overescapement	pre-smolt
redd	sac-roe	short-term
smolt	sphaeromid	

Need a list of Acronyms

Beginning with page 2, page numbering is not consistent. Appears that pages on left have page number before chapter number.

Check for omitted words. Recommend use of a grammar checker. They are a lot of work but well worth the time. WordPerfect 5.2 and above have one built in.

Some words may be omitted without changing the meaning of the sentence. Check for comma splices (grammar checker will help here).

Throughout the document the terms short- and long-term are used without explaining how these levels of benefits were calculated. Explain.

Alternative 5 is exceptionally well-written.

The term "parcels" brings up the question of "how big is a parcel"? How many acres (or hectares)? Can they be identified in a table with a number and their sizes?

Specific Comments

Chapter 1

Page 1 Paragraph 1. First sentence should read "The *Exxon Valdez* **Oil Spill** Trustee Council . . ."

Paragraph 3. First sentence should read "The purpose of the . . . remaining funds (approximately $620 million ~~after final reimbursements~~) should be . . ."

Page 5 Paragraph 2. First sentence should read ". . . studies during the **spring and** summer of 1989 . . ."

Paragraph 3. Second sentence should read ~~Following~~ "As directed by the . . . Trustee Council ~~decided to continue development~~ developed a restoration plan and ~~to allow for~~ obtained public participation.".

Page 6 Under General restoration. Second sentence should read "It also includes . . . use of affected **resources and** areas, such as . . ."

Under Monitoring and research. Third sentence should read "Restoration research . . . in the design, ~~develop~~ **development**, and ~~implement~~ **implementation** of new . . ."

Under Administration and public information. Second sentence should read "As more projects . . . allocated to management and administration ~~increases~~ **decreases.**"

Page 7 Paragraph 2. Second sentence should read "Site-specific actions by the Trustees may be subject . . ."

Page 11 Paragraph 1. First sentence is ideally true, but would it be necessarily true in order for a project to be approved? For example, recovery of sea otters could adversely impact shellfish resources.

Paragraph 1. Second sentence should read "The benefits to these other resources . . . their habitat **and increasing their food supply** as a secondary ~~benefit~~ **benefits** of restoring . . ."

Issue 5:. After second sentence add the following sentence "**Subsistence users also report declines in the abundance of many subsistence resources.**"

Page 12 Under Impact Topics Studied by the EIS, the first two sentences and Table 1-1 are misleading. Readers might assume that these were the only species studied or injured. They would then wonder why we might study mussels or clams or helmet crabs, for example.

Paragraph 3. Second sentence should read "In the Draft . . . status, not by measured population decline."

Page 14 The list of resources and services is confusing. It implies that only those specific fish, marine mammals, birds, and services will be analyzed for impacts while a wide range of intertidal resources will be analyzed. Be more specific about those animals and plants included in intertidal resources.

The list of programs and plans, at the bottom of the page, should be in the same order as they appear in the findings (beginning on page 15).

The 1989 City of Whittier Coastal Management Program does not appear in the findings.

Eyak Lake AMSA Cooperative Management Plan appears in the findings but not in this list.

Page 19 Paragraph 1. Under - intertidal organisms should read "(other than clams, mussels, and *Fucus*)-no actions proposed,"

Chapter 2

Page 11 Paragraph 2. First sentence should read "Of the remaining . . . $93 to $124 million . . ."

Page 14 Table 2-1, Issue 3, Alternative 2. Change to read "Habitat Protection would . . and therefore ~~promote beneficial~~ **prevent adverse** ecological change to the largest degree." General restoration projects are intended to promote beneficial ecological change to the greatest degree.

Page 16 Remove note at bottom of Table 2-2 and add a row called **Total**; place **$620** at the bottom of each column.

Page 17 Table 2-3. Alternative 2 for Harlequin Ducks should read **Mod**, not **High**. Food, rather than nesting habitat is limiting for Harlequins. They do not eat fish eggs but they do eat mussels and oiled mussels may be involved in preventing recovery. Recovery of oiled mussel beds could have a larger impact.

Page 17 — Table 2-3, Issue 2 for Pacific Herring should read ~~Moderate~~ **Low-Moderate.** Most land uses would not affect herring though a few could have significant adverse effects.

Chapter 3

Page 4 — Paragraph 3. Fourth sentence is incorrect. These species are no longer abundant in Prince William Sound. They have been overfished by sea otters.

Page 6 — Under Clams. Insert the following sentence between the second and third. **However, in many instances cleanup activities destroyed nearly all the clams on oiled washed beaches.**

Page 20 — Paragraph 1. Second sentence states that management plans developed by the North Pacific Fishery Management Council become law. Perhaps this should be **regulation** since only Congress makes laws.

Page 46 — Table 3-2. Check spacing between columns.

Page 48 — FRED Division is now incorporated into Commercial Fisheries Management and Development Division.

Page 49 — Table 3-3 needs source.

Page 51 — Paragraph 1. Last sentence reads "The closure is expected to continue at least through 1993." Do you mean 1994, or should this sentence even be here?

Paragraph 2. Second sentence. Explain (briefly) why an overpopulation of fry would cause a dramatic reduction in smolt production.

Page 53 — Table 3-3 should read Table 3-4.

Chapter 4

Page 1 — Paragraph 3. Second sentence should read "In this programmatic . . . (2) private landowners ~~will~~ may harvest . . ."

Page 3 — Paragraph 4. Second sentence should read "Alternatives 1 through 5 . . . found in Table ~~3-3~~-4, Chapter 3, Page 3-53."

Page 4 — Paragraph 4. Are these the only key assumptions or is it just not possible to conduct an assessment that takes in the additional variation?

Page 4 Paragraph 5. Add **Page 4-6** to end of sentence.

Page 10 Paragraph 4. Last sentence. Define MVD.

Page 11 Paragraph 4. First sentence should read "In this alternative, . . . would remain ~~volatile~~ **toxic.**"

Paragraph 4. Last sentence should read "For instance, . . . not classified as "mussel beds". ~~and~~ No techniques **have been proposed** that would clean . . ."

Page 14 Paragraph 1. Second sentence should read "However, recent trend counts . . . near Tugidak Island **(vicinity of Kodiak Island)** give no indication . . ."

Last paragraph, Second and third sentences. How and why is Prince William Sound differentiated from the oiled portions of the EVOS area?

G ml

Page 17 Paragraph 1. Fourth sentence should read "The long-term effects . . . would **possibly** be a loss of . . ."

Paragraph 3. This sentence has nothing to do with the EVOS area. Delete.

Paragraph 6. Second sentence (bottom of page) states ". . . that unless this narrow zone is developed correctly . . ." This sentence should be deleted. This section discusses the No Action Alternative. No development will occur under this alternative. *I think he missed the point that lack of acquisition will likely lead to development of private lands*

G

Page 18 Paragraph 1. What predators are we talking about?

Paragraph 4. Were these known nesting sites or is this speculation? Explain. Is logging or development planned in the known nesting areas. If yes, are these areas ranked high for acquisition under some other alternative?

Paragraph 5. Second sentence should read. "However, projected logging . . . on the long term, ~~will~~ **may** prevent restoration . . . . ".

Bill

Page 20 Under Conclusions - long-term effects: Explain how long to recovery and why it will take that long.

Page 21 Paragraph 3 (top of page 22). "Harvest levels would remain at below prespill levels . . . . ". Explain why.

Paragraph 3. Next sentence. "Under this alternative, lands in the . . . some subsistence species would remain . . ." What are these species?

Bill

Page 25 — First paragraph. Commercial fishing. Discuss the effects of shifting efforts to other species (rockfish, for example).

First sentence Under Sport Fishing should read "If there is no action . . . service will depend on natural recovery rates . . ." Also, this sentence runs on. Too many "ands".

Under Sport Fishing - Conclusions - long-term effects. "Real or perceived recovery . . . may require 10 to 20 years.". What is this based on?

Page 25 — Last Paragraph. Last sentence should read "The quantitative analysis ~~follows.~~ **is shown on Table 4.3).**

Page 34 — Under Sockeye Salmon - Conclusions - long-term: First sentence should read "Habitat protection . . . wild-stock production; however, ~~fewer than half~~ about 21 percent of the individual . . . for sockeye salmon.".

Last paragraph. Last sentence should read "Although the average value of forested habitat . . . a high overall rating for ~~pink salmon~~ Pacific herring . . ."

Page 36 — Paragraph 1 under Subsistence. First sentence should show how many acres in each parcel ranking.

Paragraph 1. Next to last and last sentences refer to discussion of the effect of this alternative lies elsewhere in the DEIS. Explain where.

Last paragraph. Second sentence should read "Long term, the level . . . in this alternative ~~would~~ **may** allow for . . ."

Page 39 — First sentence. - long-term: Sentence should read "Habitat protection and acquisition actions ~~will~~ **may** have a long-term value . . ."

First paragraph under Economy is confusing (and contradictory). How can land acquisition have low to moderate effect on commercial and sport fishing and moderate effect on individual fish species recovery result in an overall moderate economic benefit?

Page 44 — Paragraph 2. Last sentence. How many acres in these 60 locations?

Paragraph 3. Second sentence should read "There have been no **EVOS** studies to determine . . ." Others have documented reproductive impairment in some sea birds after ingesting oil (Epply and Rubega, 1990; Fry and Addiego, 1988; Fry et al., 1986).

Page 49 First sentence under Birds should read "Under this alternative, . . . enhancing their productivity **potential** and subsequent . . ."

Last sentence under Harlequin Duck, Conclusions should read "The long-term effects of this alternative ~~would~~ **may** have a high . . ."

Page 51. Paragraph 1. Last sentence should read "A total of 53 percent **of the parcels** is rated as moderate or high value.".

Paragraph 2. Last sentence should read "A total of 60 percent **of the parcels** is rated as moderate or high value.

Under Conclusions - long-term effects: Sentence should read "Habitat protection and acquisition actions ~~would~~ **may** assist the recovery . . ."

Page 52 Paragraph 1. Second sentence should read "Therefore, the number of parcels . . . between 62 **and 81**. ~~and all parcels that are available.~~

Last sentence should read "A total of ~~17~~ 21 percent **of the parcels** is rated as moderate or high value.".

Paragraph 2. Last sentence should read "A total of ~~17~~ **21** percent **of the parcels** is rated as moderate or high value.".

Paragraph 4. Last sentence missing the reference.

Paragraph 6. First sentence should read "Although extensive . . . sites ~~at which~~ to ~~operate~~ **apply** this technique . . ."

Page 54 Under Pacific Herring Habitat Protection. Begin new paragraph after line 5.

Second sentence in new paragraph should read "Therefore, the number . . . range between 62 ~~parcels~~ and **81.** ~~that are available.~~ Last sentence should read "A total of 54 percent ~~is~~ **of the parcels are** rated as moderate or high value.".

Last sentence in next paragraph (new number 3) should read "A total of 63 percent **of the parcels** is rated as moderate or high value.".

Page 55 Under Conclusions - long-term benefits. First sentence should read "Habitat protection and acquisition actions ~~would~~ **may** have a long-term . . . by helping to assure maintenance of ~~production.~~ **reproductive potential.**".

Page 57 Under Habitat Protection, first sentence. How many parcels in each group (low, medium, high) and how many acres in each.

Page 58 Paragraph 1. What are the low, short-term and low to moderate long-term benefits based on? Explain.

F

Paragraph 1. Second sentence should read " Protecting lands . . . mining and logging ~~would~~ may help keep recovering . . ."

Paragraph 2. Second sentence. Is it also possible that land prices may be higher as well?

Paragraph 5. Last sentence. Reference the sections and give page numbers.

F Page 59 Paragraph 5. Fourth sentence should read "The long term benefit to ~~pink~~ sockeye salmon . . ."

B Page 63 Paragraph 3 under Sport Fishing. Second sentence should read "Therefore, the number . . . to range between 62 and 81 parcels . . ."

T Page 64 Paragraph 3 under Impact on the Economy. Second sentence. Is there such a word as "Respending"?

Paragraph 3. Third sentence should read "There is also spending, . . . final demand and 766 employees.".

Page 67 Paragraph 2. Second sentence should read "Increasing the protection . . . the spill area ~~will~~ may may be beneficial . . ."

Paragraph 2. Third sentence should read "The general restoration actions ~~can~~ may be beneficial . . ."

Page 69 Paragraph 3. Second sentence. See our comments for page 44, paragraph 3.

GERRY Page 75 Paragraph 2 under Murres. Last sentence should be deleted. Chapter 4 is a description of the Environmental Consequences of a particular alternative. The last sentence appear to be a justification for future projects.

alt 4 allows actions outside evos area
Paragraphs 3 and 4 should be rewritten to reflect problems within the EVOS-affected area. – outside EVOS OK in alt 4

Bill Page 77 Paragraph 3 under Pink Salmon. Second sentence should read "Therefore, the number . . . range between 34 and 81 parcels.", ~~and all parcels that are available.~~

Last sentence should read "A total of 53% of the parcels is rated as moderate to high value."

Paragraph 4. Last sentence should read "A total of ~~70%~~ 71% is rated as moderate or high value.".

Page 78 — Last paragraph on page. Second sentence should read "Therefore, the number . . . range between 34 **and 81** parcels. ~~and all parcels that are available.~~

Last sentence should read "A total of ~~17% is~~ 21% **of the parcels are** rated as moderate or high value.".

Page 79 — Paragraph 4 under Restoration Actions. Last sentence missing the reference.

Page 81 — Last sentence on page should read "Therefore, the number . . . range between 34 **and 81.** ~~parcels and all parcels that are available.~~

Page 82 — Under Conclusions - long-term. Sentence should read "Habitat protection and acquisition actions ~~will~~ **may** have a . . . of production.".

Page 85 — Paragraph 1 under Habitat Protection. Show how many parcels/acres in each ranking.

Paragraph 2. Last sentence should read "Protecting lands . . . ~~would~~ **may** help recovering . . ."

Last paragraph. Third sentence should indicate which sections and pages.

Fred Page 86 — Paragraph 1. Last sentence should read "Reducing disturbance . . . oil spill area ~~would~~ **may** have a . . . ".

7. Page 87 — Paragraph 3. Second sentence introduces the term "strong" short-term benefits. Is strong the same as high? At minimum, it should be defined.

Page 91 — Paragraph 1. First sentence should read "Development of new runs ~~will~~ **may** provide a . . . ".

Page 92 — Paragraph 1. Second sentence should read "Therefore, the number . . . range between 34 **and 81** parcels. ~~and all parcels that are available.~~

Third and fourth sentences indicate no additional benefit for sport fisheries if all 81 parcels are purchased. Explain why all 81 parcels should be purchased if there is no additional benefit. Is this really what is meant?

Page 95 — Paragraph 2. Second sentence should read "Habitat protection may provides protective benefits to ~~all~~ resources . . . EVOS ecosystem."

Page 95	Third sentence should read "Increasing the . . . spill area ~~will~~ may be beneficial . . ."
	Fourth sentence should read "The general restoration actions ~~can~~ may help resources . . ."
Page 96	Table 4-7. Sum of parcels on first line under Benefits does not equal 81. Are the remaining 4 of no value? Explain.
	Tables like this would be very useful in the four previous sections of Alternatives.
Page 97	Paragraph 2. First sentence should show the page numbers where this discussion on impacts may be found.
Page 98	Paragraph 2. Last sentence should show how many acres are contained in "Approximately 60 locations . . ."
	Paragraph 3. Second sentence should read "There have been no EVOS-funded studies . . ." See comments for page 44, paragraph 3.
Page 100	Table 4-8. Sum of parcels on first line under Benefits does not equal 81. What about the remaining 22?
Page 103	Table 4-9. Sum of parcels on first line under Benefits does not equal 81. What about the remaining 3?
Page 105	Paragraph 1 under Harlequin Duck. First sentence should read "Acquiring nesting . . . forested lands ~~would~~ may have the highest . . ."
	Paragraph 1. Do the high priority parcels contain known nesting areas? If not, explain why they are high priority.
Page 105	Delete the next four paragraphs. They are justifications for projects and do not belong in Environmental Consequences.
Page 108	Paragraph 1. First sentence. Change "cornerstone" to "keystone".
	Second sentence should read "On the long term, land acquisition containing critical nesting habitat is the . . ."
71%	Last paragraph. Last sentence should read "Of the parcels . . . ~~70% or more~~ are rated . . ."

Page 109 Last sentence in third paragraph under Comprehensive Restoration Actions is incomplete.

Page 110 Paragraph 2. First sentence should read "The potential . . . ~~which~~ that may . . ."

Second sentence should read "Although . . . potential sites to ~~operate~~ apply this technique . . ."

Paragraph 6. First sentence missing the reference.

Third sentence. Rewrite to use "however" less. Also, (Schollenberger, 19939).

Page 111 Check for use of "however".

Last paragraph. First sentence should read "Relocation of hatchery runs ~~will~~ may provide a benefit . . ."

Page 120 Last paragraph. First sentence should read "Protecting lands . . . mining and logging ~~would~~ may help recovering . . ."

Page 122 Paragraph 2, second sentence. "uses" or "users"?

Paragraph 3, Third sentence should read "Long-term . . . appropriate ~~siting locations~~ sites.

Paragraph 5. Fourth sentence should read "The long-term benefit to ~~pink~~ sockeye salmon . . ."

Page 123 Paragraph 2. This is the last year (1994) that actual food testing is planned so this action may not be valid any longer.

Page 126 Paragraph 5. First sentence should read "Development of new runs ~~will~~ may provide a . . ."

Page 127 Paragraph 2 under Sport Fishing. Second sentence should read The criteria . . benefit ~~commercial~~ sport fisheries . . ."

Page 128 Under Conclusions - short-term. Was a "put and take" fishery considered?

Page 129 Fourth sentence should read "The corresponding . . . loss of ~~278~~ 279 jobs in . . an increase of ~~320~~ 321 in services."

Page 131 Discuss those resources that these projects would affect. Be specific.

Page 134 — Paragraph 1 under Harlequin Ducks. Sentence 2 indicates that hunting regulations could be adjusted to negate disturbance to nesting harlequins. These regulations have already been adjusted. The point is, it's an ongoing process.

Page 135 — Under Marbled Murrelets, explain how Alternative 5 would result in a negligible increase in the prey base and how the combined effects of Alternative 5 and the cumulative actions described would produce a high overall benefit for marbled murrelet populations.

Last paragraph, last line states that accidental leakage of gas from the proposed Trans-Alaska gas pipeline is not expected to harm the aquatic environment. Please explain why leakage under a stream would not be harmful (if you can).

Page 136 — Paragraph 2. Isn't Child's Glacier well outside the spill area. Why is it even being discussed here?

Under Conclusions - short-term effects. What is being discussed here? Herring, sockeye, or pinks?

Page 137 — Paragraph 1. See comments above regarding harm to the aquatic environment from a leak in the gas pipeline.

Under Conclusions - short-term effects. Explain what is being discussed here.

Chapter 6

Page 4 — Section beginning at third full paragraph and continuing on to top of page 4 appears to be repeated in next section.

Page 6 — The "bullet" items at the top of the page are issues. They should appear under the first paragraph under "Issues".

Appendix C

Page 4 — First sentence on page should read "". . . the numbers of pink salmon returning to Cannery Creek in Prince William Sound."

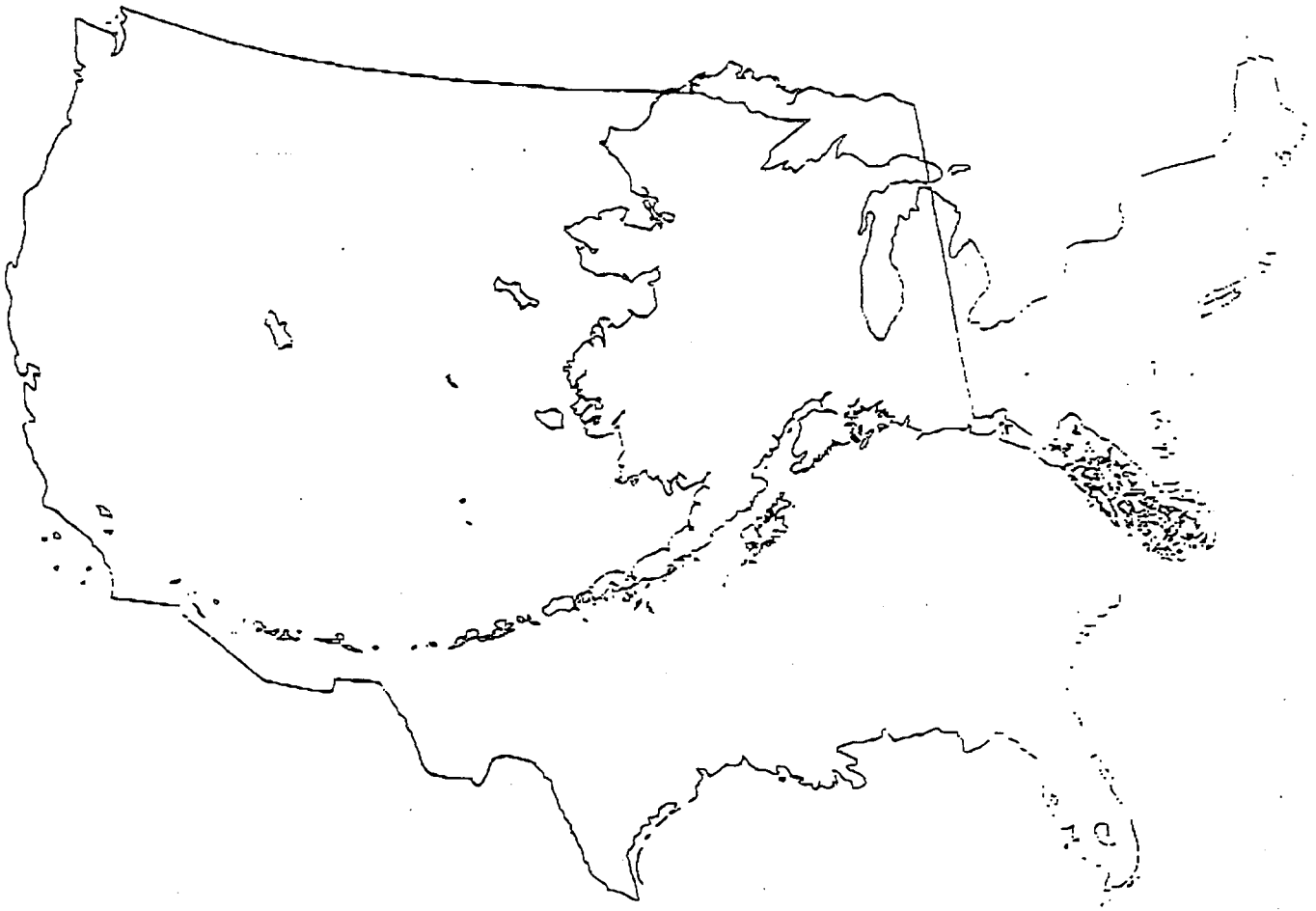
Appendix D — Explain what IMPLAN is. Since Appendices should stand alone, define acronyms in them, even though defined elsewhere.

Appendix F	Some way of separating the 1992, 1993, and 1994 Status Reports would be helpful.
Page 6 (1993)	These are monitoring projects, not habitat protection. They should be between pages 9 and 10.
Page 5 (1994)	Include 94428 Subsistence Restoration Planning and Implementation, and related information.
Page 8 (1994)	Comment for 94199 should read "Approved up to ~~$50.0~~ **147.0** for initial work, including NEPA compliance.".
Page 10	Include 94427 Harlequin Duck Boat Survey, and related information.

U.S. Fish and Wildlife Service
Region 7
Regional Office
1011 East Tudor Road
Anchorage, Alaska 99503
Fax: (907)-786-3350

TAKE PRIDE IN AMERICA

To: Rod Kuhn	Date/time: 5/13/94 4:00
From: Catherine Berg	Deliver ASAP! X Call _____ to have picked up Deliver in next mail run ____
Subject: draft EIS comments	Please call above number(s) to confirm.



U.S. Fish and Wildlife Service comments

signed original forthcoming.

GB

DEC

Memorandum

To: EVOS Environmental Impact Statement Project Manager

From: Regional Director
Region 7

Subject: Comments on Preliminary Draft Environmental Impact Statement for the *Exxon Valdez* Oil Spill Restoration Plan

We have reviewed the subject draft document and have the following comments for your consideration. The first set of comments are general in nature followed by more specific comments.

General Comments

- The U.S. Fish and Wildlife Service (Service) was pleased to see that the document presents a comprehensive set of alternative proposals. This will allow the Trustees to select from a broad range of activities and provide a balanced approach for the restoration program. The document also adequately explores the issues most commonly raised by the public.

The purpose statement for this environmental impact statement is somewhat confusing. The purpose assumes that this document would provide National Environmental Protection Act (NEPA) compliance for the restoration plan as a whole based on a proposed action, however, additional environmental analysis would need to be conducted for each approved action taken under the restoration plan. Although this need for additional analysis is mentioned in various places throughout the document, it needs to be clearly stated in the purpose at the beginning of the document. This is a programmatic document and, therfore, conclusions will not be drawn for specific actions but will be based on selected programs. Conflicting statements regarding impacts occur throughout the document. Some statements generalize the impacts by alternative and some specify the impact by action. In many cases throughout the Environmental Consequences section it is stated that actions would have no adverse impacts on or would be highly beneficial to the affected resources. Until these actions are specifically defined this may not be the case. These statements are inconsistent with the more general assumptions regarding the alternatives. The document must present a more consistent format: generalize the impacts by alternative or specify the impacts by action. Because this is a programmatic document, the former is more appropriate.

One of the major components of the proposed action (Alternative 5) is Research and Monitoring. In Chapter 1, it is stated that information gathered through a research and monitoring program could "...be extremely beneficial to the restoration of injured resources or the services they provide." However, in Table 2.1 where you address the issues by alternative no mention is made, under any of the alternatives, of the benefits that research and monitoring would have on restoration. For example, under Issue #1 (Alternative 5), research and monitoring would provide a greater understanding of the ecosystem injury and allow better decision-making for restoration projects and more efficient expenditure of funds. The analysis in Table 2.1 should include research and monitoring where applicable and especially under Alternative 5 where a large portion of the money is proposed for this effort.

Specific Comments

Page 1.12, Impact Topics. What is an "Impact Topic"? A definition of this term is clearly needed.

Page 1.14, Possible Conflicts Between Proposed Actions and Other Plans. We suggest that you add the Kodiak National Wildlife Refuge Comprehensive Conservation Plan (CCP) and Alaska Maritime Wildlife Refuge CCP under the list of programs and plans that were reviewed.

Page 1.15, Findings. We recommend adding the following subheading and text in this section:

> National Wildlife Refuge System Comprehensive Conservation Plans. The Fish and Wildlife Service has reviewed the relationship between the Kodiak National Wildlife Refuge CCP, and Alaska Maritime National Wildlife Refuge CCP, and the EVOS Draft Restoration Plan and reached the following conclusions:
>
> - Habitat protection and acquisition are compatible and consistent with the Kodiak National Wildlife Refuge and Alaska Maritime National Wildlife Refuge CCP's.
>
> - Acquisition of high value habitats and inholdings within the Kodiak National Wildlife Refuge and Alaska Maritime National Wildlife Refuge is supported by the CCP's. Also, the Kodiak National Wildlife Refuge Land Protection Plan describes and sets priorities for all refuge inholdings for protection status.
>
> - Certain specific actions that could be undertaken in implementing the Restoration Plan, such as developing new facilities or employing habitat manipulation techniques, could be in conflict with refuge plans. However, the Draft Restoration Plan does not identify where any actions will occur and requires that all actions be in compliance with Federal and State laws and

regulations. There is no provision or direction in the Draft Restoration Plan to conduct activities on any Federal, State, or private lands when the land manager is not in agreement with the action.

Page 1.18, Regional Comprehensive Salmon Enhancement Plans. We recommend the information dealing with Service land management responsibilities under this heading be deleted. (This is covered under "Findings.")

Page 1.19, Impact Topics Not Analyzed. We recommend that you include a statement here that provides for further study or restoration for these species should future evidence reveal that such efforts would be warranted.
↳ and other species

Page 2.11, Typical Actions Assumed Under Alternative 5. Although no impacts analysis would be done for Research and Monitoring, this is definitely an action item that would occur under Alternative 5 and should be listed here. Research and Monitoring will clearly address the issues previously outlined in Chapter 1.

Pages 2.14-15, Table 2-1. Issues Addressed by Alternatives. We recommend that you include discussion of Research and Monitoring under the appropriate alternatives.

Page 2.17, Table 2-3. Comparison of the Impacts of the Alternatives. This should be moved to Chapter 4; no discussion of resource impacts has occurred within Chapter 2. This table would be more appropriate under the Environmental Consequences section. Also, it should be noted that this describes long-term benefits as opposed to adverse impacts. This is not clear when reviewing the table.

Page 2.18, Table 2-4. Definitions of Impact Levels. This table should be moved to Chapter 4, also, for the same reason as mentioned above.

Pages 4.1-129, Chapter 4. Environmental Consequences. We recommend that this Chapter be reviewed for the use of the word "action." There is inconsistency in the environmental analysis of the alternatives in that in some cases specific actions are analyzed. This is probably just an oversight in terminology but it causes great confusion and inconsistency in the conclusions drawn for each injured resource and service.

Page 4.2, first paragraph. Insert the word "directly." "Monitoring and research, as actions, generally do not directly impact resources..."

Jerry

Page 4.134, Common Murres. Conclusions. Proposed oil development would not have extremely high negative impacts on the birds. This needs to be reworded.

These comments are not comprehensive due to the limited review period. We look forward to reviewing the draft document. If you have any questions regarding these comments, please contact Catherine Berg at 786-3598.

IN REPLY REFER TO:

United States Department of the Interior

NATIONAL PARK SERVICE
Alaska Regional Office
2525 Gambell Street, Room 107
Anchorage, Alaska 99503-2892
Division of Environmental Quality

TAKE PRIDE IN AMERICA

FAX COVER SHEET

DATE: 13 MAY 1994

TO: Rod Kuhn, EIS Project Manager, EVOS Restoration office

FAX #: 276-7178

FROM: BUD RICE

SUBJECT: Comments on Preliminary Draft EIS for Exxon Valdez Oil Spill Restoration Plan

NUMBER OF PAGES TO FOLLOW: 9

REMARKS: Please call us if you have questions about any of the comments. Thank you for the opportunity to participate. This is a monumental task! Good luck and stay with it.

Bud Rice

FOR PROBLEMS, CALL (907)257-2647

RETURN FAX NUMBER: (907)257-2517

United States Department of the Interior

NATIONAL PARK SERVICE
Alaska Regional Office
2525 Gambell Street, Room 107
Anchorage, Alaska 99503-2892

IN REPLY REFER TO:

TAKE PRIDE IN AMERICA

L7619(ARO-REQ)

May 13, 1994

Rod Kuhn, EIS Project Manager
Exxon Valdez Oil Spill Trustee Council
Restoration Office
645 G Street, Suite 401
Anchorage, AK 99501-3451

Dear Mr. Kuhn:

Thank you for the opportunity to comment on the Preliminary Draft Environmental Impact Statement (PDEIS) on the Exxon Valdez Oil Spill Restoration Plan. We believe that the document is generally in good shape and contains most of the elements needed in a sufficient EIS. Our comments on the PDEIS are attached in the memorandum to Paul Gates of the Department of the Interior Office of Environmental Policy and Compliance. If you have any questions about these comments, please feel free to contact me at 257-2648 or Bud Rice at 257-2466.

Joan B. Darnell

Attachment

cc:
Paul Gates, DOI/OEPC

United States Department of the Interior

NATIONAL PARK SERVICE
Alaska Regional Office
2525 Gambell Street, Room 107
Anchorage, Alaska 99503-2892

IN REPLY REFER TO:

TAKE PRIDE IN AMERICA

L7619(ARO-REQ)

MAY 13 1994

Memorandum

To: Regional Environmental Officer, DOI/OEPC

From: Chief, Division of Environmental Quality, Alaska Region

Subject: Review of Preliminary Draft Environmental Impact Statement (PDEIS) for the Exxon Valdez Oil Spill (EVOS) Restoration Plan.

Thank you for the opportunity to review the subject document. Overall the document seems to be well-written and represents a massive effort to capture information and analyses to date regarding restoration of the Exxon Valdez Oil Spill. We believe there are a number of improvements or corrections which could be made to improve the accuracy and quality of the document. We break our comments into two basic categories: general comments and specific comments.

Rod

General Comments

We notice that several pieces of the document are missing or incomplete that we will not have an opportunity to review before the document goes out to the public. Examples of these are: an abstract or summary, table of contents for the entire document, index, and a list of references cited. This points to perhaps our biggest concern, and that is for the hurried manner in which such a large and important programmatic EIS is being produced. We realize, however, that several years have passed during which public meetings and restoration activities have already taken place, and that the time is overdue for an EIS on the subject. We support efforts to carry forward the National Environmental Policy Act (NEPA) process without unnecessary delay.

In chapters one and two the document omits reference to general management plans (GMPs) and land protection plans (LLPs) for National Park Service units throughout the spill affected area. The document generally appears to ignore the affects of EVOS to damaged resources in national parks except under the topic recreation/tourism. The document under-emphasizes impacts to damaged resources outside Prince William Sound (PWS) with the possible exception of Afognak and Kodiak Islands.

The document appears to have inconsistencies in the evaluation of

consequences of the alternatives. Not only are some impact topics discussed in considerably more detail that others, but also the analysis of the same impact topics for different alternatives differs in length and quality. We recognize that it may be more appropriate to give more detail on the preferred alternative.

Since previous public comment strongly supported the establishment of a "restoration reserve account" for future restoration projects and habitat acquisition, we feel that making that option available only in alternative five is inadequate. This sets alternative 5 clearly apart from all the other alternatives and makes it by far the most palatable option to many reviewers based on that aspect alone. It is the only alternative that provides hope and promise for additional future needs in the restoration process.

There is duplication of tables and evaluation criteria throughout the document. An example is Table 2-4 and Table 4-2 are exactly the same. In the interest of reducing the use of paper and addressing the Paper Reduction Act and CEQ regulations, we recommend the use of cross-referencing where possible.

The 45-day comment period for such a large and controversial programmatic EIS seems far too short. We believe that a 60 or 90-day period would be more appropriate.

We believe that map figures somewhere in the document should identify the locations of designated and proposed Wilderness. The analysis of possible environmental consequences to Wilderness resources is otherwise extremely difficult for the reviewer, particularly where habitat acquisition may occur. Wilderness areas could be shown on figures 2-1 to 2-3 or preferably in chapter 3.

Specific Comments

Pg 1-1, Par 1: Define the "Trustee Council". Though defined later in this chapter, it seems that this group should initially be called the **Exxon Valdez Oil Spill Trustee Council.**

Pg 1-3, Last Par, Decision to be Made: It seems that the final decision called the "Record of Decision (ROD)" could be stated here. The last paragraph in chapter 4, page 148, could be moved to here.

Pg 1-4, Par 1: The spill trajectory and extent was recorded by aerial observation in addition to satellite imagery. Satellite coverage was incomplete at best due to periods of cloud cover. Figure 1-1 needs insets to show locations of islands named at the top of page 1-5.

Pg 1-13, Table 1-2: Listing Archeological Resources and Designated Wilderness Areas under other resources is inconsistent

with the proposed restoration plan.

Pg 1-14, Possible Conflicts Between the Proposed Action and Other Plans: This section and the subsequent findings omit plans from areas managed by the Department of Interior that represent a significant portion of the spill affected area. We suggest that you add the following National Park Service (NPS) documents to the list of programs and plans reviewed:

- Kenai Fjords National Park General Management Plan (1984)
- Katmai National Park and Preserve General Management Plan/Wilderness Suitability/Land Protection Plan (1986)
- Kenai Fjords Land Protection Plan (1988 as amended 1992)
- Kenai Fjords Wilderness Recommendations FEIS (1988)
- Katmai National Park and Preserve Wilderness Recommendations FEIS (1988)

Similar documents should be listed for areas managed by the U.S. Fish and Wildlife Service.

Pg 1-15, Findings: We recommend adding the following subheading and text in this section:

> National Park System Plans. The National Park Service has reviewed the relationship between the proposed action and the General Management Plans (GMPs) and Land Protection Plans (LPPs) for Kenai Fjords National Park and Katmai National Park and Preserve, and we reached the following conclusions:
>
> * Habitat protection and acquisition are compatible and consistent with the GMPs and LPPs for Kenai Fjords National Park and Katmai National Park and Preserve.
>
> * Acquisition of high value habitats and inholdings within Kenai Fjords National Park and Katmai National Park and Preserve is supported by the GMPs and LPPs.
>
> * The National Park Service is not aware of any conflicts between the Draft Restoration Plan and the Park GMPs and LPPs.

Pg 1-18, Regional Comprehensive Salmon Enhancement Plans: We recommend the information discussing NPS management plans in relation to the Restoration Plan be deleted from under this subheading. See above comment.

Pg 2-3 to 2-5, Alternative 1: The National Park Service (NPS) is not mentioned in this alternative, yet it is one of the major land managers in the EVOS-affected area. Consider inserting the statement below to be consistent with the treatment of other primary land managers in the EVOS area:

The National Park Service (NPS) manages the national park system

and the National Historic Register to accomplish the following purposes:

- To conserve the scenery and the natural and historic objects and the wild life therein and to provide for the enjoyment of the same in such manner and by such means as will leave them unimpaired for the enjoyment of future generations.

- To provide the opportunity for continued subsistence uses by local residents.

- To document and protect nationally significant archeological and historic resources.

Figure 2-3: None of the land status figures show the Alaska Peninsula and small parcels that may need protection. In particular, small parcels of private land along the coast of Katmai NP&P with significant cultural resources are at risk from development and long-term impacts.

Pg 2-11, Assumptions Used for Impact Assessment: The funding amounts for Monitoring and Research seem proportionally high. We suggest that amount could be reduced with the balance diverted to Habitat Protection and the Restoration Reserve.

Pg 2-12, Birds: Why is predatory control identified for only 15 islands when 16 islands are indicated in all of the other alternatives?

Table 2-1, Issue 2: We recommend replacing the phrase "...ecosystem management and the consideration of non-target species" with **ecosystem functioning and non-target species.** Also, for alternatives 3-5 restoration project activities may also enhance ecosystem functioning and non-target species. For example, cleaning of mussel beds would benefit river otter, mink, wolverine, goldeneyes, bears and any other non-target species that may forage on that resource.

Table 2-1, Issue 5: We recommend replacing the phrase "Protection would protect" with **Protection would preserve opportunities for.** Habitat protection alone will not protect subsistence uses; applicable federal and state laws and regulations also have considerable effect.

Pg 2-17, Table 2-3: The use of beneficial impacts is confusing as applied to some impact topics. For example, why would the beneficial impact to harbor seals be lower for alternative 2 where more habitat would be acquired and human activities are likely to be kept at a lower level than for the other action alternatives? The same confusion occurs for subsistence and wilderness, why would there be more beneficial impacts to subsistence and wilderness for alternatives that are likely to result in less habitat protection than alternative 2? It seems that these judgements could be reversed. Conversely, it seems

that impacts to economy (forestry) would be greater with alternative 2 than with alternatives that are likely to result in protection of less habitat area.

Pg 2-19, Table 2-4, Subsistence: The following phrase is very awkward, "increase in confidence levels that subsistence users in affected communities have of contamination in subsistence foods". We suggest replacing the phrase with **increase in confidence by subsistence users that subsistence foods lack contamination.**

Pg 2-20, Table 2-4, Recreation and Tourism: The proper way to analyze and manage recreation is with change in recreational setting or environment. Restoration projects affect the recreational setting which in turn influence the quality of a visitor's experience, but other personal factors also affect a visitor's experience that may have nothing to do with the setting or restoration activities. We suggest that under the column for negligible that the phrase "on the quality of their experience" be replaced with **in the quality of recreational settings.** Similarly, for all the other impact levels, we suggest replacing "recreation quality" with **recreational settings.**

Pg 2-20, Table 2-4, Wilderness: The definitions of beneficial impacts to wilderness omit consideration of opportunities for solitude and primitive, unconfined recreation.

Pg 3-28, Kenai Peninsula Borough, Last Par: Seward is accessible by the Seward Highway. Technically the Seward Highway runs from Anchorage to Seward, and the Sterling Highway begins at the "Y". We recommend inserting **Seward Highway** before "Sterling Highway.

Pg 3-40 & 41, Recreation: We feel that this discussion should highlight and emphasize those federal and state recreation areas that were affected by EVOS. The large important areas that were impacted by EVOS were Chugach National Forest, Kenai Fjords National Park, Alaska Maritime National Wildlife Refuge, Kachemak Bay State Park, Kodiak National Wildlife Refuge, Shuyak Island State Park, Katmai National Park and Preserve, and McNeil River State Wildlife Refuge. We question why Chugach State Park is listed as being in the spill-affected environment. Consider deleting reference to it unless indirect impacts to the park can be documented as a result of EVOS. Captain Cook State Recreation Area was not in the EVOS area, but other state parks and state marine parks such as Caines Head State Recreation Area, Anchor Point and Clam Gulch were in the EVOS-affected area.

Pg 3-41, Recreation, Par 1: The Kenai Fjords area is also known for northern (Steller) sea lions, harbor seals, seabirds, mountain goats, black bear, river otter, and bald eagles. We suggest this list since long lists of wildlife are given for national wildlife refuges in this section.

Pg 3-41, Recreation, Par 5: The mountain goat population is not large and was introduced to Kodiak Island. If they are mentioned

here, then they must be mentioned also for Chugach NF and Kenai Fjords NP. Where is rafting in Kodiak Wildlife Refuge? The remote Karluk River now belongs to a local Native corporation that does not always encourage rafting there.

Pg 3-42, Recreation, Par 2: Katmai National Park and Preserve is famed for having the world's largest protected population of brown bears. It is also famous for its volcanoes and the 1912 eruption that formed the Valley of Ten Thousand Smokes.

Pg 3-42, Recreation, Par 6: The Alaska Maritime National Wildlife Refuge also contains many very large sea lion rookeries and haulouts. The Chiswell Islands are closer to Kenai Fjords National Park than Seward and Resurrection Bay.

Pg 3-43, Commercial Recreation (tourism), Par 3: Kenai Fjords National Monument should be changed to **Kenai Fjords National Park**.

Pg 3-44, Wilderness, Par 2: We recommend changing the phrase "Areas formally designated as wilderness" to **Areas with formal Wilderness designation**, because not all of these areas is are entirely classified as wilderness. Also, Lake Clark National Park and Preserve already has some area designated as wilderness. Additional wilderness area is being considered for formal designation, as with Katmai National Park and Preserve.

Pg 4-32, Pigeon Guillemots, Habitat Protection: It is not true that little is known about the status of Pigeon Guillemots outside of Prince William Sound. Numerous seabird surveys along the southeast side of the Kenai Peninsula before and after EVOS indicate that substantial pigeon guillemot populations have decreased since EVOS. Pigeon guillemot colonies are generally small and dispersed. We recommend that this statement be amended appropriately for this and all other alternatives under the subheading for pigeon guillemots.

Bill

Pg 4-33: We notice that the conclusions for beneficial impacts to fish resources are presented in a different style than for birds or other resources; for example short-term and long-term effects are broken out and negligible and moderate are underlined. This seems to add weight to consideration of impacts to these resources. We feel that the style of conclusory statements should be consistent throughout the document.

Pg 4-37, Recreation, Par 2: There is much more to recreation than visual quality including but not limited to the sound environment (noise considerations), odors (considerations for industrial odors). We recommend deleting the word "visual" before "quality of undeveloped landscape ..." and enlarge the discussion to include all facets of quality recreational settings. The same should be done under the recreation subheading for all alternatives. In many instances the word "recreation" should be amended to be recreational.

Pg 4-37, Wilderness, Par 1: Why do the rankings consider wilderness character only and not Wilderness designation when in the affected environment a focus is given to designated Wilderness? It seems important to consider impacts to defacto wilderness and designated Wilderness, but extra weight should be given to formally designated Wilderness and Wilderness study areas because we are directed by law to protect these areas. Also, the conclusion is stated with Wilderness in capital letters which generally connotes designated wilderness.

Pg 4-38, Commercial Fishing: The short-term conclusion seems illogical if the habitat is slated for immediate logging. Low beneficial benefits would seem more accurate.

Pg 4-39, Sport Fishing: Similar comment to the above. Low benefits in the short-term seems more accurate than negligible.

Pg 4-40, Economy: The IMPLAN projections seems to under-represent economic impacts to commercial fishing and recreation/tourism because of lack of quantifiable data for these economic sectors. We feel that measuring only the indirect effects of other sectors of the economy to estimate economic impacts to commercial fishing and recreation is a potential serious short-coming.

Pg 4-52, Sockeye Salmon: Why are pink salmon discussed under this section? It appears to be a typographical error. Note that the same occurs under other alternatives where sockeye salmon are discussed.

Pg 4-89, -Removing Residual Oil: This paragraph appears to be out of place. It discusses environmental consequences to subsistence, not recreation and tourism. It probably belongs in the previous section on subsistence.

Pg 4-89, Recreation, Conclusions: The use of the term "experiences" could probably be replaced with **settings**. We recommend that the last two lines be rewritten as **benefits would be offset by changes in the quality of the wilderness setting (loss of opportunities for solitude, noise) as use increases.**

Pg 4-89, Wilderness, Habitat Protection: In this section benefits to designated Wilderness are discussed, and the emphasis on wilderness character is omitted. This seems inconsistent with the presentation on page 4-37 for alternative 3.

Pg 4-106, Murres, Predator Control: The paragraph regarding Otter Island should be deleted from this programmatic EIS. It seems inappropriate for an inexpensive project outside of the EVOS area to be funded by EVOS settlement funds. We question why this project is not carried out with normal FWS operating funds if it is that important. Also, ten thousand murres is a small number relative to the millions that live in the Bering Sea area.

Pg 4-106, Murres, Conclusions: We recommend deleting reference to the Otter Island project in this programmatic EIS.

Pg 4-107, Pigeon Guillemot, Predator Control: As with the comments above for murres, we question whether the predator control program in the Aleutians is consistent with the guidelines and description of alternative 5 in chapter 2.

Pg 4-109, Comprehensive Restoration Actions: Dates are missing for publications, and the sentence at the end of paragraph 3 in this section is incomplete.

Pg 4-112, Sockeye Salmon, Habitat Protection: We question why the benefit to sockeye salmon would be low if all habitat parcels are protected, but the benefit would be slightly greater, low to moderate, if only 31 to 34 parcels are purchased. These statements defy logic.

Pg 4-140, Wilderness: Where is the discussion on beneficial impacts to wilderness? Were the authors exhausted by this point? The conclusion does not seem logical. Would not increased access from some of the proposed developments have a very serious cumulative effect to wilderness resulting in increased degradation of opportunities for solitude and primitive, unconfined recreation?

Pg 6-7: The first row of community names in the list are printed in larger format than all of the other names. They should all be the same.

Table A-1: What is the significance of the order of parcels given? Are they in priority order by score of some sort? We recommend providing summary scores for each parcel to help the reader understand how close some of the relative rankings may be.

United States Department of the Interior

MINERALS MANAGEMENT SERVICE
Alaska Outer Continental Shelf Region
949 E. 36th Avenue, Room 603
Anchorage, Alaska 99508-4302

IN REPLY REFER TO:

MAY 1 3 1994

Rod

Mr. Rod Kuhn, Environmental Impact
Statement Project Manager
Restoration Office
Exxon Valdez Oil Spill Trustee Council
645 G Street, Suite 401
Anchorage, Alaska 99501-3451

Dear Mr. Kuhn:

We appreciate the opportunity to review the preliminary draft of the Environmental Impact Statement (EIS) for the *Exxon Valdez* Oil Spill (EVOS) Restoration Plan, which analyzes the environmental effects of proposed uses for the remaining EVOS restoration funds. We have reviewed the document primarily from a procedural perspective, reflecting our experience with the preparation of many National Environmental Policy Act documents on the environmental and sociocultural effects of oil spills.

Overall, the EIS appears carefully written and edited. For example, the EIS includes reasonable alternatives and expenditures to the proposed action--Comprehensive Restoration. It appropriately emphasizes the environmental consequences rather than descriptions of the environment. The assessments of the oil spill effects, including the estimates of persistence, seem reasonable; and most of the effects conclusions are at least partially quantified and clearly stated. Also, the EIS includes a reasonable list of other projects that would add to the cumulative effects.

The following are some minor suggestions for improvement. The summaries of the five alternatives in Chapter 2 list some typical uses of the restoration funds for Habitat Protection and Acquisition (pp. 2-7 to 2-11). However, the summaries list neither typical Monitoring and Research projects nor typical Administration and Public Information projects on which restoration funds might be spent. Some examples should be included, especially for alternatives that emphasize the category (e.g., under Alternative 5, the proposed alternative, 20 to 25 percent of the funds would be spent on Monitoring and Research). Further, the examples should include some research projects that have been funded with EVOS funds and that have been useful for damage assessments. The document inadvertently creates the opposite impression--that the research has not been relevant to the assessment and restoration of damages--because the EIS does not clearly identify the EVOS-funded research citations.

Also, we suggest that you recheck the correspondence between the summary comparison of impacts for the alternatives (Table 2-3) and the effects conclusions for each alternative and biological resource. An example of an apparent disparity is that the summary table lists nothing under anticipated impacts on harbor seals for Alternative 1, and a footnote indicates the

impacts actually may be beneficial. However, the corresponding conclusion about harbor seal populations in the text (p. 4-14) states:

> At this time, there is too little information available to predict when the populations within the EVOS area will recover. Recovery is unknown for all regions of the spill area.

We look forward to the opportunity to review in greater detail the draft EIS when it is published. The environmental scientists on my staff presently are working on an EIS for an oil and gas lease sale and have not had an opportunity, within the short timeframe for response to this preliminary draft, to carefully check the technical information in the assessments about oil spill effects.

Sincerely,

Robert J. Brock
Acting Regional Director

cc: Regional Environmental
Officer - Alaska
Office of Environmental
Policy and Compliance
Office of the Secretary
1689 C Street, Room 119
Anchorage, Alaska 99501-5126

United States Department of the Interior
Office of the Secretary
1689 C Street, Suite 100
Anchorage, Alaska 99501-5151

Special Assistant to the Secretary
Alaska Field Office

To: Rod Kuhn **Date:** 5/13/94

Pages: 2
(including cover)

_____
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EVOS
Dept., Bureau, Division

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City & State

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From: Deborah Williams

Message: _____

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United States Department of the Interior

OFFICE OF THE SECRETARY
1689 C Street, Suite 100
Anchorage, Alaska 99501-5151

May 13, 1994

Memorandum

To: Rod Kuhn
EVOS EIS Project Manager

From: Deborah L. Williams
Special Assistant to the Secretary

Subject: Review of Preliminary Draft Environmental Impact Statement for the Exxon Valdez Oil Spill Restoration Plan

The Department of the Interior believes that no less than $300 million of the remaining funds should be devoted to habitat acquisition, as part of a balanced, comprehensive restoration package. In fact, public comment solicited one year ago indicated that significantly more that 50% of the remaining funds should be spent on habitat acquisition and protection. Therefore, the Department requests that Alternative 5 be adjusted accordingly.

Thank you.

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶

To Rod Kuhn	From Sandy Rabinowitsch
Dept./Agency FS (EVOS)	Phone # (DOI)
Fax # 276-7178	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

Barry Roth, DOI, Office of the Sc
Draft Restoration Plan

Ch. 1

P.2 Litigation and Settlement

¶2 Capitalize "C" and "A" in Civil Actions.

Revise 3rd & 4th sentences to read: Generally, these payments are deposited in the Registry of the U.S. District Court for Alaska where they are invested through the Federal Court Registry Investment System. As funding needs for restoration projects are identified, the Trustee Council, through the Alaska Department of Law and the U.S. Department of Justice, applies to the Court for disbursement of funds from the Registry.

¶4 Add after "assessment.": Such amounts are not deposited in the Court Registry, but paid directly by Exxon to the respective government.

P.3 ¶1 Line 1: strike "Trustee Council" and insert "six Trustees".

Line 9: insert/substitute the following after "NOAA.)." In accordance with a subsequent Memorandum of Understanding (MOU) executed by the six Trustees, the Alaska-based EVOS Trustee Council was formed to coordinate and oversee the development and implementation of the restoration program. The State Trustees serve as members of the Trustee Council, along with a representative of each of the Federal Trustees.

Line 12: correct title is "Fish and Wildlife and Parks".

¶4 Line 5: Strike "Full" and capitalize "Public". [Full has no particular meaning in this context and doesn't add to the commitment. Also, change "would" to "will"

P.5 Line 17: It appears but I am not certain that this should read "Since 1989, 72 studies...." If "In" is actually correct, then it appears that tense should be changed from "have been" to "were".

Lines 22-24, change to read: "Following the October 9, 1991 approval of the settlement between the Exxon companies, the United States and the State of Alaska, the Trustee Council decided to continue development of a restoration plan and to provide for meaningful public participation therein."

P.6 Monitoring and Research

change research sentence to read: "Restoration research is that research which is necessary to clarify the causes of poor or slowed recovery, or which assists in the design, development and implementation of new technologies or techniques and approaches to restoration of the resources and services injured by EVOS." [My concerns are that we can only do necessary research related to restoration and that "could clarify" is to weak.]

Description of the Process

¶1 I am not sure what the sentence means about the DEIS being subject to 810. Are you trying to state: "Because decisions made in the restoration process may authorize the use, occupancy, or disposition of Federal public lands, the Draft Restoration Plan is also subject to evaluation with respect to its impact on subsistence activities in accordance with §810 of the Alaska National Interest Lands Conservation Act (ANILCA)."

P.7 ¶2 revise to read: As a programmatic DEIS, this document does not address site-specific situations, proposals or regulations. Such matters will be dealt with in subsequent Annual Work Plans issued by the Council. Such individual matters may also be subject to further review under NEPA as well as §810 of ANILCA."

Public Comment Period

this should either read: "... hearing(s) will be announced" or "... hearing(s) were announced [where or how may be obtained]"

P.8 Roles of the Agencies

¶1 Insert at the end of the 1st sentence: "in the decision making process."

2nd sentence: insert "virtually" before "all". Some decisions such as appointment of Exec. Dir. and review of candidates were made in exec. session.

¶2 Line 2: revised to read: "since approval of the settlement, the Trustee Council has provided five different opportunities for formal public comments to be submitted."

Chapter 4

P.98 Conclusions: with respect to long term benefits, the sentence has no subject. Suggest it read: "for direct

restoration actions, these are unknown...."

P.141-2 In discussing the impacts on the economy, the focus is apparently on the forest portion. Is it appropriate, possible, to suggest that such impacts are likely to be offset by favorable impacts on other sectors of the economy from a successful comprehensive restoration program, e.g., commercial fishing, recreation and tourism.

United States Department of the Interior

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IN REPLY REFER TO:
MMF/LHB

May 13, 1994

Memorandum

To: Rod Kuhn, EIS Project Manager, Exxon Valdez Oil Spill Trustee Council

From: Acting Director, Alaska Science Center

Subject: Comments-Draft Environmental Impact Statement (DEIS)

Our review comments at this time are restricted to two general areas of concern:

Bill

Firstly,

The DEIS does not seem to address the potential environmental impacts of general restoration actions on the ecosystem. For example, pen and hatchery rearing and creation of new fisheries are given as examples under Alternative 3, 4, and 5: General Restoration-Fish. The associated text speaks to the probability of actions being successful in reaching restoration goals (e.g., population increases), but does not speak to the impact of such activities on ecosystem integrity. Although one can argue what the level of impact might be with increased hatchery or other enhancement activities, for example, the text still should acknowledge that evidence exists that such activities can impact wild populations and their associated ecosystem. Examples of such language are from Holland-Bartels et al. (1994):

> "Restoration or enhancement of wild stocks through use of hatcheries has a long history in the Pacific Northwest (Kelly et al. 1990). However, this strategy is under an active debate in the fisheries profession (Martin et al. 1992, Hilborn 1992), centered around documented or suspected impacts of hatchery activities on wild stocks. Recommendations have been made to consider genetic diversity of wild stocks and genetic-based approaches to management (Kapuscinski and Philipp 1988, Waples et al. 1990) and, in part, implemented through various state policies as reviewed by Kelly et al. (1990) for the Pacific Northwest."

> "...Potential interactions between propagated and wild salmon are well known (Hindar et al. 1991, Krueger and May 1991, Waples 1991). Genetic alterations, increased competition and predation, high exploitation of wild salmon in mixed-stock fisheries, and disease introduction are several issues of concern (Table 1)."

Similar concerns perhaps need to be acknowledged for other general restoration activities cited as examples, but because of time we present only this example.

Secondly,

The document needs to acknowledge that restoration actions taken for any given injured resource or service may, in fact, impact the success or timeframe for restoration of another. For example, restoration of sea otter populations may impact their prey (intertidal/subtitdal organisms) abundance as has been demonstrated sufficiently elsewhere. Restoration of fishing may impact fisheries restoration. There are many more examples. The end point of a "healthy, productive ecosystem" may require that compromises be made. Such decisions are political as well as biological and the choices are not appropriate within the EIS. However, acknowledgement of at least the biological interrelationships that exist should be included. A crosswalked table of the hypothesized relationships among injured resources could accomplish this.

We appreciate the opportunity to comment.

William K. Seitz

Attachments

Table 1. Types of salmon enhancement used in Alaska and possible impacts and risks to wild stocks as synthesized from selected literature.

Enhancement Type	Possible Impact and Risk	Citation
Introductions	Increased competition with resident fishes.	Krueger and May 1991
	Increased predation on resident fishes.	Krueger and May 1991
	Unwanted gene flow (straying) from fry releases.	Unwin and Quinn 1993
	Unwanted gene flow (straying) from smolt releases.	Unwin and Quinn 1993
	Incidental harvest of other stocks.	Wright 1981
Supplementation:		
Non-Indigenous Stock	Intraspecific genetic change.	Waples 1991
	Outbreeding depression.	Gharrett and Smoker 1991
	Unwanted gene flow (straying) from fry releases.	Unwin and Quinn 1993
	Unwanted gene flow (straying) from smolt releases.	Unwin and Quinn 1993
	Decreased fitness from competition, disease.	Hemmingsen et al. 1986
	Increased exploitation of native fish.	McIntyre and Reisenbichler 1986
Indigenous Stock	Intraspecific genetic change.	Waples 1991
	Unwanted gene flow (straying) from fry releases.	Unwin and Quinn 1993
	Unwanted gene flow (straying) from smolt releases.	Unwin and Quinn 1993
	Decreased fitness from competition, disease.	Waples 1991
	Increased exploitation of native fish.	McIntyre and Reisenbichler 1986
Habitat Modification:		
Stream Rehabilitation	Change in stream dynamics.	Ryder and Kerr 1989
Lake Enrichment	Change in fish community balance.	O'Neill and Hyatt 1987

References

Gharrett, A. J., and W. W. Smoker. 1991. Two generations of hybrids between even- and odd-year pink salmon (*Oncorhynchus gorbuscha*): a test for outbreeding depression? Can J. Fish. Aquat. Sci. 48: 1744-1749.

Hemmingsen, A. R., R. A. Holt, R. D. Ewing, and J. D. McIntyre. 1986. Susceptibility of progeny from crosses among three stocks of coho salmon to infection by *Ceratomyxa shasta*. Trans. Am. Fish. Soc. 115: 492-495.

Hilborn, R. 1992. Hatcheries and the future of salmon in the Northwest. Fisheries 17(1): 5-8.

Hindar, K., N. Ryman, and F. Utter. 1991. Genetic effects of cultured fish on natural fish populations. Can. J. Fish. Aquat. Sci. 48: 945-957.

Holland-Bartels, L., C. Burger, and S. Klein. in press. Studies of Alaska's Wild Salmon Stocks: Some Insights for Hatchery Supplementation. Proceedings of the 59th North American Wildlife and Natural Resources Conference. March 1994.

Kapuscinski, A. and D. Philipp. 1988. Fisheries genetics: issues and priorities for research and policy development. Fisheries. 13: 4-10.

Kelly, M. D., P. O. McMillan, and W. J. Wilson. 1990. North Pacific salmonid enhancement programs and genetic resources: issues and concerns. Tech. Rep. NPS/NRARO/NRTR-90/03. U.S. Natl. Park Serv., Anchorage, Alaska. 232pp.

Krueger, C. C., and B. May. 1991. Ecological and genetic effects of salmonid introductions in North America. Can. J. Fish. Aquat. Sci. 48 (Suppl. 1): 66-77.

Martin, J., J. Webster, and G. Edwards. 1992. Hatcheries and wild stocks: are they compatible? Fisheries 17(1): 4.

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STATE OF ALASKA

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MEMORANDUM

TO: Jim Wolfe
Trustee Council Representative

DATE: May 13, 1994

FROM: John A. Sandor
Commissioner, ADEC

SUBJECT: Review Comments, Restoration Plan Draft EIS

Thank you for the opportunity to review the Draft EIS which we realize was prepared in a short time frame. We have identified a number of items that should be changed. I am hopeful we can resolve any differences quickly in order to ensure that a final EIS is adopted on schedule.

INTRODUCTION AND GENERAL COMMENTS

Date the dollar amounts (p 1 and elsewhere). The EIS notes that $620 million remains for restoration after final reimbursements. That number continues to change as spending occurs. Thus, the figure should be dated: "*As of* _____, there remains $620...."

Administration and Public Information, p 1-6. It is untrue that *percentage* of administration increases with the number of projects. The total for administration may increase, but the percentage will decrease.

Public Meetings, p 1-9. Add Karluk to the list of public meeting locations for the fourth period.

Issue #2, first sentence, p 1-10. Some restoration options restore multiple resources. Thus, the first sentence is incorrect.

Impact Topics, p 14-1. Designated wilderness and archaeology are not services, they are resources. In addition, the title we have been using is "Designated Wilderness Areas."

Emphasize that Alternative #5 has changed. Those close to the process understand that the Draft Restoration Plan is alternative five, and that the plan is different from the brochure

alternative #5. This is not obvious to the casual reader, however. It is only mentioned obliquely in two locations. The DEIS should be more explicit. Locations for this information should include the introduction (Chapter 1), before Table 2-2 (the financial assumptions), and when alternative #5 is introduced in Chapter 2 (page 2-10).

Definitions. The definitions on page 1-6 incorrectly summarize those from page 8 of the Draft Restoration Plan. Habitat Protection and Acquisition is fine. General Restoration is incorrectly redefined to be manipulation of the environment and possibly managing human use. That is not complete. It may also include protective strategies like reduction of marine pollution or facilities. Monitoring and research is also incorrect. The EIS definition includes feasibility studies of technology that we would include in General Restoration. The change is not major — both are allowable under the settlement, but the Draft Restoration Plan and the Draft EIS should use consistent terminology. Use the definitions on page 8 of the Draft Plan. If you need to expand, use the definitions on page 21 of the plan. But delete, from monitoring and research, the "what can be done to accelerate the process" And delete "then assist in the design, develop, and implement new technologies and approaches...expected rates."

Prince William Sound Plan for State Lands on page 1-15 is correctly titled the "Prince William Sound Area Plan for State Lands." The paragraph then incorrectly refers to it as "the Forest Plan" three times.

Projects designed to restore or enhance a resource. The first element of the last policy in Alternative 5 (page 2-11) should be moved to "Program Elements Common to All Alternatives" (page 2-3). That policy is:

"Projects designed to restore or enhance an injured service:
1) must have a sufficient relationship to an injured resource...,"

This policy is a legal interpretation of the settlement decree. It is therefore *not* appropriate to analyze or vary with alternatives. It was developed by Craig Tillery (Ak Dept. of Law) and Bill Brighton (US Dept. of Justice) to resolve the extent to which restoration to help services was allowable under the court decree. Thus, it is more of a legal interpretation than a policy that can be varied with the alternatives.

Confusing Analysis with Commitment. The DEIS projects budgets for analysis purposes, and assumes for analysis purposes that certain activities will occur. The casual reader will not understand these fine distinctions. They will come away with the understanding that these are budget allocations and that there is a commitment to complete the listed activities. Please insert a sentence at the beginning of the list in every alternative (especially Alternative #5) in bold type. An example sentence might be: "These activities are assumptions made for purposes of analysis. No commitment has been made to complete any or all of these actions, and other activities will likely be considered."

Overestimating Purchase Acreage. Page 2-6, Alternative #2, reads that "it is assumed that sufficient funds will be dedicated to Habitat Protection to protect *all* of the parcels shown in Figure..." All parcels seems implausible. Under any realistic estimate of land prices, we

lack funds to purchase all of the large parcels. Implying that we could purchase essentially all private land in Prince William Sound (or the spill area for that matter) raises expectations beyond the possible. The brochure reads that if we spent the entire amount of the settlement on habitat purchases, we could purchase approximately 14% of the private land in the spill area. This comment affects Alternative #2, and the other alternatives as well (see also 2nd full paragraph page 2-7, 3rd full paragraph page 2-9, etc.).

The existing character of the spill area will be maintained. That sentence appears in Alternative 3 (last full line, Page 2-6). That is not the policy in Alternative #3. The Trustee Council cannot implement that goal. Please use the brochure language.

Inappropriate activities in Alternative #5. Some actions attributed to Alternative #5 are unlikely to be implemented — the Trustee Council has already considered and rejected them. To continue to analyze them as if they would be implemented will convey incorrect information to the reader. These are:

me

Reduce disturbance to harbor seals, and pigeon guillemots. There is no evidence that this is needed. It would require broad-based restrictions that the Trustee Council is unlikely to entertain or recommend. Also, the Trustee Council does not have management authority. The agency with management authority would have to adopt the restrictions.

The activity concerning reducing disturbance to murres is a more appropriate activity, because there is some evidence that it might help and the restrictions could be more focused. But the Trustee Council roundly rejected the idea a number of times.

me

Predator Control — 15 islands. This effective activity has been funded in the past. But the policy of "outside the spill area....under the following conditions..." limits the number of islands that are likely to pass that test. Five to ten is more likely. Fifteen seems unlikely.

CHAPTER 3

Affected Environment. Page 3-9, ¶2. The paragraph implies that out of a population of 2,000 — 5,000 harbor seals, commercial fishing kills 2,800 per year. That doesn't seem right.

Done 5/17/94

Page 3-11, ¶3. The first sentence has an incorrect tone. It seems to whine that Congress does not always agree with USF&WS staff priorities. Just stating the facts would appear to be sufficient.

CHAPTER 4

Chapter 4, Table 4-1. The table is unclear. It should stand on its own without requiring the reader to dig too deeply into the text. I cannot figure out where the numbers come from or what they mean. Where does $329,000 for a Reserve come from? All of these numbers

appear inconsistent with those in Table 2-2. Also, "Restoration" should probably be "General Restoration" (because legally, restoration includes monitoring, habitat protection, and administration as well).

Bill

Alternative #1, page 4-19. The conclusion paragraph implies that no action will result in a 10% reduction in the pink salmon population in Prince William Sound! That is wrong. The notion that almost 1 million pink salmon will die in the Sound (each year) if the Trustee Council doesn't act seems a little hard to believe. (Also, I would rename the category "long-term effects" rather than "benefits" as you are discussing a negative benefit.).

Fred

Alternative #1, page 4-24, 1st full ¶. "If this alternative is selected, logging and/or mining is likely to occur throughout the area..." is untrue. There has been no mining of significant scale in the area since the 1930s; no applications that I know of are pending (though there may be some). Thus, the scenario that if the Trustee Council does not act, mining will occur throughout the area seems an odd prediction. Similarly, there are a few areas in the spill area where logging is planned. The sentence incorrectly implies more than that.

Fred

Alternative #2, page 4-35. 1st ¶ under Social and Economic Impacts. The prediction that 863,100 acres would be purchased is false precision. Given that precision, it is hard to believe that these figures are for analysis purposes only. They give the reader the impression we know precisely what will purchased under each alternative. Please generalize the numbers. (This same comment is relevant for alternatives #3-#5.)

Fred

Alternative #2, page 4-36, 2nd ¶, Cultural Resource Conclusions. The conclusion that purchasing archaeological sites protects them is odd. ANCSA 14(h) established a process by which BLM takes archaeological sites out of Forest Service and Fish and Wildlife Service management and conveys them to Native ownership for protection. That process has been on-going for almost two decades. The assertion that protection occurs by purchasing parcels which the federal government spent significant staff and money to convey to Native ownership for protection, and reconveying them back to state and federal ownership for protection, is somewhat odd. (This same comment is relevant for alternatives #3-#5.)

Fred

Alternative #2, page 4-37, 3rd ¶, Recreation Conclusions. This paragraph asserts that the short-term benefits of habitat protection to recreation is negligible, and the long-term benefits are only moderate. The many years of public comment concerning Katchemak Bay, the substantial comment received on the brochure that advocated increased habitat protection, and the effort of Cordova recreationists to promote purchase of Orca Narrows, argues for greater benefit.

Rod

Alternative #5. Introduction, p 4-95. Add language to let people know (1) that this alternative is different than the brochure alternative #5; and (2) that the Trustee Council may not implement any or all of the assumed actions, and may in fact implement others not listed. Change the first sentence as follows: "In this alternative, the general restoration program focuses on the status of recovery of injured resources ~~rather than on the degree of injury~~

~~caused by the oil spill.~~ (deleted language is needlessly negative).

Alternative #5, Murres, Predator Control, p 4-106, 2nd ¶. Eliminate discussion about murres in the Pribilof Islands. It is irrelevant. Any activity that far from the spill area is inconsistent with policy concerning "activities will be in the spill area unless..." Eliminate "Reducing Disturbance in following three paragraphs (see previous discussion about this activity which has been previously rejected by Trustee Council).

Alternative #5. New Recreation Opportunities, and Promoting Recreation Opportunities. Good discussion, however, note that facilities and changes would be "consistent with the character and public uses of the area." To not mention that policy may instill a fear of changes that are not intended.

APPENDICES. In general, the DEIS is too long. Shortening it will make it a less threatening document. The appendices are an easy place to cut.

Appendix A. Eliminate the appendix. Its unintelligible anyway without further information in the original document. Reference the original document instead. *"Comprehensive Habitat Protection and Acquisition Process: Large Parcel Evaluation and Ranking*, November 1993, explains the ranking and evaluation for potential protection or acquisition of large parcels in the spill area. It includes the evaluation and ranking of all parcels greater than 1,000 acres in the spill area whose owners were willing to participate in the protection process as of November 1993." If people want it, they can call a toll free number and have it mailed.

Appendix C. Eliminate the appendix. Its a long treatise on other ADF&G permitting authorities. It is unclear why the DEIS chooses this process to explain as opposed to Alaska Forest Practices Act, Coastal Management Plans, or the whole host of other acts and requirements that influence restoration and other activities in the spill area.

Appendix E. This is a huge appendix for the amount of information it imparts. Reference it as "other documents available."

DRAFT

TO: Rod Kuhn, EIS Project Manager

FROM: Veronica Gilbert, ADNR/EVRO

SUBJ: Interagency Review of Preliminary DEIS on Draft Restoration Plan

DATE: May 13, 1994

---

p. 1 - 15 ¶ 2 Last sentence, "...the Plan for State Lands ~~Forest Plan~~..."

p. 2 - 5 ¶ 3 I understand that the EIS is being reviewed by members of HPWG and they would be the most appropriate people to address the accuracy of passages referring to habitat protection. However, this passage illustrates a general weakness in the EIS. You assert your assumption that the large parcels that were evaluated by HPWG were "the most critical to the injured resources" without stating clearly your reason for making this assumption. I suspect the reason is that you believe large parcels offer the potential for protecting intact ecological units, but if that is the reason it would be good to say so. I think it would also be useful to occasionally remind the reader that the assumption about large parcels is for analysis only and that the Trustee Council may ultimately decide to protect a mix of large and small parcels.

p. 2 - 4 ¶ 5 The description of ADNR's normal agency responsibilities should include reference to the ADNR's responsibility for archaeological resources. Suggested sentence: "Through the State Office of History and Archaeology, ADNR is responsible for protection of archaeological resources statewide."

p. 2 - 11 ¶ 3 "Typical Actions Assumed Under Alternative 5" for General Restoration should contain a paragraph that states that projects would be allowed under this alternative to the extent they do not adversely affect the environment. This applies to all restoration actions, including enhancement. Also, under this alternative, the Trustee Council would consider whether a restoration action for an injured service is compatible with the character and public uses of the area. These are both important caveats that deserve reiteration. Alternative 5 does not state that all restoration options that offer significant improvement over natural recovery are allowable; it purposely did not stipulate an effectiveness standard.

cc: Marty Rutherford, ADNR
Craig Tillery, Department of Law

TO: Rod Kuhn, EIS Project Manager

FROM: Veronica Gilbert, ADNR/EVRO

SUBJ: Interagency Review of Preliminary DEIS on Draft Restoration Plan

DATE: May 17, 1994

---

p. 1-15, ¶ 2 Last sentence, "...the Plan for State Lands ~~Forest Plan~~..."

p. 2-4, ¶ 5 The description of ADNR's normal agency responsibilities should include reference to the ADNR's responsibility for archaeological resources. Suggested sentence: "Through the State Office of History and Archaeology, ADNR is responsible for protection of archaeological resources statewide."

p. 2-5, ¶ 3 The following statement is incorrect and misleading:

> The specific parcels of land assumed to be most critical to the injured resources and the services they provide are the 863,100 acres considered in the Comprehensive Habitat Protection Process; Large Parcel Evaluation and Ranking Volumes I and II (EVOS Restoration Team, 1993).

The analysis did **not** determine which habitat is most critical for injured resources and services. Rather, the parcels selected for evaluation were drawn from a larger list of nominations from landowners who expressed interest in having their land considered. They were also limited to parcels greater than 1,000 acres. The pool of "candidate lands" will change as more landowners express interest in having their land considered. Only 32 of the 90 landowners in the spill area responded to the first request for expressions of interest in 1993. Since then, more landowners have expressed interest.

We recommend ¶ 3 be rewritten to read:

> The analysis of the impact of habitat protection is based on the 863,100 acres considered in the Comprehensive Habitat Protection Process; Large Parcel Evaluation and Ranking Volumes I and II (EVOS Restoration Team, 1993). These parcels are shown in Figures 2-1 through 2-3. Appendix A, Table A-1 shows the specific benefits associated with protecting each of these parcels.
>
> The parcels evaluated in the large parcel process were drawn from parcels nominated by landowners and were limited to parcels greater than 1,000 acres. The pool of candidate lands will change as more landowners express interest in having their land considered and as smaller parcels are considered. However, the large parcels evaluated and ranked in 1993 are assumed to be indicative of the benefit that may result from habitat protection.

p. 2-7, ¶ 3 The following statement is also incorrect and misleading:

> In this alternative, it is assumed that funds are sufficient to protect all of the parcels shown in Figures 2-1 through 2-3 if land or easement prices are low.

The assumptions expressed in the Summary of Alternatives resulted from considerable deliberation by the Restoration Team. I have reproduced the pertinent passage and recommend that it be used in its entirety.

▼ Habitat Protection on Private Lands: *How Much Land Could Be Protected?*

The alternatives indicate that 91% to 35% of the remaining settlement funds could be available for acquiring and protecting habitat. The Trustee Council is looking at many methods of protecting habitat. Some of the factors that would influence the actual amount of habitat protected include:

- **land costs, which are highly variable; and**
- **whether full or partial property rights are acquired.**

Under any alternative, the amount of available land exceeds available funding. Therefore, land parcels must be ranked according to their value in restoring injured resources and services. Acquiring fee title is the most expensive way of protecting private land. Assuming acquisition of fee title and a mix of land costs, approximately 275,000 acres of land could be protected under Alternative 2. This is equivalent to about 14% of the private land within the spill area. Under Alternative 5, this figure drops to 100,000 acres, or approximately 5% of the private land within the spill area. These acreage estimates could be even lower if a larger proportion of high-value land were acquired. The estimates could be higher, if the mix of land acquired included more low cost land or partial property rights.

The last sentence of this passage acknowledges that the acreage that could be protected under Alternative 2 could be higher than the estimated 275,000 acres "if the mix of land acquired included more low cost land or partial property rights." However, it is unlikely that it could increase 863,100, as stated in the draft EIS.

pp. 2-7, ¶ 4; 2-9, ¶ 5; and 2-11, ¶ 4 On these pages, the assumptions for General Restoration are lists of potential projects by resource with no explanation of **why** you assume these projects would be considered. Particularly baffling were the following statements on p. 4-97, ¶ 2: "This alternative includes establishing a clam mariculture program to help the recovery of subsistence uses in the spill area..." While we do not necessarily dispute that this project may be considered, we are left wondering why it is considered in Alternative 5, but not the other alternatives. Subsistence is addressed in Alternatives 2-5. A sentence or two on p. 2-11, ¶ 5 explaining why this project is included as an assumption under Alternative 5 would help the reader understand the potential impact of proposed action.

p. 2-11, ¶ 4 "Typical Actions Assumed Under Alternative 5" for General Restoration should also contain a paragraph stating that projects would be allowed under this alternative to the extent they do not adversely affect the environment. This applies to all restoration actions, including enhancement. Also, under this alternative, the Trustee Council would consider whether a restoration action for an injured service is compatible with the character and public uses of the area. These are both important caveats that deserve reiteration. The proposed actions purposely did not stipulate an standard of effectiveness for General Restoration projects.

p. A-10, Table A-1 We would prefer not to see this table at all because it implies greater precision than is warranted by the gross nature of the estimates of habitat that could be protected under the alternatives. However, if this table remains in the draft EIS, we recommend that the maximum acreage be reduced to 100,000 to 275,000 and the box that now reads, "Range depends on estimated funds" read "Range depends on land costs and whether full or partial property rights are acquired."

Thank you.

cc: Marty Rutherford, Deputy Commissioner
Alaska Department of Natural Resources

Craig Tillery, Assistant Attorney General
Alaska Department of Law

UNITED STATES DEPARTMENT OF COMMERCE
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FAX TRANSMISSION

May 13, 1994

FROM: STEVEN PENNOYER
DIRECTOR, ALASKA REGION

TO: Rod Kuhn

TEL: 278-8012 **FAX:** 276-7178

PAGES: 4

SUBJECT: Comments on Draft EIS

UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration
National Marine Fisheries Service
P.O. Box 21668
Juneau, Alaska 99802-1668

May 13, 1994

MEMORANDUM FOR: Rod Kuhn
EIS Project Manager

FROM: Steve Pennoyer
Trustee Council

SUBJECT: Comments on Draft EIS

My staff and I have reviewed the Draft EIS for the Restoration Plan and offer the following comments.

In general, we have no substantive comments on the content of the EIS. It seems to be arranged logically and appropriately for compliance with NEPA. It contains a vast amount of reading material to be digested in a short review time. I trust that, with the number of people conducting reviews, errors and omissions missed by one of us will be caught by another.

The EIS Team is to be commended for preparing a document of this complexity and size in the short time allotted to you and for the quality of the draft product you presented for our review. I believe that it should need only minor changes before it is released. However, the Appendices are partially incomplete. I would like to see Appendix B--Species Names before the DEIS is printed.

I hope the following comments will be helpful to you.

Chapter 1 - Purpose and Need

p. 6. Under "Habitat protection and acquisition" you state one option is "changing the management practices of publicly held lands". Is it not possible to also change the management practices on private lands, i.e by requiring buffers or clearing of debris, etc.?

p. 13. Table 1.2 lists "Other Resources" under the Services table. These should be placed in Table 1.1.

p. 14. It is not completely clear why the DEIS chooses to address "Impact Topics" only for a short-list of Resources and Services. I believe it would clarify the DEIS if you stated in more detail why the following list was chosen and not a broader list of injured resources. Provide your explanation or rationale before the list, i.e. refer to what's on p. 18-19 here also.

Chapter 2 - Alternatives, Including the Proposed Action

p.2. In General Restoration paragraph, last line, change "the" to "they". For Monitoring and Research, I believe the "ecosystem monitoring" you refer to should be changed to "recovery monitoring". The Trustees are not proposing an ecosystem monitoring program per se, and such a statement is misleading.

p.6. Figures 2-1 through 2-3. Will these be in color in the DEIS? It is very difficult to distinguish land-ownership from the gray shades.

p. 10. "Alternative 5" paragraph - should we not mention "enhancement" here? I am uncomfortable with the choice of words "encourages appropriate new uses" and suggest you say "allows for .."

p. 12. Under "Birds - Clean Mussel Beds", the statement is false. NPS has studied mussel beds outside PWS. Restrict statement to the "60 beds in PWS".

p. 12. Also, under Recreation, what is the difference between the first two items? I suggest "Improve existing recreation opportunities" is sufficient for both.

Chapter 3 - Affected Environment

p. 1. Under "summarizes injury", strike "birds", insert "biological resources".

p. 4. 1st para. - Include "river outflow" as reason for low salinity in PWS and Cook Inlet.

p.4, 3rd para. - strike "mackerel" and capitalize "Tanner".

Chapter 4 - Environmental Consequences

p. 1., para. 1 - I suggest you underline "increases" in the last sentence to emphasize this point.

p. 2. What happened to a "Marine Mammals" section here? I suggest there should be one.

p. 4, para. 4 - Strike "in" in first line.

p. 5, Table 4-1. This table really needs further description in the caption. Is this per year? For how many years? How were the amounts per category determined? For example, Alternative 5 shows $1,000K for administration, $329K for restoration reserve, etc. Where did these amounts come from? Even the totals seem odd. Alternative 5 totals about $45,000K, Alternative 4 totals about $53,000K. Appendix D doesn't really clarify this and

Appendix D is short enough that the explanation there could be included in Chapter 4 preceding the Table 4-1. Frankly, if we can't understand this information, how will the public.?

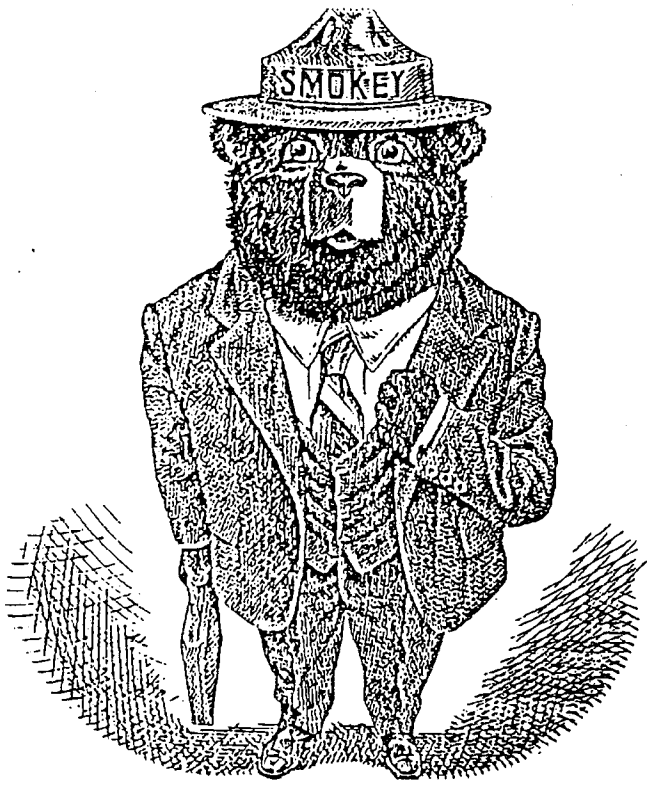
Chapter 6 - Consultation and Coordination

p. 7. Unbold the first line of cities.

p. 8. We would like to review these lists before printing.

Appendix E - Status Report

p. 19. "Murres Damage Assessment Closeout" belongs on p. 2.



TELECOPY COVER PAGE

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FROM: MARIA LISOWSKI

NUMBER OF PAGES (not including the cover sheet) 3

DATE: 5/20/94 TIME: 845

COMMENTS:

United States Department of Agriculture

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May 20, 1994

CONFIDENTIAL ATTORNEY-CLIENT COMMUNICATION/ATTORNEY WORK PRODUCT
DO NOT RELEASE UNDER FOIA

TO: Rod Kuhn
EIS Project Manager
Oil Spill Restoration

FROM: Maria Lisowski
Attorney

SUBJECT: Comments on Draft EIS for Restoration Plan

ISSUE/SUMMARY

You have requested OGC comments regarding the Draft Environmental Impact Statement for the Draft Restoration Plan. I have previously provided page specific comments for Chapters 1 and 2 of the DEIS; page specific comments for Chapters 3 and 4 were provided by facsimile earlier this week. My general comments appear below. Because of the limited time to review the DEIS, the comments provided should not be considered a thorough review of the document. Further comments may be forthcoming during the public review and comment period for the DEIS.

DISCUSSION

1. The environmental consequences section in Chapter 4 discusses only the "short-term benefits" and "long-term benefits" of restoration activities upon resources and uses. The analysis should focus not on benefits but on the effects of the proposed activity and their significance. 40 C.F.R. § 1502.16. Effects may be beneficial and detrimental and discussion of each must be included. 40 C.F.R. § 1508.8. Thus, for example, the potential detrimental effects on wild stocks of fish resulting from the introduction of hatchery reared fish cannot be ignored in the discussion of the environmental consequences of undertaking that proposed restoration activity.

2. Throughout the document the discussion regarding the restoration of services is muddled, frequently implying that direct restoration of reduced services may occur. As noted in the Draft Restoration Plan, projects designed to restore or enhance reduced services must have a sufficient relationship to an injured natural resource, must benefit the same user group that was injured, and should be compatible with the character and public uses of the area. Draft Restoration Plan, p. 14. The discussion regarding the effects of restoration activities upon services

should more clearly link the restoration activity to an injured natural resource and dispel this presupposition that reduced services can be restored directly. At least one means of accomplishing this is by revising the phrase "restoration of resources and services" used throughout the document to "restoration of resources and thereby the services they provide." Additionally, it is appropriate that the effects of restoration activities upon such uses as sport and commercial fishing, recreational use, and tourism be included in the environmental consequences discussion because ecological, aesthetic, economic and social direct and indirect effects of the proposed action must be analyzed. 40 C.F.R. § 1508.8. However, this effects analysis must be distinguished from directly undertaking restoration actions to enhance sport and commercial use of fisheries, recreational use, and tourism. This distinction is frequently not made in the DEIS.

3. References to "subsistence" should be revised to "subsistence uses," the term defined by ANILCA and quoted at page 3-33 of the DEIS. Moreover, the perception that resources used for subsistence remain contaminated does not constitute a natural resource that can be directly restored. User perception can only be changed through the restoration of the natural resources used for subsistence.

4. Failure to analyze the effects of expected monitoring and research activities is a weakness in the analysis, particularly since a research and monitoring plan are not included in the DEIS. This does not allow a decision-maker or reviewer, by examination of proposed activities in the monitoring plan, to verify the DEIS assumption that restoration monitoring and research activities are not likely to produce environmental effects. Moreover, appropriate monitoring and mitigation measures must be identified. 40 C.F.R. §§ 1502.14(f), 1505.3, 1508.20.

5. Failure to include the small parcels that may be proposed for purchase in the effects analyses for habitat protection activities leaves the DEIS potentially subject to supplementation because the small parcel evaluation may be considered new information regarding the proposed action or its impacts. 40 C.F.R. § 1502.9(c).

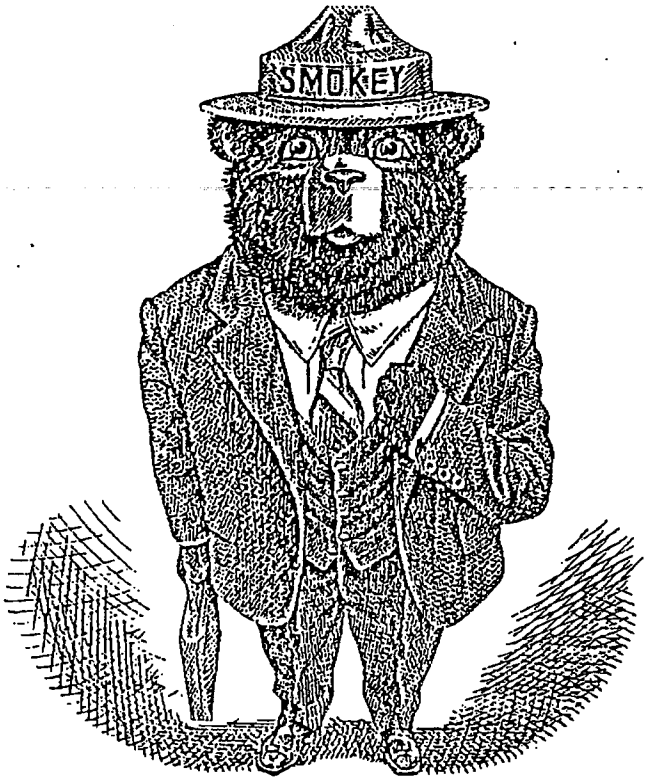
6. Consider including the definition of significant restriction of subsistence uses articulated in *Kuanaknana v. Watt* as a guideline in the ANILCA Section 810 analysis discussion may include as well. The Forest Service has included this discussion in the Section 810 analyses in its recently released EISs. In addition, it appears the preliminary findings from the "Tier I" analysis of Section 810 indicate that the proposed action will not significantly restrict subsistence uses. If that is the conclusion, the "Tier II" analysis does not apply. *See Hanlon v. Barton,* 740 F.Supp. 1446, 1448 (9th Cir. 1988).

7. The DEIS should more carefully discuss the use of hatchery enhancement activities as related to the restoration of wild stocks of fish. The ability to fund hatchery activities with the joint trust funds is questionable. Hatchery stocks are not considered

natural resources for which joint trust funds may be expended. The enhancement of hatchery stocks to divert the fishery of wild stocks is a proposed restoration activity replete with potential detrimental effects regarding its effects on the wild stocks.

I am available to further discuss these comments.

cc: J.Wolfe, EAM
D.Gibbons, EAM
B.Roth, DOI SOL
K.Chorostecki, NOAA GC



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FROM: MARIA LISOWSKI

NUMBER OF PAGES (not including the cover sheet) 22

DATE: 5/18/94 TIME: 10^00

COMMENTS:

more coming as becomes available

also includes narrow fjords and channels that occur in the spill area. The coastal ecosystem has two distinct zones: the subtidal and the intertidal.

The Subtidal Zone

The nearshore, shallow subtidal zone provides the transition area between the marine, deep-water environment and the intertidal zone. The subtidal zone extends from the low tide boundary of the intertidal zone into the open-water area. Because the nearshore subtidal community is similar in many respects to the intertidal community, it is considered separately from the marine ecosystem. Monitoring and research are the most likely restoration actions to focus on the subtidal communities. Because monitoring and research are not likely to produce environmental impacts (see the discussion on Monitoring and Research in Chapter 1, pg 19) organisms in the subtidal community are not analyzed in this DEIS. However, clams occur in both intertidal and subtidal zones and may be affected by some of the proposed actions. Therefore, the impacts on clams will be analyzed along with other intertidal organisms.

Monitoring could have effects, some of which may be significant, when research is involved. This is a particular weakness in the analysis when your monitoring and research plan is not included in the EIS for review

The Intertidal Zone

The intertidal zone is the environment located between the extent of high and low tides. Because of the rise and fall of the tides, the area is not always covered with water. The size of the intertidal area is determined by the slope of the shore and the extent of the rise and fall of the tides (Newell, 1979). Inhabitants of the intertidal zone consist of algae (e.g., *Fucus*), mussels, clams, barnacles, limpets, amphipods, isopods, marine worms, and certain species of fish. The intertidal zone is used as a spawning or rearing area for many species of fish (EVOS Trustee Council, 1992) and serves as a feeding ground for marine consumers (e.g., sea otters, Dungeness crabs, juvenile shrimps, rockfish, cod, and juvenile fishes), terrestrial consumers (e.g., bears, river otters, and humans), and birds (e.g., black oystercatchers, harlequin ducks, numerous other species of ducks, and shorebirds) (Peterson, 1993). Because of the nature of the intertidal environment, the intertidal zone is especially vulnerable to initial and continued contamination in the event of an oil spill, as well as to the effects of cleanup operations (EVOS Trustee Council, 1992).

The oil spill caused population declines and sublethal injuries to the community of plants and animals living in the intertidal zone. Portions of 1,500 miles of coastline were oiled (350 miles heavily oiled), resulting in significant impacts to intertidal habitats, particularly in the upper intertidal zone. With tidal action, the oil penetrated deeply into cobble and boulder beaches that are relatively common on the rocky islands of the spill area. Cleaning removed much of the oil from the intertidal zone, but subsurface oil persisted in many heavily oiled beaches and in mussel beds (mussel beds which were avoided during the cleanup).

Direct oiling killed many organisms, but beach cleaning, particularly high-pressure, hot-water washing, had a devastating effect on intertidal life. Several studies have documented the combined effects of oiling and cleanup on beaches and now track the course of recovery. Because of little or no prespill data, these studies have relied on comparisons of oiled and nonoiled sites. Because of our ability to measure effects on common organisms, these comparisons have been emphasized in the injury studies.

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Historical properties located in the uplands adjacent to treated shorelines were at risk when people visited those uplands. Although a blanket restriction on upland access by cleanup crews was in effect throughout the shoreline-treatment phase, some degree of access was required to efficiently undertake treatment activities. Shoreline-treatment techniques included manual removal, bioremediation, and mechanical treatment (Haggarty et al., 1991).

A variety of pedestrian upland crossings during the cleanup process resulted in damage to cultural resources, especially surface features. Vandalism and looting of cultural sites occurred as a result of uncontrolled or unsupervised access to the immediate uplands, particularly where rock shelters, historic cabins, mine sites, and other surface features or subsurface deposits were exposed. Most of the areas affected by the EVOS had not been adequately surveyed for cultural resources before the spill. Increased activity in these areas resulted in more people knowing the whereabouts of many more historic properties. This in turn resulted in looting and vandalism (Mobley et al., 1990).

Vandalism resulted from the activities of people interested in artifacts but unaware of the damage caused by uncontrolled collecting. Vandalism results in an irretrievable loss of information from sites, and damage to sites often invites further damage. Sites cannot be repaired (Corbett and Reger, 1993). This increase in knowledge of site presence and location continued after the EVOS cleanup, resulting in higher rates of potential and documented vandalism. "At many archeological sites, the damage is actually an increased threat of disruption due to wider public knowledge of the sites" (ADEC, 1993:180). Without additional education and interpretation to increase public awareness of the effect of vandalism on historic properties, and without the additional presence of stewards, monitors, or law enforcement personnel, the trend of site damage appears likely to continue in the future.

Subsistence

Alaska is the only state in which a significant proportion of the population lives off the land or practices a subsistence lifestyle (Campbell, 1991). Subsistence is critical to supporting the incomes and cultural values of many Alaska residents. However, the relatively small, predominantly Native communities had a larger percentage of residents greatly affected than did larger, predominantly non-Native communities (Palinkas et al., 1993).

Subsistence Definitions

While there are a variety of cultural, popular, and sociological definitions and interpretations of subsistence, Congress defined subsistence in Section 803 of the ANILCA as:

> ...the customary and traditional uses by rural Alaska residents of wild renewable resources for direct personal or family consumption as food, shelter, clothing, tools, or transportation; for the making and selling of handicraft articles out of nonedible byproducts of fish and wildlife resources taken for personal or family consumption; for barter, or sharing for personal or family consumption; and for customary trade.

Court rulings on the State's interpretation of ANILCA requirements have resulted in radical changes in State and Federal roles and responsibilities regarding subsistence management in Alaska. The State of Alaska operated a program that met Federal requirements until the

Although a number of fisheries were closed immediately following the spill and reopened once it had been determined that local fish were safe to eat, some Alaska Natives are unwilling to eat them for fear of contamination. Spot shrimp fisheries were closed in 1989 and 1990. Clams, an important part of the Native diet, were shown to be contaminated after the spill. Fish, bear, moose, deer, and other Native meats were deemed safe to eat by Federal and State health officials; but not all Prince William Sound subsistence users were willing to go back to harvesting them.

While subsistence users were being told that the fish were safe to eat, Federal Agencies banned the commercial sale of fish that showed any level of hydrocarbon contamination. The confidence that subsistence users had in the information they were given by health officials was shaken by this inconsistency (ICF, 1993).

Perception of users is not a restoration consideration - cannot restore perception only resources themselves

~~Throughout the restoration process, it is important to consider the effects of perceptions of contamination as well as actual contamination, because it is the perceptions that affect the decision on whether or not to harvest subsistence resources in the EVOS area.~~

Recreation and Tourism

Recreation use in the EVOS area is diverse, with a variety of opportunities available for both commercial (tourism) and noncommercial users. Commercial recreation includes uses by clients and operators of tourism services such as boat tours, fishing charters, and flightseeing services. Noncommercial recreational users engage in many of the same activities as commercial users but do not purchase or pay for the services of tourism businesses. Common recreational activities for all users include kayaking, camping, hiking, boating, sightseeing, photography, scuba diving, beachcombing, flying, sport fishing, hunting, gathering food, and investigating the history of an area. Recreation use occurs year round, but the majority of use from in-state and out-of-state residents occurs during the summer months from May through November (PWSRWG Draft 1994). Because of the remoteness of many of the recreational opportunities in the EVOS area, there is a blending of commercial and noncommercial recreation. That is, noncommercial recreation often entails commercially obtained services, especially transportation. For instance, to kayak in Prince William Sound, many recreationists will take the train to Whittier and charter a boat to access the more remote areas of the Sound. Sport hunters will often use charter aircraft to land them in a remote area to hunt.

Many recreational activities are nonconsumptive. Kayaking, photography, motorboating, flightseeing, and these types of nonconsumptive activities do not remove parts of the environment as an integral part of their practice. Recreational hunting, fishing, and plant gathering are, in contrast, consumptive. Animals and plants are taken from within the area for consumption. These may be consumed while recreationists are in the area or be removed from the area to be consumed in (often) urban areas. Recreational hunting will not be addressed in this document because no restoration plans are likely to be submitted which would affect populations of animals hunted for sport.

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Hatcheries

Article VIII, Section 5, of the Alaska Constitution authorizes the State legislature to "provide for facilities improvements and services to assure further utilization and development of the fisheries". In 1974, the Private Nonprofit Hatcheries Act (Chapter III, SLA 1974) was enacted which "authorized private ownership of salmon hatcheries by qualified nonprofit corporations for the purpose of contributing by artificial means to the rehabilitation of the state's depleted and depressed salmon fishery." Since that time, the ADF&G, Division of Fisheries Rehabilitation, Enhancement and Development (FRED Division) and PNP groups have cooperated to build hatcheries throughout the State, including Prince William Sound, Cook Inlet, and Kodiak (Table 3-4). Although several were built and operated by the FRED Division, all presently are being operated by the PNP organizations to produce fish for the common property fisheries, primarily for the benefit of commercial fishermen.

The importance of hatchery-reared salmon was made apparent during the 1986 season, when approximately 11.5 million pink salmon were caught in Prince William Sound. Approximately 10.5 million fish were harvested in common property fisheries, and 909,219 fish were harvested in the special harvest areas of two major PNP hatcheries to provide operating revenue. Approximately 5.8 million fish in the common property harvest were of hatchery origin. The combined common property and sales harvests of hatchery-produced fish was 6.8 million fish. This marked the first time in the history of the fishery that hatchery fish constituted more than half of the pink salmon harvest in Prince William Sound (Sharr et al., 1988). During the 1993 commercial-fishing season, approximately 12 million pink salmon were harvested at Kitoi Bay Hatchery, near Kodiak. This was more than half of the Kodiak area pink salmon harvest and approximately 49 percent of the hatchery-produced pink salmon of the entire state (FRED Division Annual Report, 1994).

The Prince William Sound hatcheries provide up to 40 percent of the salmon harvest in the Sound. In 1988, because of low natural runs of pink salmon, it is estimated that they contributed almost 90 percent of the Sound's total pink salmon harvest (ADF&G, 1989). Hatchery production in Prince William Sound contributed 83 percent of the pink salmon catch (18 million fish) in 1989, 70 percent (32 million fish) in 1990, and 84 percent (31 million fish) in 1991. Nevertheless, there is evidence that the EVOS had reduced the survival of pink salmon fry that were released from the hatcheries in 1989 (Peckham et al., 1993). During 1993, the preliminary estimated adult returns to the salmon hatcheries in the EVOS area exceeded 21 million fish. The greatest beneficiaries of these fish were the commercial fishers, although some of these fish were caught by sport, subsistence, and personal-use fishermen (ADF&G, 1994).

A shift in the composition of salmon in the harvest by the common-property fishery can be attributed to the hatchery system. Because recent wild-stock returns have been small relative to hatchery returns, it has been necessary to close the mixed-stock areas of the general districts and harvest a majority of the surplus hatchery returns in the hatchery-terminal-harvest areas to achieve minimum escapement goals for wild stocks, (PWSAC, 1990).

The EVOS disrupted the usual pattern of commercial salmon fisheries in 1989 in Prince William Sound; and, although the catch was above the previous 10-year average, an exceptionally large portion of this catch was pink salmon from the special-harvest areas at the PNP hatcheries. Consequently, the common-property commercial-fishery harvests fell below the 10-year average (Brady et al., 1991).

Table 3-3
Salmon Hatcheries Located within the *Exxon Valdez* Oil Spill Area.

Management Area	Hatchery	Operator	Approximate Location	Primary Fish Species
PWS*	Solomon Gulch	Valdez Fisheries Development Association	Valdez	pink, chum, coho
PWS	Cannery Creek	PWS Aquaculture Corporation	north PWS	pink, chum
PWS	Armin F. Koerning	PWS Aquaculture Corporation	south PWS	pink, chum
PWS	Wally H. Noerenberg	PWS Aquaculture Corporation	northwest PWS	pink, chum, coho, chinook
PWS	Main Bay	PWS Aquaculture Corporation	west PWS	sockeye
PWS	Gulkana I, II	PWS Aquaculture Corporation	upper Copper River	sockeye
Lower Cook Inlet	Tutka Bay Lagoon	Cook Inlet Aquaculture Association	lower Cook Inlet	pink, chum
Upper Cook Inlet	Crooked Creek	Cook Inlet Aquaculture Association	central Cook Inlet	sockeye
Upper Cook Inlet	Trail Lakes	Cook Inlet Aquaculture Association	upper Cook Inlet	sockeye, coho
Kodiak	Kitoi Bay	Kodiak Regional Aquaculture Association	Afognak Island	pink, chum, coho, sockeye
Kodiak	Pillar Creek	Kodiak Regional Aquaculture Association	Kodiak	sockeye

*Prince William Sound

Source:

This should NOT be included in Hatchery section — Restoration funds can only be used to restore Natural/wild stocks — this implies that funds can be used for restoration activities associated w/ hatchery stocks or hatchery activities

In addition to fish hatchery production and fisheries management, ADF&G has worked with the U.S. Forest Service (USFS) and the PNP groups to implement management measures or in-stream projects to rehabilitate, if necessary, and increase salmon populations in the Prince William Sound area. Past efforts have included restoring wild stocks to former levels of abundance through stream improvements, fish ladders, and other activities that improve natural habitat conditions. Stream-rehabilitation projects have been carried out by the USFS in cooperation with the ADF&G, because many of the spawning streams are located in the

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Between 1984 and 1988, the number of anglers and fishing days, and the total fish harvest in the oil-affected area had been increasing at a rate of 10 to 16 percent per year. Since 1977, there has been a 4.5 percent average- annual increase in the number of residents who sport fish, while the number of nonresidents sport fishing has increased 16 percent annually. However, after the oil spill, between 1989 and 1990, a decline in sport fishing (number of anglers, fishing trips, and fishing days) was recorded for Prince William Sound, Cook Inlet, and the Kenai Peninsula. The decline occurred because of closures, fear of contamination, the unavailability of boats, and congestion at some sites outside the spill area (Carson and Hanemann, 1992). In 1992, an emergency order restricting cutthroat trout fishing was issued for western Prince William Sound because of low adult returns. The closure ~~is expected to continue at least~~ through 1993.

Because commercial fishing for sockeye salmon in Cook Inlet was curtailed in 1989 to avoid fouling fishing gear and processing tainted commercially caught fish, the number of sockeye salmon that spawned in the Kenai River was approximately three times the desired amount. Although sport fishers enjoyed this bounty in 1989, this spawning resulted in an overpopulation of sockeye salmon fry and a dramatic reduction in smolt production. Consequently, very weak returns are forecasted for 1994, 1995, and possibly later years as well. These weak returns are likely to lead to some sport fishing closures as well as commercial fishing closures (Koenings, Schmidt, Fried, Tarbox, and Brannian, 1993; Schmidt, Tarbox, Kyle, King, Brannian, and Koenings, 1993).

In 1986, the estimated expenditures by sport fishers in southcentral Alaska were $127.1 million. These expenditures directly supported over 2,000 jobs in sport fishing-related businesses, and the equivalent of 2,840 full-time jobs were supported in all industries in Alaska by sport fishing activity in southcentral Alaska (Jones and Stokes, 1987). Carson and Hanemann (1992) calculated that there were 127,527 and 40,669 sport fishing trips lost during 1989 and 1990, respectively, in southcentral Alaska because of the EVOS. They also calculated that the lost economic value of these trips was $31 million and ranged from $3.6 million to $50.5 million.

Economy

The economy for the EVOS area and Anchorage for 1990 is described in summary in Table 3-3. Anchorage is added to the EVOS area because there are so many strong linkages from the economy of the EVOS area to Anchorage which is the closest large economic center to the EVOS area. This table has 12 economic sectors and six measures of economic performance. It is in the format of IMPLAN (IMpact PLANing) which is an economic model used for economic analysis.

IMPLAN's output classification system is based on systems defined by the Bureau of Economic Analysis, U.S. Department of Commerce, and the Standard Industrial Classification (SIC) used by the federal Office of Management and Budget. The analysis is conducted using 528 industries and the results are aggregated into 12 sectors. The 12 sectors are as follows:

1. Forestry - Forestry firms operating timber tracts, tree farms, forest nurseries or perform forestry services.

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Monitoring and research, as actions, generally do not impact resources and services and therefore are analyzed only for their economic impacts. It is recognized that the general restoration category also includes such actions as data gathering, surveys, and analysis that would not impact the resources--thus these activities would not be included in the EIS analysis except for the impacts on the economy.

"Recovery"

The definition of the term recovery has a significant bearing on the discussion of the various alternatives described in this chapter. The settlement funds may be used for the purpose of, ". . . restoring, replacing, enhancing, rehabilitating or acquiring the equivalent of natural resources injured as a result of the *Exxon Valdez* oil spill and the reduced or lost services provided by such resources." The goal of restoration is recovery of all injured resources and services. For some resources, little is known about their injury and recovery, so it is difficult to define recovery or develop restoration strategies.

thereby the services they provide

In the analysis of impacts to the various resources in the EIS, it may be that an action will accelerate the rate of recovery and not measurably impact the number of individuals in the population for several years. This is still viewed as having a significant beneficial impact on the resource analyzed.

In general, resources and services will have recovered when they return to conditions that would have existed had the spill not occurred. Because it is difficult to predict conditions that would have existed in the absence of the spill, recovery is often defined as a return to prespill conditions. For resources that were in decline before the spill, such as marbled murrelets, recovery may consist of stabilizing the population at a lower level than before the spill.

Where there were little prespill data, injury is inferred from comparison of oiled and unoiled areas, and recovery usually is defined as a return to conditions comparable to those of unoiled areas. Because the differences between oiled and unoiled areas may have existed before the spill, statements of injury and definitions of recovery based on these differences often are less certain than in those cases where prespill data exist. However, there also can be some uncertainty associated with interpreting the significance of prespill population data because populations undergo natural fluctuations. Indicators of recovery can include increased numbers of individuals, reproductive success, improved growth and survival rates, and normal age and sex composition of the injured population.

Birds

The following factors and assumptions were considered when evaluating alternatives and actions concerning injured bird resources: (1) valuations of land that may be acquired for habitat were based on criteria and a process developed by the EVOS habitat group; (2) prespill baseline data are meager or nonexistent for most species; (3) population size depends on many biological, ecological, and environmental factors, and population size changes as a result of lifespan, productivity, and survival rate; (4) populations cycle in response to environmental cycles; (5) it is unknown whether or how a 19-year climatic cycle in the Gulf of Alaska has affected populations; (6) migrants may be influenced by environmental factors far from the EVOS area; (7) population cycles are barely known for most species; and (8) the influence of commercial-fishing activities on seabird populations in the EVOS area are unknown, but could be substantial. For example, fishery harvests and hatchery programs could influence seabird populations in three ways: (1) prey may become less available to seabirds because fish species that occupy the same trophic levels may outcompete seabirds;

(2) an increase in abundance of salmon fry and smolts may increase seabirds' prey base; and,
(3) offal and discarded bycatch may increase the food base of scavenging seabirds.

Fish

Fishery resources that are included for analysis in this EIS are pink and sockeye salmon and Pacific herring. Related services that are included are sport and commercial fishing. Actions that may be proposed as general restoration projects as part of the programs described for each alternative will have a benefit ~~for restoring or replacing for~~ one or several of the fishery resources or ~~services~~. Forecasted feasibility, results, benefits and costs from each of these actions, however, are highly site specific, vary annually, and are difficult to quantify. Consequently, analyses and predicted impacts presented here must be general in nature. The proposed actions are intended primarily to benefit wild-stock fishery resources, either directly by habitat or population manipulations or indirectly by providing an alternate opportunity for user groups to reduce pressure on the wild stocks to allow them to recover.

and thereby the services they provide

Each proposed action for these fishery restoration or replacement projects is based on the basic premise that some factor or habitat need in the life history of a fish either limits the size of the population or is missing. For example, if spawning habitat is absent, there can be no fish; if spawning habitat is present (and no other factor constrains the size of the population), the number of fish will depend on the amount of spawning habitat, but it will vary annually according to environmental conditions. The basic concept for each proposed action, therefore, is to identify and overcome a limiting factor or "bottleneck" that will result in an increase in the total number of adult fish that will return to a particular home stream.

Economy

The economic analysis for the five alternatives is a combination of qualitative and quantitative approaches. The economic analysis is focused on three sectors of the economy of most concern: forestry, commercial fisheries, and recreation. Taking timberlands in or out of production is quantified in terms of dollars and jobs. However, studies and data on the economic effect of the types of actions proposed in the alternatives on the commercial fisheries and recreation are not adequate to make quantitative projections.

The Forest Service's IMPLAN (IMpact PLANning) economic computer model was used in the quantitative analysis of the economic impacts of implementing each of the proposed EVOS Restoration Plan alternatives. Alternatives 1 through 5 are compared to the "baseline" economic conditions in 1990 found in Table 3-3, Chapter 3.

An attempt has been made to quantitatively analyze the recreation sector of the economy in the tables generated by IMPLAN. Discrete data are not available for the recreation industry. For example, data are available for hotels, but a differentiation is not made between recreational visitors and business visitors. The recreation-related sector shown in the tables on economics are composed of several IMPLAN subcategories: local transit, water transportation, air transportation, transportation not elsewhere classified, hotels, auto rental, and recreation services not elsewhere classified. Where the term recreation is used in economic analysis, it includes tourism.

The IMPLAN as applied to this analysis for the forestry sector shows the negative effects in output and employment when timberlands are purchased and timber is not harvested. There

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is a corresponding increase in the services sector output and employment because of expenditures in that sector by the owners of the timberlands. Restoration expenditures have a direct effect on the construction sector.

The descriptions of the alternatives are general. This, combined with the lack of data to quantify the economic effects for the commercial fisheries and recreation sectors, results in an inability to distinguish the economic effects among the alternatives.

The IMPLAN is an economic model that is the best economic tool for analyzing the economic effects of the alternatives analyzed in this draft environmental impact statement (DEIS). However--as with any tool of economic projection--even when quantified data is available for analysis, IMPLAN is not perfect. While exact numbers of various economic measures are the outputs of the model, the results are not intended to be precise measurements. The projections from the model represent approximations of the economic future.

The IMPLAN estimates in income and employment change as the product of the demand changes (e.g., an alternative) and a multiplier. Estimating multipliers requires data and a description of the regional economy. The data are the National input-output matrices that show the dollar volume of transactions among industries and final demand. The National matrices are stepped down to the borough and census-area level by using borough population and employment data and ratios of employment to output. The boroughs and census areas aggregated in this assessment are the Municipality of Anchorage, Kenai Peninsula Borough, Kodiak Island Borough, and the Valdez-Cordova Census Area. This area encompasses the EVOS area and the closest major economic center (Anchorage). The Municipality of Anchorage was included to ensure that the flow of goods and services in and out of the oil spill area is adequately accounted for in the IMPLAN economic model.

The key assumptions in the IMPLAN economic assessment are as follows: each industry has an output, and this output does not experience short-term variation; there is a fixed formula for making commodities, and there can be no substitutions; there are only constant returns to scale (i.e., to make twice as much of something, all inputs are doubled); adjustments are instantaneous, and timeliness and technology do not change.

For each Restoration Plan alternative, the amount of funds allocated for each expenditure is divided among restoration activities and the economic sector participating in those activities, as shown in Table 4-1, Allocations for Economic Analysis. Assumed for purposes of

See Appendix D for a further description of the methodology of economic analysis.

Archaeological/ Cultural Resources

While it is recognized that archaeological resources were injured as a result of the EVOS, this report incorporates various aspects of cultural resources relating to the physical remains of indigenous and historic inhabitants of the EVOS area and the values inherent in those remains for contemporary and future members of the public. Restoration actions are oriented toward physical remains because those were directly injured by the EVOS. The values of these remains for local communities, whose ancestors lived and are buried at some of these sites, would be addressed through actions relating to those remains. Archaeological sites and artifacts themselves are important kinds of cultural resources, but other cultural resources such as stories associated with specifice sites or artifact types, or traditional

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Assumed purposes of

Table 4-1
Allocations for Economic Analysis

Restoration Category/ Economic Sector	Alternatives 1	2	3	4	5
Administration[1]	$0	$2,178	$3,267	$3,911	$1,000
Federal Government	50%	50%	50%	50%	50%
State & Local Gov't.	50%	50%	50%	50%	50%
Monitoring[1]	$0	$2,722	$3,811	$4,356	$11,621
Federal Government	33%	33%	33%	33%	33%
State & Local Gov't.	34%	34%	34%	34%	34%
Universities	33%	33%	33%	33%	33%
Restoration[1]	$0	$0	$6,534	$19,056	$5,534
State & Local Gov't.	-	-	33%	33%	33%
Fisheries Services	-	-	34%	34%	34%
Construction	-	-	33%	33%	33%
Habitat Protection[1]	$0	$34,900	$31,285	$26,331	$26,420
Real Estate	-	0.5%	0.4%	0.3%	0.3%
Forestry	-	99.5%	99.6%	99.7%	99.7%
Restoration Reserve[1]	$1,906	$0	$0	$0	$329
Banks	100%	-	-	-	100%
Respending by Landowners[1]	$0	$29,418	$23,296	$13,433	$13,300
Securities	-	13%	13%	0%	0%
Construction	-	29%	29%	40%	40%
Social Services	-	29%	29%	40%	40%
Household Spending	-	29%	29%	20%	20%

[1] 1990 Dollars (X 1,000)

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Alternative 1 - No Action

Introduction

The No Action Alternative is required by ~~NEPA~~ CEQ guidelines to provide a basis for comparing the impacts of the other proposed alternatives. In this DEIS, the No Action Alternative describes what would happen to the resources and services injured by EVOS if no restoration actions were implemented. Because none of the civil settlement funds would be spent to aid recovery, the only actions undertaken within the spill area would be the result of normal agency management or private enterprise. For biological resources, recovery from oil spill injuries would be unaided (natural recovery) and could be complicated by other human activities that could cause further injuries or habitat loss. The recovery of other resources or services also may be influenced by other nonoil spill-related actions.

Biological Resources

Impact on Intertidal Resources

The intertidal zone was especially vulnerable to injury from the EVOS and from the subsequent cleanup operations. The oil spill caused population declines and sublethal injuries to the plants and animals of the intertidal zone. Portions of 1,500 miles of coastline were oiled (350 miles were heavily oiled), resulting in significant impacts to intertidal habitats, particularly in the upper intertidal zone. Direct oiling killed many organisms, but beach cleaning, particularly high-pressure, hot-water washing, had a devastating effect on intertidal life (Houghton, Lees, and Driskall, 1993).

Coastal habitat studies documented changes in many species of algae, invertebrates, and fish; the injuries were highly variable between species, regions, and habitats (Highsmith et al., December 1993). For most of the intertidal zone, the effects of the oil spill were probably short term. Studies in 1992 and 1993 showed that many of the differences in habitats and organisms that were documented in 1989 and 1990 were recovered (Houghton, Lees, and Driskall, 1993; Highsmith et al., December 1993). However, some areas had not yet begun to recover or were recovering very slowly. This was especially evident in the upper 1 meter vertical drop (MVD) of sheltered rocky habitats where the algae *Fucus gardneri* is the dominant plant species (Highsmith et al., December 1993; Highsmith et al., October 1993; Houghton, Lees, and Driskall, 1993). This discussion focuses on the organisms and habitats that are the least likely to have recovered.

Fucus

This algae, or rockweed, is an important component of the upper intertidal zone because it provides food for many invertebrates, as well as shelter from predation and desiccation for many plants and animals (Highsmith et al., October 1993). The oil spill and subsequent cleanup destroyed many of the plants in the upper meter and reduced the reproductive capacity of the adult plants that survived (Highsmith et al., October 1993). These injuries were documented in all regions of the spill area but were highly variable between tidal elevations (MVD) and habitats (Highsmith et al., December 1993).

The Herring Bay Experimental and Monitoring study (Highsmith et al., October 1993) provided information on the recovery of plants and invertebrates in the intertidal zone.

the Nation's spirit of religious protection, historic preservation, and archaeological knowledge as expressed in numerous laws and their implementing regulations.

In their current state, cultural properties in the spill area are in danger of vandalism, looting, and erosion. Erosion destroys the context by which archaeologists identify, classify, and explain sites, sometimes leaving only a few artifacts as clues. This has occurred largely as a result of disturbance to vegetation that stabilizes deposits exposed to the ocean or streams. These exposed artifacts are then subject to weathering and may be completely destroyed or carried off by casual visitors or looters. Exposure of artifacts also may spark the interest of visitors otherwise unaware of archaeological remains at a site, prompting unpermitted and damaging digging or collecting.

Vandalism already has seriously affected some sites. Key diagnostic artifacts have been illegally taken, ancient burial sites have been violated, and potholes dug by looters have destroyed critical evidence contained in the layered sediments. The exact extent of the vandalism as compared with the effect of the oil spill response on cultural resources has been determined only in a few cases, but it is documented that vandalism is a serious threat to cultural properties.

Should the No Action Alternative be selected, injuries will not be repaired to any degree through stabilization of eroding sites, nor would eroded artifacts be removed, restored (if oiled), and stored in an appropriate facility. Sites and artifacts would not be protected from further injury from looting and vandalism. The actual extent of damage would not be known because no monitoring would be done. Sites would not be excavated in order to retrieve scientific and cultural knowledge before irreparable damage ensued.

Short-term effects would include the loss of all or part of at least 24 sites within 10 years. In the long term, 10 years and beyond, increased public knowledge of site locations (knowledge spread as a result of the oil spill response) will escalate the level of looting and vandalism. For the purposes of this analysis, 10 years will be considered long term because the available information does not allow for reasonable estimates of effects beyond that time. The estimated long-term effects of this alternative are expected to extend to beyond the estimated 113 sites already damaged because of increased knowledge of site location. Also, a documented increase in numbers of visitors will translate to increased impacts on sites, whether or not such impacts are intentional.

Conclusions. Under this alternative, cultural resources in the spill area would not be protected, enhanced, or understood better than at present. Over the long term, this would constitute a low level of negative impact to archaeological and historical sites and to the understanding and appreciation of cultural resource values as they apply to the spill area. Over the short term, the impacts of this alternative would be negligible. Benefits to cultural resources would be negligible in the short term and in long term.

Subsistence Uses

If no restoration activities occur to assist in the ~~projects are funded that would facilitate either (1) the~~ recovery of species on which subsistence users depend ~~or (2) the recovery of subsistence users' confidence in the lack of health risk associated with subsistence use;~~ present trends in subsistence use will continue. In the short term, the effect of this alternative would be negligible. The level of subsistence

4 Environmental Consequences

harvest, as measured in pounds per person, would continue rising to, or beyond, prespill levels in some communities. Harvest levels would remain at below prespill levels in other communities, with the Native villages of Tatitlek, Chenega Bay, and Ouzinki at most risk of continued lowered harvest levels. Under this alternative, lands in the spill area that now provide important habitat for some subsistence species would remain unprotected from extractive economic activities like logging and mining. Should those activities happen in environmentally sensitive areas, the ensuing degradation of habitat ~~would~~ cause additional instability in the populations of species important for subsistence, possibly leading eventually to reduced populations of target species and reduced levels of subsistence activities. This would be a long-term high-level negative effect. Long term, for the purposes of this analysis, is considered 10 years because present information does not allow a reasonable projection of conditions beyond that length of time.

A major long-term effect of this alternative to subsistence is the continued uncertainty of the safety of subsistence foods. There is a persisting fear of remaining contamination in traditional foods. This ~~would~~ cause continued stress to community members and further degradation of subsistence lifestyle as younger people (1) are not taught the methods and attitudes that accompany subsistence activities and (2) become more dependent on imported foods.

Even if species on which subsistence users depend were to recover unassisted over the long term, the negative effect of the hiatus in subsistence as it relates to reintegration of cultural values into the communities would be high. These cultural values are intertwined with stories, lessons, techniques, history, place names, and so on that are relevant only in the context of subsistence activities. They are not passed on outside of that context and are impossible to fully reconstruct if not passed down.

Conclusions. In the No Action Alternative, the existing trends in subsistence harvest species populations and subsistence use are likely to continue over the long term. A continued hiatus in subsistence activities would have a long-term, potentially permanent negative effect on the perpetuation of cultural values within some of the villages in the spill area. Short-term and long-term benefits to ~~subsistence species or subsistence use~~ would be negligible.

Recreation and Tourism

The No Action Alternative would have negligible effect on recreation or tourism in the short term. Present trends of increased levels of tourism and shifts in recreation locations and activities would continue. These trends include higher visitor rates, especially tourist user groups such as cruise ship passengers, State Ferry passengers, and lodge guests. They also include shifting of recreation activities away from oiled beaches.

Damage to tourism came from two main sources: damage to natural resources negatively affecting people's desire to visit the area and displacement of usually tourist-oriented services to spill-oriented services.

The oil spill is estimated to have caused the potential loss of 9,400 visitors for the summer of 1989, representing $5.5 million in in-State expenditures. However, strongly spill-related business in some of the major cleanup areas such as Kodiak, Homer, Seward, Valdez, and Anchorage gained business as a result of the oil spill. Business sectors like hotels/motels, car/RV rentals, and air taxi and boat charters were among those to benefit. For these

businesses, business otherwise lost through lack of vacation/pleasure visitors was offset through cleanup-related business. The large decline in business for tourism associated with 1989 were less severe in 1990, with 12 percent of businesses indicating negative impacts. Negative impacts continued through 1990, with fewer bookings as a result of the spill, particularly among fishing lodges in Southwest Alaska (McDowell Group, 1990). The No Action Alternative would not cause a reduction in the trend of tourism-related business regaining prespill service levels and so is likely to have no effect.

Because oil fouled beaches, there was and still is a reduction of quality destinations available to some recreation users. There also was a reduction in ~~quality and~~ quality of remote destinations in the spill area because cleanup activities inserted people, noise, and large motorized equipment throughout the spill area and disturbed the area's undeveloped and normally sparsely occupied landscape. This is no longer a significant effect in the spill area because the level of cleanup activity has decreased dramatically. However, some materials used during cleanup remain dispersed throughout the spill area, and the effects of having so many people on the shores and adjacent uplands remain visible in many places. In the No Action Alternative, no funds would be expended to conduct activities that would reduce these effects.

Public-use cabin rentals and visitor-use data from the State of Alaska, Chugach National Forest, and Kenai Fjords National Park show fewer visits in some of the spill area in 1989 an 1990. Decreased use is an injury to those who would like to have used the area but avoided it because of the spill. Some recreation users were temporarily or permanently displaced from their customary or preferred sites due to spill-related changes such as crowding, presence of oil, or other factors. As a result of the oil spill, others changed the type or location of recreation use in which they historically engaged. While fewer people visited some areas, other areas experienced increased use. In some cases, increased use is causing additional resource damage and decreased enjoyment of overused areas.

Under the No Action Alternative, no actions would be taken to readjust shifted use patterns. In the short term, this would have negligible effect. However, in the long term, continued decreased use in some areas would continue. Also in the long term, overuse of some areas would lead to further shifting of recreation activities as overuse areas become no longer desirable. This would decrease visitor satisfaction and place greater stress on land owners (both public and private) to reduce impacts to new, potentially unauthorized areas. New areas may be on or near sensitive locations: habitat for recovering or protected species, traditional subsistence use areas, or cultural sites.

The oil spill caused injury to the way people perceive recreation opportunities in the spill area. Public comment indicates that people experienced an increased sense of vulnerability of the ecosystem in regard to future oil spills and erosion of wilderness character. There is a continued sense of permanent change, including unknown or unseen ecological effects and complete disruption of the ecosystem and contamination of the food chain.

People who used the spill area before the oil spill occurred generally have greater perceptions of injury than first-time recreation users of the spill area. Perceptions are changed more often for shore-based recreation users than those who remain on vessels. The No Action Alternative will not, in the short term, affect people's perceptions of recreation opportunities in the spill area. Over the long term, people's perceptions of recreation

opportunities are tied to the recovery of natural resources in the spill area. Some displaced users are returning to the spill area, and if more species recover and evidence of oil and cleanup dissipate, then perceptions of opportunities for recreation in the spill area will be enhanced. The converse is true as well--if natural resources do not recover, perceptions of injury to recreation opportunities likely will not improve.

X

If this alternative is selected, logging and/or mining is likely to occur throughout the spill area. This ~~would~~ is expected to have a long-term negative effect on recreation and tourism. The effect would be twofold, including more direct and less direct aspects. The direct aspects are those that reduce the immediate recreation quality. These include such things as reducing the visual quality of relatively undeveloped landscape (the uncut and unscarred hillsides, wildlife viewing opportunities), and the insertion of people and machinery into the natural setting (mechanical action and noise). The indirect effects on recreation are those that affect the ecosystem on which these services depend, including reduction in wildlife habitat.

There are some long-term effects that differ ~~between~~ among user groups. Tourist user groups (cruise ship passengers, ferry passengers, lodge guests, and boaters who do not often put to shore) will experience low to zero level of impact from the residual effects of the EVOS. Tourist services will continue to increase as new facilities are developed, adding time to long-term recovery unless extensive mining and logging occur. This is in contrast to remote and dispersed recreation (those activities like kayaking, beachcombing, and motor boating, where people spend considerable time in the intertidal and adjacent coastline zones), which are likely to experience continued negative impact in the long term. Shifting of recreation activities from oiled to nonoiled areas is likely to continue on a long-term basis, thereby impacting specific areas and facilities through continued human use.

Some recreation facilities were injured by the spill, most from overuse or misuse during 1989 and 1990. The No Action Alternative will not affect this injury in the short term, but the long-term scenario would be of continued damage, leading to closure or destruction of affected facilities.

Conclusions. The short-term impacts--negative or positive--of the No Action Alternative on recreation and tourism would be negligible. Long term, there would be low negative impacts to tourism and moderate negative impacts to recreation. Long-term benefits to recreation and tourism would be negligible.

Wilderness

Designated Wilderness and Wilderness Study areas will have recovered when oil is no longer encountered in these areas and the public perceives them to be recovered from the spill. This alternative will develop no means to address the presence of oil or public perceptions of recovery in Wilderness areas. This will accrue a negligible short-term effect. The long-term effect will be persistence of oil in designated Wilderness areas and Wilderness Study areas, although these pockets of oil are expected to eventually weather to a level of insignificance. Public perception of damaged Wilderness will persist as well.

Conclusions. The short-term negative impact to Wilderness and Wilderness Study areas would be negligible. The long-term persistence of oil and public perceptions of damage would be a moderate-level negative impact. The long-term benefit to Wilderness would be negligible.

Commercial Fishing

If there ~~is no action to develop new alternate commercial fisheries or~~ are no restoration activities restore to ~~augment~~ injured species used for commercial fisheries, the recovery of these fisheries will depend solely on the natural recovery of the injured pink salmon, sockeye salmon and Pacific herring populations and normal conservative management practices of the responsible agency. Most commercial fisheries in the *Exxon Valdez* oil-spill area will most likely be managed very conservatively by the resource manager until the injured resource populations are demonstrated or are believed to be recovered. This attitude may persist for 10 to 50 years depending on the injured resource and the specific population and any real or perceived uncertainty about the status of the recovery of these populations by the management agency will be reflected in a more conservative approach to the management of the resource. Fish habitat protection to maintain normal rates of production will rely solely on protective actions of normal resource agency planning and permitting procedures (Appendix C).

Conclusions.

- short-term. Negligible. No observable improvements within one life cycle.
- long-term. Moderate. Recovery can be expected through the natural process although some areas or commercial fisheries may not recover to pre-spill conditions and some populations will recover sooner than others.

Sport Fishing

If there is no action to restore lost sport fishing ~~opportunities, provide new opportunities or augment existing opportunities,~~ the recovery of this service will depend upon natural rates of population and ecosystem changes and natural rates of recovery of the injured populations of cutthroat trout, Dolly Varden, and sockeye and pink salmon and normal management activities of the responsible management agency. Any uncertainty by the fishers or the resource manager about the recovery of these resources will result in more conservative actions.

Conclusions.

- short-term effects. Negligible. No improvements are expected within one life cycle.
- long-term effects. Moderate. Some resources and some populations will recover sooner than others, and some resources or populations may never recover to pre-spill levels. Confidence in the rates of recovery will be low without monitoring. Real or perceived recovery of the injured resources and services may require 10 to 20 years.

Impacts on the Economy

Qualitative analysis indicates that Alternative 1 will result in moderate negative economic effects in commercial fisheries and recreation and moderate economic benefits in forestry as a result of timber harvesting. Quantitative analysis reflects effects resulting from habitat acquisition on forestry and other sectors but not effects on commercial fishing and recreation because data are not available to quantify in these sectors. The quantitative analysis follows.

4 Environmental Consequences

available for restoration

The title "No Action Alternative" is somewhat misleading with respect to economic impacts. Under Alternative 1, no lands would be purchased for habitat or facilities would be constructed ~~or services purchased~~ for restoration. However, it is assumed for the purpose of economic analysis for this alternative that the $620 million would be invested. Therefore, as indicated in Table 4-3 , Alternative 1, the ~~most significant~~ economic effects are in the finance, insurance, and real estate sector, for which there is a $1.6 million increase, and in the services sector, for which there is a $76 million increase. The total increase in output is $3 million. The employment increase is 21 in finance, insurance, and real estate and 15 in services. The total increases for all sectors are $3.04 million for output and 47 jobs.

because this alternative assumes such activities will not occur.

Habitat acquisition and general restoration expenditures will have economic benefits for the commercial fisheries and recreation sectors of the economy. However, these benefits are not reflected in the IMPLAN projections presented in Table 4-3. Therefore, this table does not quantify important economic benefits in commercial fishing and recreation because these benefits are not quantified. Of the three most important economic sectors for this analysis, only forestry is quantified. The typical projects in various combinations, such as fish ladders, fish hatcheries, and preservation of habitat will economically enhance the commercial fisheries and recreation sectors of the economy. However, because studies and data are not available that quantify in terms of dollars or employment, it is not possible to quantify the economic effects for these two sectors of the economy. In Table 4-3 the quantities for the commercial fisheries and recreation sectors are reflections of the indirect effects of other sectors of the economy only; they are not reflections of the anticipated but unquantified effects on those sectors.

See the introduction to economics in Chapter 4 and Appendix D, Economics Methodology, for a more detailed discussion of methodology.

Conclusions. Qualitative analysis indicates that Alternative 1 will result in moderate negative effects in commercial fisheries and recreation. Quantitative analysis reflects effects resulting in several sectors from investment but not effects on commercial fishing or recreation. Quantitative analysis indicates that Alternative 1 results in annual averages in output for a 10-year period in increases of $1.6 million for the finance, insurance, and real estate sector; $76 million in the services sector; and $3 million for all other sectors. Employment increases jobs by 21 in the finance, insurance, and real estate sector; 15 in services; and 47 total.

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Alternative 2: Habitat Protection

Introduction

This Alternative focuses on increasing the protection of the greater EVOS ecosystem through protecting strategic lands and habitats important to resources and services injured by the spill. In this alternative, 91 percent of the remaining settlement funds would be used for habitat acquisition and protection. Title acquisition, conservation easements, and other less-than-fee-simple methods would be used to provide protection to habitats on private lands. Increasing the protection of habitat throughout the oil-spill area will be beneficial to the entire ecosystem by reducing further habitat degradation that may compound the effects of the oil spill. Monitoring activities would follow the progress of natural recovery for the injured resources.

Impacts on Biological Resources

Impact on Intertidal Resources

In this alternative, the restoration program concentrates exclusively on habitat protection actions that prevent or reduce habitat loss and disturbance to resources and services injured by the EVOS. This analysis considers the impacts of protecting the 81 upland parcels described in the Comprehensive Habitat Protection Process: Large Parcel Evaluation & Ranking Volume I and Volume II (EVOS Restoration Team, 1993). Smaller parcels that also may be considered for protection under this alternative currently are under evaluation and are not discussed in this analysis.

The habitat protection process used to evaluate the 81 parcels for their potential benefits to injured resources and services combined intertidal and subtidal biota and used the following criteria for ranking the parcels:

- "High" for parcels adjacent to areas with a known high species abundance and diversity; high quality habitat for intertidal and subtidal biota;
- "Moderate" for parcels adjacent to extensive intertidal habitat with observed or probable moderate species diversity and abundance; and,
- "Low" for parcels with little intertidal habitat with low species abundance (EVOS Restoration Team, 1993).

Of the 81 parcels evaluated using these criteria, 25 of the parcels were ranked High, 33 were ranked Moderate, 19 were ranked Low, and 4 were not associated with the coastline and had no rating for intertidal/subtidal organisms (EVOS Restoration Team, 1993).

The benefits to intertidal and subtidal organisms through the protection of upland habitats comes in two forms. First, the protection can prevent the intertidal and subtidal areas from being altered by the actions that may occur on the parcels. Some actions can cause indirect adverse effects through siltation or increased pollution, while other actions, such as the construction of a dock or creating a new harbor, directly could alter the intertidal and subtidal

4 Environmental Consequences

Harlequin Duck

Habitat Protection. Potential nesting habitat of harlequin ducks will be receive maximum protection under this alternative, thus enhancing productivity and recovery of their depleted populations. However, there is very little information available on use of specific land parcels by harlequin ducks, so it is difficult to determine the significance of acquisition of specific parcels on harlequin duck population recovery.

Conclusions. The short-term effects through 1995 of land acquisition on harlequin duck recovery are likely to be negligible, and populations likely would remain stable at 1990 to 1993 levels in both oiled and nonoiled areas. The long-term effects of this alternative would be to maximize the reproductive potential of harlequin ducks in the EVOS area.

Murres

Habitat Protection. Acquisition of habitat would have little benefit to the injured murre population, because there are no sizeable colonies and very few smaller colonies that are not already protected. A seabird colony on privately owned Gull Island in Kachemak Bay has a small number of common murres, and it is a tourist attraction that several commercial tour boats visit daily in summer.

Conclusions. Acquisition of Gull Island would ensure protection of this ~~popular tourist attraction~~ colony, and thus may have a moderate long-term benefit to murres. However, because there appears to be no imminent plans to develop this small, rocky island, there would be little short-term benefit.

Pigeon Guillemot

Habitat Protection. In Prince William Sound, the large majority of pigeon guillemot colonies are on U. S. Forest Service (USFS) land (Sanger and Cody, written comm., 1994) that is not slated for logging (Frey, written comm., 1994). Two of the largest colonies in Prince William Sound, at The Pleiades and on Bligh Island, totaling approximately 3 percent of the 1993 breeding population, are on private land (Sanger and Cody, written comm., 1994). In the 1970's, both of the latter colonies probably harbored larger numbers of nesting guillemots than at present. There are two colonies adjacent to private land that currently is being logged on the eastern, nonoiled portion of Prince William Sound, but they had very few guillemots in 1993; it is unlikely that they were affected by the inland logging operations (Sanger and Cody, written comm., 1994). Outside of Prince William Sound, the Seal Bay area on Afognak Island has low numbers of pigeon guillemots and has already been acquired; little is known about the current status of guillemot colonies elsewhere in the EVOS area (USFWS, 1993).

Conclusions. Habitat acquisition would have little effect on pigeon guillemot population recovery on the short term, because there appears to be no development slated for private land with known colonies. On the long term, acquiring habitat where two of the largest colonies in Prince William Sound are located would have a moderate benefit in allowing population recovery and in preventing further inroads to the injured population through habitat degradation.

Marbled Murrelet

Habitat Protection. Details of habitat use by marbled murrelets are being clarified, and studies in Prince William Sound are showing that large, moss-covered limbs of old-growth conifers comprise prime nesting habitat. Current and possible future logging of such habitat on private land is the single greatest threat to population recovery of marbled murrelets, and it poses the additional threat of reducing the population more. Acquisition of prime nesting habitat would thus maximize the potential for the injured marbled murrelet population to recover while preventing further injury to the population.

Conclusions. Depending on the potential for imminent logging on land parcels that contain prime habitat, the short-term effects of land acquisition could be considerable. On the long term, acquisition of old-growth-forest habitat ~~would~~ have a high benefit for enhancing murrelet population recovery. is expected to

Fish

Pink Salmon

Alternative 2 includes only one restoration action to assist natural recovery of wild-stock pink salmon populations: habitat protection and acquisition (EVOS Trustee Council, 1993).

Habitat protection criteria for parcels that may benefit pink salmon include ratings of High for parcels with a high density of pink salmon streams or streams known to have exceptional value; Moderate for parcels with an average density of pink salmon streams or streams with average production, and, Low for parcels with few or no pink salmon streams or streams with no production (EVOS Restoration Team, 1993).

Forecasted habitat protection that may benefit wild-stock pink salmon populations, according to Alternative 2, includes purchase of all available parcels. This is expected to provide low to moderate benefit for the pink salmon resource (Appendix A). Of the 81 parcels that may be purchased from the estimated budget that is forecasted for this alternative, 0, 38, 25, and 18 have been rated as no, low, moderate, and high value, respectively, for pink salmon. Although the average value of forecasted habitat acquisition may not have a high overall rating for pink salmon, individual parcels may have exceptional value. In the event that some of these parcels may not be protected through acquisition, the habitat will continue to have some measure of protection through the protective actions of normal resource agency planning and permitting requirements (Appendix C).

Conclusions. (for the pink salmon resource)

- short-term: Negligible. No benefits from habitat protection would be accrued within one lifecycle.
- long-term: Moderate. Habitat protection and acquisition actions would have a long-term value to pink salmon stocks in the EVOS area by helping to ensure maintenance of wild-stock production. More than half of the parcels that may be purchased have moderate or high value for pink salmon.

archaeological properties are not fully known, so inadvertent damage or destruction to undiscovered sites would be reduced in this alternative.

There are 1,287 known archaeological or historical sites in the spill area. While it is estimated that between 2,600 and 3,137 sites are present, those estimates are based on a minimal inventory. While archaeological surveys were conducted along much of the shoreline of the EVOS area, very little work has been accomplished in the uplands before, during, or since the spill and resulting cleanup. Because there is so little knowledge about the cultural resources in the spill area, and because many of these sites contain human remains important to specific groups of people, any actions taken to significantly protect these resources from damage will be considered a high benefit to the resource. This alternative would affect all of the parcels and additionally could establish the basis for inventorying lands upland from the intertidal zone. This alternative would not in itself provide any new information about cultural resources in the spill area but would help ensure the potential for gaining new information in the future.

Conclusions. The short-term direct benefit of habitat protection and acquisition on cultural resources would be low. Long term, this alternative ~~would~~ is expected to provide moderate benefit to the protection of archaeological and historical resources on acquired parcels.

Subsistence Uses

It is assumed here that 81 large parcels, a total of 863,100 acres, would be purchased. These parcels contain low (status as a subsistence-use area is unknown); moderate (known historic subsistence-use area, which may be used again); or high (known current subsistence-use area) potential for benefiting subsistence as analyzed by the Habitat Protection Work Group (November 30, 1993). If low potential benefit on a parcel is assigned a value of 1, moderate potential benefit a value of 2, and high potential benefit a value of 3, these parcels average 2.4 (or between moderate and high). Under this alternative, there will be no change in subsistence regulations, activities, or locations. This means there will be no direct short-term benefits. Indirect effects include further protection of habitat from potential degradation from extractive economic activities. As this alternative is intended to enhance the ability of the environment in the EVOS area to restore plants and wildlife, it also would enhance the area's capability to support plants and animals for subsistence harvest in the long term. The degree to which this is true depends on the location of acquired land. Some lands under consideration are excellent habitat for subsistence ~~foods~~ resources used for while others are less productive; so, effects are likely to be local enhancements of some species populations. Discussion of the effect of this alternative on each of the species important for subsistence is included elsewhere. Please refer to those sections for additional information. ~~The perception of continued contamination of subsistence food resources will not be addressed by this alternative.~~

Conclusions. Short-term impacts to subsistence-harvest species and subsistence users would be negligible. Long term, the level of parcel acquisition possible in this alternative would allow for localized increases of populations of fish, wildlife, and intertidal resources thereby important for the perpetuation of subsistence activities and their associated lifestyle in the spill area. This would be a long-term low to moderate benefit to subsistence.

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Alternative 3: Limited Restoration

Introduction

In this alternative, the general restoration program focuses only on the components of the ecosystem that were most injured by the oil spill. General restoration actions are sometimes able to help resources or services recover to their prespill conditions more rapidly than if the actions were not implemented. The general restoration program would be limited to the most effective actions in order to maximize the available funds for habitat protection activities. Habitat protection and acquisition can provide protective benefits to all resources and services injured by the spill as well as to other resources and human uses that are important to the greater EVOS ecosystem. Increasing the protection of habitat throughout the oil spill area would be beneficial to the entire ecosystem by reducing further habitat degradation that may compound the effects of the oil spill. The Monitoring and Research Program would evaluate the effectiveness of restoration actions and follow the recovery progress of the injured resources and services.

Impacts on Biological Resources

Impacts on Intertidal Resources

There are three actions that affect the intertidal zone that have been identified for this alternative--habitat protection, accelerating the recovery of *Fucus* in the upper intertidal zone, and cleaning oiled mussel beds.

Habitat Protection. Although there are several types of actions that apply under this restoration category, this analysis considers only the types of benefits that may be gained from protecting the 81 upland parcels identified in the Comprehensive Habitat Protection Process: Large Parcel Evaluation & Ranking, Volumes I and II (EVOS Restoration Team, 1993). Other aspects of the habitat protection category, such as the small parcels available for protection, are still being developed and cannot be analyzed in this DEIS.

The habitat protection process used to evaluate the 81 parcels for their potential benefits to injured resources and services combined intertidal and subtidal biota and used the following criteria for ranking the parcels:

- "High" for parcels adjacent to areas with a known high species abundance and diversity; high quality habitat for intertidal and subtidal biota;
- "Moderate" for parcels adjacent to extensive intertidal habitat with observed or probable moderate species diversity and abundance; and,
- "Low" for parcels with little intertidal habitat with low species abundance (EVOS Restoration Team, 1993).

Of the 81 parcels evaluated using these criteria, 25 of the parcels were ranked high, 33 moderate, and 19 low, and 4 were not associated with the coastline and had no rating for intertidal/subtidal organisms (EVOS Restoration Team, November 1993). If a higher cost per acre is assumed for the protection of these parcels, fewer of the parcels that were ranked

4-6-94 - Phone Call

Dave Rosenau, Adak NWR

- 8 eagles on E. amatuli in '93
  - eggs, chick, + some adults
- 2 eagles @ Nordd Tor

counts before + after eagle fly by

- eagles flush COMU's readily, but brooding COMU stay put,

USCG helo incident; artSands there <-->

Gull & COMU's

≈ 10,000 Leslie Slater, '93+ prior several yrs.

COMU Gull & Plot counts

74	3,200
84	2,600
85	2,000
88	5,500
89	5,200
90	5,100

- fiberglass poles keep gulls fooled out European work

Birds: Corrections/Changes Needed (Interagency Review) 1/2

Bud Rice

2-12 Predator Control: 16 dols. is correct figure

4-32: The statement on p. 4-32 is correct; i.e., little is known about colonies in sufficient detail. Surveys at Seal Bay, & in PWS in '93, essentially re-wrote the standards for detection of Pigu colonies. The latter type of survey, i.e., focusing on the critical date, time of day, & tide window has not been done in Kenai Fjords! However, for PDEIS, ~~this PI will~~ I will re-word this PI.

4-106 Murres predator control - to Public Info staff

4-107 Pigu's. ~~delete~~ PIs
Don't understand his problem, and Aleutians are not mentioned here??

Catherine Berg - Nothing for birds.

-DO- Pennoyer, & Veronica Gilbert

2/2

Jim Wolfe (DEC)

ALT5 Pigu's: Del reference that reduce disturbance to Pigu's needed. "There is no evidence that this is needed."

Work in ~~[illegible]~~ that council has no mgt authority.

Predator control: Re-work to more finely tune # islands where this to be done...

Ch 3-11, ¶3 - already done

4-106, ¶2 del Pribilof discussion

Bill Seitz (NBS) nada/birds

ADF+G (Carl Rossier)

4.17, ~~¶~~ ¶ → 1, 3 + 6 - see memo

4.18, ¶ 1, 4, 5, - " "

4.49. see memo

4.75 ¶ 2, 3, 4 - see memo

4.105-108 - see memo

4-134, 135 - " "

271-3992

~~Do~~ 3-30-93, Phone com   1/2

Dave Roseneau

0.5 prod.

E. Cematuli & Nord

$\bar{X}$ Prod
0.3 1992
0.5 1993

10 plots on E. Cematuli,
incl. opposite Dee's Table Peak

chick flg/nest site

1977-1987 — 14K → 140

Vern Byrd: ✓

Fox control influence on recovery?
- Time/duration?
- # COMU increase?

Kagamil dropped out — has largest COMU cly

→ Chagulak, Simeonof

BLOY & PIGU in Shumagin

2/2

Otter & 1940's COMV
former lg clg, foxes arrive on ice
late 40's → ~~early~~ mid 70's
ice pack allowed foxes from St. Paul

Kagamil hi priority, Isl 4 Mtns.
Isl of Dutch Hbr.

Shumagin Pred control
may/could allow COMV to
move in, but no historical records.

FAX: 235-7783

3-08-74, 1:15 PM

Vern Byrd phone conversation

"Trust resources"

FWS
- Mig migr
- Endanger spp
- Candidate"

Bottom line - agy resp broad term

FWS
- Not monitor murres

- 1 site in ea geog area; broad plan

- every yr at 8 sites
  max to date: 3 sites

- EVOS
  2 sites
  E. Amatuli + Chiniat
- Murres not listed → difficult to monitor
  - TUPU
  + FTSP ords

- If not for EVOS, murres would not have been monitored.

3X - 4X expend @ E Amatuli

4-28-94

Vern Byrd phone call, re: predator control

Kagamil:

Other oppor farther w/in Aleutians:

Only Walr. has pre-fox #'s

- Clys w/ some comu now

- " where comu could possibly

PIGU + BLOY - Simeonoff + Chernabura — Oil Spill Proj '94

Restore Types w/ some Murres

Bering Sea
~~Walrus~~ Otter I.

Aleutians Isls.

Kagamil (2 Isl. 4 Mtns) → targeted for '94 work w/ non-EVOS FWS funds

Garelai (just E of Amchitka)

Semisopochnoi # ≈ 2K murre nr } Rat Isls

(just N of Amchitka)

- others likely

-

Huge list of other spp. ~~[illegible]~~ isls w/

all fox-bearing

additional to major isls. — Σ Isls: 12

SUMMARY

Is	where	ALT 4	ALT 5
Chernabura	Near EVOS	1	* 1
Simeonoff	"	1	* 1
Kagamil		1	–
Garelai		1	–
Semisopochnoi		1	–
12 more		12	–
otter I		1	–
Σ		18	2

8-15-94

Pers. comm, phone, Sam Patten (456-5156)

in PWS

- Upper reaches of below sub-alpine
- Sim Kesheneck Bay: nsty in brush along stream in alpine

mix sitka, + mtn hemlock

- under dense branches
  - need space to exit nest

tend S + SW face slopes

hi snow (92) late snowfall well into June.

Kodiak: in grassy meadows

SUM:

8-16-94 [786-3641]

Kathy Kuletz on MAMU 94 work:

- 2 ground, found bird (cliff edge)
- ~~3 other ground nests~~ trees close
- 3 ground radio signals ~~closely~~
- ~~1 poss in PIGU burrow (egg)~~
- 1 immature MAMU on forest floor, phone Patton Bay 1987

8-16-94

Gene Wieder (Weeks?), St + Priv. Forestry, USFS

- State Forestry 762-2511

DNR Dave Wallingford

IN REPLY REFER TO

United States Department of the Interior
Fish and Wildlife Service
ALASKA MARITIME NATIONAL WILDLIFE REFUGE
2355 Kachemak Bay Drive, Suite 101
Homer, Alaska 99603

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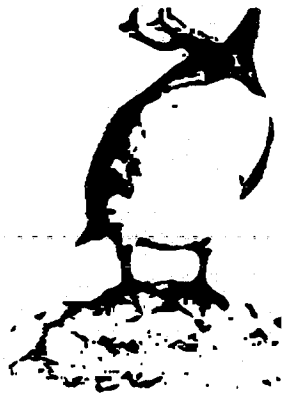

Date 8/16/94 Time 15:31 No. of Pages 5 (including cover)

To: Gerry Sanger @ Fax Number _____

From: Vernon Byrd

Subject: EIS comments - my response

Here are my comments on the EIS review you sent. Hope they help.

United States Department of the Interior

FISH AND WILDLIFE SERVICE
Alaska Maritime National Wildlife Refuge
2355 Kachemak Bay Drive, Suite 101
Homer, Alaska 99603

IN REPLY REFER TO:

Gerry Sanger
Exxon Valdez Oil Spill Trustee Council
645 G Street, Suite 401
Anchorage, AK 99501-3461

Dear Gerry:

I have reviewed the responses to the EIS that you sent, and I offered a few comments in the margins of the attached copy. In addition, I have attached a copy of the list of islands from which introduced foxes still needed to be removed as of 1993 on the refuge along with current estimates of murre populations on each island. As you can see, murres currently occur on 8 of the 27 islands (this total includes several islands that are so large that fox removal is unlikely). Foxes were removed from 7 of the first 8 islands in 1993 and 1994. The work at Simeonof and Chernabura was funded through the restoration plan. The largest murre population on a fox island is at Kagamil, an island from which the refuge removed foxes in 1994.

Followup visits in 1995 need to be made to all of the islands where foxes were removed in 1994 to be certain that no animals remain. Assuming that eradication efforts to date have been effective, introduced foxes now remain on 20 islands, of which 7 contain murres.

Will murres benefit from fox removal? On those islands with large colonies, there likely will be some recovery as murres occupy marginal sites where they formerly would have been susceptible to predation by foxes. Nevertheless, it is unlikely that there will be major increases in murre populations following fox removal on any of the 7 islands listed. The case where I would expect major increases in murres if foxes were removed is Walrus Island, Pribilof Islands. Foxes apparently reached Walrus Island on the ice sometime between the early 1950's and mid-1970s after being absent for at least a century. This was formerly a very large colony of murres, and foxes completely extirpated common murres from the surface of the island. A small offshore rock still contains over 1,000 birds, and I expect murres would gradually repopulate Walrus Island if the foxes were removed. It is possible that foxes would again reach the island over the ice, but this probably is a rare event which may not happen again for a century or two.

As for response of other seabirds to fox removal, there is no doubt that burrow-nesting species like tufted puffins, and surface-nesters like gulls, loons, waterfowl, and shorebirds would increase substantially following fox removal.
Please call if you need additional information.

Sincerely,

G. Vernon Byrd
Supervisory Wildlife
Biologist

SANGER'S RESPONSES TO DEIS COMMENTS

#940729159, Craig S. Harrison, Pacific Seabird Group

159.1 Comment: (paraphrase) PSG agrees that environmental manipulation is useful when appropriate, and technical feasibility must be considered. Accordingly, we reiterate our view that the best means to restore Alaska's seabird populations is to remove introduced predators (foxes, rats) from colonies and former colonies as compensatory restoration in areas that may be ouside the EVOS area.

159.1 Response: Under Alternative 4, comprehensive predator control of foxes (eradication) would be allowed on all 18 islands outside the EVOS area that where identified by the FWS (Alaska Maritime National Wildlife Refuge). However, under Alternative 5, such predator control would be allowed on only two of the islands. In fact, removal of foxes on these 2 islands was funded in 1993, and followup surveys are proposed for 1994. Murres, kittiwakes and other species that nest largely on cliff faces and sea stacks inaccessible to foxes were relatively unaffected by predation. Foxes reduced or even eliminated some seabird populations on many islands, but many other natural and anthropomorphic influences have also affected Alaska's seabird populations. It would be difficult to separate the relative influences of a 19-year climatic cycle, the affect of El Niño-Southern Oscillation (ENSO) oceanographic events, and rapidly expanding commercial fisheries from predation by foxes. For example, fisheries have presumably reduced available food (e.g., juvenile pollock) for some species like kittiwakes and murres, but offal from fisheries has also presumably enhanced populations of scavengers like gulls and northern fulmars. Similarly, planktivorous seabirds like auklets have potentially been enhanced by fisheries removing their competitors (pollock).

I doubt this - I think we can separate for susceptible species but not for ledge-nesters. This paragraph seems not to address the point specifically.

159.2 Comment: (paraphrase) Murres, harlequin ducks, murrelets and guillemots are not recovering and need restoration. However, we strongly feel that the Trustee Council should also restore other seabird species. The categories of "Other seabirds" and "Other sea ducks" should be added to the list of "recovery unknown" resources.

ISLANDS FROM WHICH FOXES SHOULD BE REMOVED

Island	Foxes ~~Scheduled~~	Acreage	Shoreline
Yunaska X	Ø	43,520	38.6
Herbert X	Ø	13,790	19.0
L. Koniuji X	Ø		
L. Tanaga ★	Ø	17,852	60.3
✓ Umak	50	9,796	28.3
★ Simeonof	Ø		
★ Chernabura	Ø		
✓ ★ Kagamil	34,000	10,342	17.4
✓ Gareloi	360	16,964	19.4
Segula	Ø	8,192	15.9
Inkla	Ø		
Elma	Ø		
Avatanak	Ø		
Little Sitkin	Ø	15,701	21.7
Kagalaska[b]	Ø	29,355	62.1
Great Sitkin[b]	Ø	39,219	43.4
Chuginadak	Ø	42,257	46.2
Ukulnoi[c]	Ø		
Wosnesenski[d]	Ø		
✓ Semisopochnoi	3500	56,013	40.0
✓ Seguam	2350	52,292	41.0
Chirikof	Ø		
✓ Kanaga	100	91,716	114.6
Tanaga	Ø	128,000	130.5
Shemya[b,e]	Ø		
✓ Attu[b]	8,000		
✓ Adak[b]	50		

[a]Rechecks will routinely occur in the year following all initial efforts
[b]Rats present
[c]Island targeted assuming overselection by Native corporation is relinquished
[d]Cattle present
[e]Island targeted if military leave

★ foxes removed in 1994
X foxes removed in 1993
✓ mares present

159.2 Response: The final EIS will include "Other seabirds" and "Other seaducks" in the "recovery unknown list." All injured species listed in Table B-4 (Resources: Summary of results of injury assessment studies done after the EVOS) will also be listed in the final EIS.

159.4 Comment: "We question the basis for the conclusion that "predator control outside the EVOS area . . . would provide a low overall benefit to murre populations."

159.4 Response: We based our conclusion that predator control outside the EVOS area would have little benefit for murres on an oral communication with G. Vernon Byrd, Field Supervisor for the Alaska Maritime National Wildlife Refuge. The requested analysis of 18 fox islands for benefits to murres is beyond the scope of this EIS, unless a policy decision is made for a more comprehensive predator control program than envisioned by the DEIS. In general, burrowing species like puffins and auklets would benefit from predator control, but there are few instances where murres would benefit because their cliff-nesting behavior precludes foxes from reaching them.

159.5 Comment: "We believe that fox control, which is included in Alternative 4, for murres and pigeon guillemots, should also be expressely included in Alternative 5 for these species."

159.5 Response: Alternative 5 is applicable to only two islands. Again, although a broader program of predator control appears theoretically permissible under restoration policy, a policy decision by the Trustee Council would be needed to initiate a more comprehensive predator control program than envisioned by the DEIS.

#940801192, Pamela Miller, The Wilderness Society

192.2 Comment: "...the DOI has failed to release its Congressionally-mandated study of Afognak Island and its habitat values for resources injured by the spill . . . we presume that its release has been suppressed."

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. Tudor Rd.
Anchorage, Alaska 99503-6199

IN REPLY REFER TO:

TAKE PRIDE IN AMERICA

MIGRATORY BIRD MANAGEMENT FAX COVER SHEET

FAX (907) 786-3641

Date: 8-16-94

Sent to: EVOS Restoration Office **Fax No.** 276-7178

Attention: Gerry Sanger

Sent by: K. Kuletz

Contains 3 **pages, including cover sheet.**

If all pages are not received, please contact: Kathy - @ 786-3453
FTS 869-3443 or (907) 786-3443 (or 3444).

Remarks: Following are my Comments - call me if you can't read my handwriting. In short - (1) I could only find 1 record of a juv. at Patton Bay. (2) I provide #'s & better description of '94 nests - if you choose to include. (3) I would not state that 1° nest habitat is not limiting - since it may be we are not correctly defining 1° nest habitat. We do need to determine why some old-growth is used & others are not - & what nesting density can be expected. Good luck -

thanks Kathy

Response 192.51: We will alter the wording to reflect the breadth of opinions among murre workers that murre population recovery could take several decades, or it could happen within 20 years. Possible recovery within 20 years is not idle speculation, but is based on 20 years of Alaskan data. We feel that inclusion of this information provides a balance for other speculation of a 80-100 year recovery time. With a scarcity of studies on population change in common murres, it is responsible to consider all available information on possible recovery duration for the injured murre population. Furthermore, that timing of breeding and productivity rates were normal in 1992 and 1993 at the Barren Islands, and that this return to normal behavior happened much sooner than early post-spill predictions, also tend to support speculation of a possible shorter recovery time.

Comment 192.52: Re: Ch. 4, p. 19: "Provide quantitative information on the acreage of forest habitat that has been logged since the oil spill, and the total in the oil spill region to date. Evidence of marbled murrelets nesting on Montague Island (available from FWS) should be included in this section. The conclusions concerning projected logging underplay the negative effects of no action on this species."

Response 192.52: Awaiting input from USDA-Forest Service, State and Private Forestry regarding amount of logging on private and state land in EVOS zone. ~~Recent reports of two~~ a juvenile immature marbled murrelets found on the forest floor above Patton Bay will be included here.

Comment 192.55: Re: Ch.4, p.57: "Typographical mistakes refer to pigeon guillemots in the section on marbled murrelets. Greater analysis of the best opportunities to protect threatened marbled murrelet nesting habitat should be included. Data from the Congressionally-mandated studies on Afognak Island, and from the on-going studies of the characteristics of nesting habitat should be included here."

Response 192.55: Typographical errors will be corrected. The results of the Afognak Island

786-3641

studies were included in a document released to the public in November 1993, *Working Document: Comprehensive habitat protection process; Large parcel evaluation and ranking, Vol. 1 & 2* (Habitat Protection Work Group, EVOS Restoration Team). Information from the Working Document that was used to prepare the DEIS is summarized in Appendix Table A.1 The Afognak Island studies showed that land on the north end of the island contained important habitat for marbled murrelets and pigeon guillemots, and was instrumental in the Trustee Council's purchase of parcels AJV-02, and -03 surrounding Seal Bay.

The most recent studies (Kuletz, Oral comm., 1994) on nesting habitat requirements of marbled murrelets at Naked Island, and in Port Nellie Juan, Prince William Sound, located several new nest sites, or circumstantial evidence for nest sites, including five on the ground. One such site on Naked Island was at the edge of a small rock cliff immediately adjacent to old growth forest. Stationary radio signals from radio-tagged marbled murrelets in non-forested, sub-alpine habitat were circumstantial evidence for ground-nesting in Port Nellie Juan. Initial studies of nest habitat requirements in PWS showed that old-growth hemlock and Sitka spruce (mainly mountain hemlock), with large, moss-covered horizontal limbs are the preferred habitat in PWS. An understand of the overall nesting behavior of murrelets is confounded as more instances of ground nesting are discovered, and also by the fact that old growth forest does not always harbor nesting murrelets. ~~Availability of prime nesting habitat is not an immediate limiting factor for population growth of marbled murrelets in the EVOS area.~~ Future research may discover ~~why old growth habitat is not always used by marbled murrelets, but~~ to allow the population to grow to a pre-spill level, it would seem prudent to prevent destruction of as much of their preferred old-growth habitat as possible on the short term. More research is needed to gain more knowledge of nesting densities, and nesting habitat requirements throughout the EVOS area.

EIS A

United States Department of the Interior

FISH AND WILDLIFE SERVICE
1011 E. Tudor Rd.
Anchorage, Alaska 99503-6199

IN REPLY REFER TO:

MIGRATORY BIRD MANAGEMENT FAX COVER SHEET

FAX (907) 786-3641

Date: 8-30-94

Sent to: EVOS Rest. Office **Fax No.** 907-276-7178

Attention: Gerry Sanger

Sent by: Kathy Kuletz

Contains 7 **pages, including cover sheet.**

If all pages are not received, please contact: 786-3453
FTS 869-3443 or (907) 786-3443 (or 3444).

Remarks: Hi Gerry – I've sent back those pages that I made some notes on. Mostly – I tried to re-word a few sentences that I found difficult to follow. I had a real problem reading the last two sentences + maybe that affected my understanding a bit.

Good luck – Kathy

NOTE: 1. Changes/additions indicated by "redline" text; and text to be deleted is indicated by ~~"Strikeout" text~~.

2. Throughout entire EIS, Find: ~~Otter Island~~, and replace with Knight Island.

Ch.2-4

The U.S. Fish and Wildlife Service (USFWS) manages the national wildlife refuges to accomplish the following purposes:

- To conserve fish and wildlife populations and habitats in their natural diversity, including but not limited to marine mammals; marine birds and other migratory birds; the marine resources upon which they rely; and bears, caribou, and other mammals.

- To fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats.

VERIFY → To fulfill the terms of the Migratory Bird Treaty Act, the Endangered Species Act, and the Fish and Wildlife Coordination Act

Ch.3-10

~~Birds~~

The *Exxon Valdez* oil spill (EVOS) killed an estimated 100,000 to 300,000 birds of over 90 species within the entire spill zone (Piatt et al. 1990). Perhaps as many as 25 percent of the total birds wintering in the oiled zone of Prince William Sound were killed directly by the spill, or 10 percent of Prince William Sound's entire population (~~Klowsiewski and Laing, written comm., 1993~~ Klowsiewski and Laing, written comm., 1992). In subsequent EVOS studies through 1992. .

estimate from Ecological Consultants, Inc. (1991)* of 375,000-435,000 birds. This was based on an estimated recovery rates in each region using radio-tagged ducks, scavenger rates, etc.

* Ecological Consulting, Inc 1991. Assessment of direct seabird mortality in Prince William Sound & the Western Gulf of Alaska resulting from the Exxon Valdez oil spill. Ecological Consulting, Inc., Portland, Oregon.

MAMU

[redacted]

Ch.3-17, ¶ 7 Perhaps as high as 95 percent of all marbled murrelets nest in Alaska (Mendenhall, 1992). The Alaskan population is centered from the southeastern panhandle to Kodiak, where [redacted] the vast majority of the population flies inland to nest on [redacted] moss-covered branches of large conifers ([redacted] Piatt and Ford, 1993). A small part of the population, possibly as low as 3 percent (Mendenhall, 1992; Piatt and Ford, 1993), nests on the ground in alpine and coastal tundra, [redacted] All murrelets are ground nesters west of the limits of the conifer area on Kodiak Island.

in U.S. waters (doesn't include B.C. pop)

nest in areas with no trees, + thus probably nest on the ground

Ground nesting also occurs in areas with trees.

[redacted]

MAMU

occupy

appears to be

[redacted]

Ch. 4 ***Find*** **all instances of ~~Otter Island~~ and *replace* with** [redacted]

Ch. 4-18, ¶3 Over the long term, this alternative could take the Barren Islands population 20 to 80 years to recover fully. However, recent insight on population recovery of common murre populations, based on 20 years of data from the Bering Sea, suggests that the population at the Barren Islands may [redacted] recover within 20 years (Roseneau, oral comm., 1994).

COMU

Ch. 4-19, ¶ 2 Clear-cut logging of private land in eastern Prince William Sound in the Port Fidalgo area since 1991, and on the outer coast of Montague Island (Patton Bay) since 1993, has reduced potential murrelet nesting habitat in the EVOS area. [redacted] Continued development of private land will possibly put additional segments of the murrelet population at risk, thus further assaulting the injured Prince William Sound murrelet population.

MAMU

Conclusions

Sentence unclear best to just reduce it?

Ch. 4-19, ¶3 [redacted]

MAMU

Action Alternative 5 makes it very difficult to estimate the overall effect that logging would have on murrelets in the EVOS zone. However, projected logging, with the accompanying loss of nesting habitat, on the long term, may would likely have a very high negative effect on local populations of marbled murrelets on the long term and a low to moderate to high negative effect on recovery of the injured murrelet population for the EVOS area as a whole.

Ch. 4-57, ¶3 **Marbled Murrelet**

Habitat Protection and Acquisition

Details of habitat use by marbled murrelets are still being clarified, and more studies are needed. although Studies in Prince William Sound have shown that large, moss-covered limbs of old-growth conifers are the keystone of prime nesting habitat, but marbled murrelets have not been found in all of the old growth forest surveyed [illegible] and five of eight new nests found in 1994 were on the ground (Kuletz et al. 1994). Nevertheless, current and possible future logging on private land is the single greatest threat to population recovery of marbled murrelets, and it poses the additional threat of reducing the population more. Acquisition of potentially prime nesting habitat would thus maximize the chances potential for the injured marbled murrelet population to recover while preventing further injury to the population through reduction of nesting habitat.

Ch. 4-57, ¶4 Analyzing the value to marbled murrelets of land parcels being considered for acquisition in the "large parcel process" will help evaluate the overall effects of this alternative on marbled murrelet population restoration. By assuming a relatively high average cost that would allow acquisition of 62 parcels, 19 parcels (31%) were characterized as having a high value to murrelets, 31 (50%) more had a

Is this a mistake? - If not - separate sentence to describe pigeon habitat values.

MAMU

moderate value, 13 (19%) had a low value, and none were considered to have no value to pigeon guillemots. Assuming a relatively low cost per parcel that would result in acquisition of all 81 parcels would add 3, 5, 8, and 3 parcels, respectively, with high, moderate, low, and no value to marbled murrelets. ~~pigeon guillemots. Thus, this exercise suggests that this alternative would have an overall moderately beneficial effect on recovery of the injured pigeon guillemot population.~~ The main consideration, however, is that this alternative would result in a decrease in the funds available for habitat acquisition, thus decreasing protection of potential nesting habitat.

Ch. 4-57, ¶6 Long-term effects: ~~High. In the long term, acquisition of old growth forest habitat would have a the highest possible benefit for enhancing murrelet population recovery.~~

Moderate. The long-term benefits of this alternative on individual parcels would be high, but due to the overall reduced amount of nesting habitat that could be acquired, the area-wide benefit to marbled murrelets would be only moderate.

Ch. 4-84, ¶ 3 - 4

COMU

¶3 ". . . Kagamil Island in the western Aleutians, which does have a remnant ~~murre~~ population of [illegible] murres, was ~~is~~ slated for fox removal in 1994 with non-EVOS USFWS funds.

New text just before Conclusions:

However, for the remaining islands with introduced foxes, predator control may not help restore murre populations to a substantial degree. On islands with large

COMU

[redacted]

Ch. 4-86, ¶4 **Marbled Murrelet**

MAMU

Habitat Protection and Acquisition

Details of habitat use by marbled murrelets are are being clarified [redacted] ~~although s Studies~~ [redacted] in Prince William Sound have [redacted] shown that large, moss-covered limbs of old-growth conifers are the keystone of prime nesting habitat [redacted]. Nevertheless, current and possible future logging on private land is the single greatest threat to population recovery of marbled murrelets, and it poses the additional threat of reducing the population more. Acquisition of prime nesting habitat would thus maximize the potential for the injured marbled murrelet population to recover while preventing further injury to the population through reduction of nesting habitat.

Not all high quality old growth has nesting murrelets, and five of the eight new

The 81 parcels that were evaluated in the large parcel process were rated as high, moderate or low value for marbled murrelets based on the following definitions. High, for parcels with known nesting or where there is high confidence that nesting occurs, and where feeding occurs in adjacent nearshore waters. Moderate rankings for parcels with probable nesting, and with known feeding areas in adjacent nearshore waters. Low rankings were assigned to parcels with a low

FAX Vern: 235-7783 Kathy: 786-3641

BIRDS - FINAL CORRECTIONS

V 1.0 (DEIS, w/changes re: public responses, prior to Trustee Council review)

NOTE: 1. [redacted] ~~and text to be deleted is indicated by "Strikeout" text.~~

2. Throughout entire EIS, Find: ~~Otter Island~~, and replace with [redacted].

Ch.2-4

The U.S. Fish and Wildlife Service (USFWS) manages the national wildlife refuges to accomplish the following purposes:

- To conserve fish and wildlife populations and habitats in their natural diversity, including but not limited to marine mammals; marine birds and other migratory birds; the marine resources upon which they rely; and bears, caribou, and other mammals.

- To fulfill the international treaty obligations of the United States with respect to fish and wildlife and their habitats.

VERN →

[redacted]

Ch.3-10

Birds

estimate from Ecological Consultants, Inc. (1991)* is 375,000-435,000 birds. This was based on estimated recovery rates in each region, using radio tagged dummies, scavenger rates, etc.

The *Exxon Valdez* oil spill (EVOS) killed an estimated 100,000 to 300,000 birds of over 90 species within the entire spill zone (Piatt et al., 1990). Perhaps as many as 25 percent of the total birds wintering in the oiled zone of Prince William Sound were killed directly by the spill, or 10 percent of Prince William Sound's entire population ~~(Klowsiewski and Laing, written comm., 1993~~ [redacted]) In subsequent EVOS studies through 1992. .

* Ecological Consulting, Inc 1991. Assessment of direct seabird mortality in Prince William Sound & the Western Gulf of Alaska resulting from the Exxon Valdez oil spill. Ecological Consulting, Inc., Portland, Oregon.

Biological Assessment of the Proposed Action on Endangered and Threatened Species

Following is a biological assessment of the effects of the Preferred Alternative (Alternative 5) on Threatened and Endangered Species known to occur within the EVOS area. The Office of Endangered Species, Fish and Wildlife Service, Region 7, determined the occurrence of the species considered. As Restoration actions are proposed, each will be re-evaluated for compliance regarding its effects on rare and endangered species.

Current Endangered and Threatened Species in EVOS Area

Short-tailed Albatross (*Diomedea albatrus*) - Status: Endangered
A remnant population of short-tailed albatrosses breeds on a small island off Japan (AOU 1983). The species is considered a rare summer and fall visitant to oceanic and continental shelf waters of the Gulf of Alaska (DeGange and Sanger 1986). None were sighted anywhere in Alaskan waters during surveys of the Alaskan Outer Continental Shelf Environmental Assessment Program in the 1970's, and there have been few sightings in the Gulf of Alaska in the past 10 years. Alternative 5 will not affect the short-tailed albatross because the chances of this species occurring in the EVOS area are extremely small.

American peregrine falcon (*Falco peregrinus anatum*) - Status: Endangered
Actions proposed under Alternative 5 will not affect American peregrine falcons that may migrate through the EVOS area. Through habitat acquisition, Alternative 5 would provide more habitat for this sub-species than would likely occur under the No Action Alternative in the long term.

Arctic peregrine falcon (*Falco peregrinus tundrius*) - Status: Threatened
This race of peregrine falcon has been proposed for de-listing, and will not be affected by Alternative 5 because the chances of it occurring in the EVOS area are extremely small. There is some doubt whether there are any records for this race within the EVOS zone. However, any habitat acquisition will provide added protection to any Arctic peregrine falcons that may occur in the EVOS area.

Aleutian Canada goose (*Branta canadensis leucopareia*) - Status: Threatened
This endangered race of Canada goose breeds on a few islands in the Aleutians, and on one of the Semidi Islands, just within the southern limits of the EVOS region. This sub-species is believed to migrate directly between breeding islands and their wintering grounds in the Pacific Northwest. There are no records of this race within the EVOS zone other than at the Semidi Islands. Therefore, Alternative 5 should have no adverse affect on the Aleutian Canada goose, although any habitat acquisition will provide added protection to any Aleutian Canada geese that may happen to occur in the EVOS area.

Steller's eider (*Polysticta stelleri*) - Status: Proposed Threatened
Actions proposed under the Preferred Alternative will not affect this species adversely. Cleaning remaining oil from beneath mussel beds, one of the actions proposed, would benefit small pockets of intertidal eider foraging habitat by decreasing the chances for oil contaminating the eider's food supply. This action would take place in summer when Steller's eiders are not in the EVOS area.

Gerry,
Check out the "redline" EIS A and your analysis in light of it.

Ch.4.002 on Rod

4 Environmental Consequences

Cumulative Effects

Introduction

Actions that may affect EVOS restoration include the Whittier road access project, Whittier harbor expansion, Cordova road access, harbor dredging at Shepard Point near Cordova , tourism and recreation development at Child's Glacier on the Copper River Delta, the Trans-Alaska Gas Pipeline terminal in Port Valdez, Lower Cook Inlet oil development, and the effects of EVOS projects for Fiscal Years 1992 through 1994 (FY's 1992-94). This section discusses these actions, evaluates their effects on each injured resource, and summarizes the cumulative effects on each resource.

Whittier Road Access and Whittier Harbor Expansion

These two actions are considered together because their effects on resources would be similar. Road access to Whittier and expansion of Whittier harbor both would dramatically increase the number of people in Prince William Sound. Numbers of recreational boaters of all kinds, tourists aboard charter and tour boats, and seasonal and year-round residents of Whittier would all increase. The increase in boat traffic would be especially pronounced within 30 to 40 miles of Whittier, the normal range of weekend boaters. Even without these actions, recreational and tour boat use has steadily increased the past few years in this part of Prince William Sound, particularly in Blackstone Bay, around Esther and Culross Islands, in Port Wells, and in Harriman and College Fjords. These two actions would create even more pressure on these areas and their resources. Boat traffic between Whittier and Valdez and throughout Prince William Sound would also increase.

Cordova Road Access

Road access to Cordova would increase the number of people who use southeastern Prince William Sound. Numbers of recreational boaters and tourists aboard charter and tour boats will all increase markedly, especially within 30 to 40 miles of Cordova, the normal maximum range of weekend boaters. Boat traffic throughout eastern Prince William Sound also would increase.

Shepard Point (Nelson Bay) Dredging

Dredging near Cordova at Shepard Point in Nelson Bay is proposed to accommodate berthing of cruise ships and tour boats to enhance tourism in the Cordova area. This action would alter the natural character of the local nearshore environment and temporarily create dredge spoils and noise.

Child's Glacier Tourism Development

A lodge and related tourism and recreation facilities are planned for construction near Child's Glacier and the "Million Dollar Bridge."

Trans-Alaska Gas Pipeline Terminal

Construction of the terminal for the Trans-Alaska Gas Pipeline is planned for Anderson Bay, near the mouth of Port Valdez.

Lower Cook Inlet Oil Development (Federal)

Minerals Management Service (MMS) Lease Sale 149 is proposed to be held in 1996 for the Outer Continental Shelf in Cook Inlet from the north end of Kodiak Island to the north end of the Kenai Peninsula.

The base case in a scenario formulated by MMS projects the following activity over a 30-year period:

- 3 exploration wells
- 5 delineation wells
- 3 production platforms
- 48 production/service wells
- 1 shorebase
- 125 miles of 12-inch pipeline offshore to the Nikiski industrial complex, which would self-bury because of turbid conditions
- 200 million barrels of oil produced

Additional MMS projections are that development of infrastructure and production of oil would include considerable aerial and marine support from a shorebase; oil would be used locally or sent via tanker to the West Coast of the U.S.; and an oil spill of 50,000 barrels is estimated to have a 27-percent chance of occurring at some time over the 19-year period of production.

Cook Inlet Oil Development (State)

The State of Alaska, Division of Oil and Gas is also planning oil and gas lease sales within State waters in Cook Inlet. Possible scenarios have not been formulated but the scenario for MMS Lease Sale 149 is possible for the State lease sale area.

Yakutat Oil Development

MMS Lease Sale 158 is proposed to be held in 1996 for the Outer Continental Shelf near Yakutat. Lease Sale 158 could result in an oil spill which could affect the resources and ecosystem for the EVOS where restoration is planned.

Tankering from the Trans-Alaska Pipeline Terminal at Valdez

Tankering from the Trans-Alaska Pipeline Terminal at Valdez could result in another spill such as the EVOS of 1989.

Institute for Marine Science at Seward

The Institute for Marine Science Infrastructure Improvement Project is proposed for construction in Seward using EVOS Restoration funds. The research and wildlife rehabilitation component would consist of approximately 22,000 square feet of interior space

made up of wet and dry laboratories, staff offices, and a library for studies and rehabilitation of marine mammals, marine birds, and other marine life. Also approximately 41,000 square feet of exterior space would contain outdoor research habitat, tanks and pools for pinnipeds, sea otters, and marine birds species. The public education and visitation component would consist of approximately 20,000 square feet of additional interior space to promote public awareness of the marine environment. A further description of the project is the Draft Environmental Impact Statement Proposed IMS Infrastructure Improvement Project Seward Alaska (USDOI 1994).

Docks and Log Dump Facilities

New docks may be built in villages and log dump facilities could be built in the EVOS area.

FY's 1992 - 94 EVOS Projects

The EVOS projects funded in FY's 1992 - 94, are shown in Appendix E of this EIS. These projects were reviewed for inclusion of their potential impacts in this analysis.

Biological Resources

Intertidal Resources

Several of the actions are unlikely to impact the intertidal zone. This discussion focuses on those actions that could affect the recovery of intertidal organisms. The harbor expansion projects at Whittier and Cordova (Shepard Point) would cause a localized loss of the existing intertidal habitats. Because neither of these specific areas were directly impacted by the EVOS, these localized losses should not have a negative effect on the recovery of the injured intertidal areas.

Lower Cook Inlet oil development would increase the risk by 27 percent of another oil spill occurring in the EVOS area. Likewise, the increased tanker traffic caused by the Trans-Alaska Gas Pipeline would increase the risk of another oil spill, indirectly, through an increased potential for oil tanker collisions. Any oil spill within the EVOS area could have an enormous impact on the intertidal zone. The EIS's associated with these two actions would have to consider the potential impacts on the intertidal organisms in the event of an oil spill. If no oil spills occurred, and steps were taken to reduce disturbance, there should be little or no impacts.

Restoration actions undertaken in response to the EVOS from 1992 to 1994 include feasibility studies to develop effective techniques to clean oiled mussel beds and to accelerate the recovery of *Fucus* in the upper intertidal zone. The results of these actions, if positive, would enable the implementation of restoration projects to occur more quickly.

Conclusions

The cumulative actions that may affect EVOS restoration, combined with the proposed action, should not change the expected benefits, assuming that another oil spill does not occur.

Marine Mammals

Harbor Seals and Sea Otters

Increased potential for disturbance to harbor seals and sea otters would be the primary impact caused by most of the cumulative actions being considered. The Whittier road access, the Whittier harbor expansion, the Cordova road access, the Shepard Point dredging, and the Trans-Alaska Gas Pipeline would result in increased boat traffic, from tankers to pleasure boats and kayaks, in Prince William Sound. This increase probably would have a negligible impact on sea otters, but it could harm harbor seals. The proposed action includes an information-based program that would minimize the impacts of human-caused disturbance to harbor seals. If this program were implemented in proportion to the increase in human use, the overall effects should be negligible. A lodge at Child's Glacier should have no impact on harbor seals and/or sea otters..

The Lower Cook Inlet Oil development has the potential to create disturbance near haulout sites, but the greatest negative impact would be caused if there were another oil spill. The increased tanker traffic caused by the Trans-Alaska Gas Pipeline also might increase the risk of another oil spill, indirectly, through an increased potential for oil-tanker collisions. Any oil spill within the EVOS area could have an enormous impact on the recovery of sea otters and harbor seals. The MMS has estimated that there is a 27-percent chance of an oil spill occurring from Lower Cook Inlet oil development during the 19-year production period. The EIS's with these two actions should consider the impacts on marine mammals in the event of an oil spill. If no oil spills occur, and steps are taken to reduce disturbance, there should be little or no impact on sea otters and harbor seals.

Restoration actions undertaken in response to the EVOS in FY's 1992 through 1994 include feasibility studies to develop effective techniques for cleaning oiled mussel beds. The results of these studies, if positive, would enable the implementation of restoration projects to occur more quickly. This will reduce the risk of continuing exposure to hydrocarbons for sea otters.

Initiation of a cooperative program with subsistence users also is scheduled to begin in 1994. This would have no effect on the results of the analysis of this action; however, it would accelerate the timing of the benefits by at least 1 year.

The EVOS program also has protected uplands in Kachemak Bay and Seal Bay. These areas are adjacent to valuable habitat for sea otters and harbor seals, and this protection would help maintain these high-quality habitats.

Conclusions (Cumulative effects on harbor seals and sea otters)

The cumulative actions that may affect EVOS restoration, combined with the proposed action, should not change the expected benefits, assuming that another oil spill does not occur.

Birds

Harlequin Ducks

File; cmefct2

Increased boat traffic in Prince William Sound, especially from smaller motorboats that generally travel close to shore, would have an increasing disturbance effect on harlequin ducks, especially during late summer when molting takes place and new broods are first acclimatizing to the marine environment. Occasional hikers in riparian habitat should have a negligible disturbance effect on nesting harlequin ducks. Increased hunting pressure may affect populations, but hunting regulations could be adjusted where necessary to negate this effect. New oil development in Cook Inlet would increase the risk of a spill that might repeat the injury suffered by the Prince William Sound population. Cleaning oiled mussel beds would have a moderate to high benefit for local populations of harlequin ducks but would have little influence on their overall recovery. Other proposed actions in this alternative appear to have a negligible lasting effect on harlequin ducks.

Yakutat + tankering could re-impact HARD Potential res. % change

Conclusions (Cumulative effects on harlequin ducks)

The combined effects of proposed Alternative 5 and the cumulative actions described above would be moderately beneficial to harlequin duck populations in the EVOS zone.

Common Murres

Murre populations generally are quite low in Prince William Sound, but important seabird colonies lie within the lower Cook Inlet oil-sale area, including the injured breeding population of common murres in the Barren Islands. There also are several smaller colonies in the sale area, including Gull Island in Kachemak Bay and Chisik Island at the mouth of Tuxedni Bay. An oil spill near these colonies would have a major, highly negative effect on the injured population of common murres, especially at the Barren Islands, where the population is just beginning to recover.

Conclusions (Cumulative effects on common murres)

The combined effects of the proposed alternative and the actions described above would be moderately beneficial for common murres in much of the EVOS area. However, proposed oil development in lower Cook Inlet would have an extremely high negative impact on the recovering common murre population at the Barren Islands, should a spill reach those islands during the nesting season.

mod negative

Pigeon Guillemots

Increased boat traffic in Prince William Sound would create the threat of disturbance to a few colonies of pigeon guillemots. Guillemots are most susceptible to disturbance during the early stages of the breeding season, when they are highly social at their colonies. However, this social behavior mostly takes place in the early morning when most boaters are inactive, so actual disturbance is likely to be low. Predator control slated for the Shumagin Islands, downstream from the EVOS area, would allow a local increase in pigeon guillemot numbers.

Conclusions (Cumulative effects on pigeon guillemots)

The combined effects of proposed Alternative 5 and the actions described above would be highly beneficial for the pigeon guillemot populations at the colonies slated for predator removal. Benefits for the overall EVOS area would be moderate.

Marbled Murrelets

The effects of this alternative on marbled murrelets likely would result in a negligible increase in the prey base of marbled murrelets.

Conclusions (Cumulative effects on marbled murrelets)

The combined effects of proposed Alternative 5 and the cumulative actions described above would produce a ~~high overall benefit~~ for marbled murrelet populations.

Fish

Pink Salmon, Sockeye Salmon, Pacific Herring, and Commercial Fishing

Proposed Actions and Expected Effects. Increased road access to Whittier and Cordova and an expansion of the capacity of the Whittier boat harbor may cause an increased number of commercial fishers or increase the ease of access to commercial fisheries, so pressure on the commercial-fisheries resource could be expected to increase. However, increased effort can be expected to be offset by an increased effort to manage or to enhance the fisheries. These actions also could increase the volume of recreational users and tourism, which could have a disruptive effect on the execution of the fisheries and potentially lead to a degradation of important fish spawning and rearing habitat.

Development of a Lower Cook Inlet oil field may have a disruptive effect on fish migrations and the execution of the fishery; however, before the oil field is developed, the potential impacts should be discussed and, presumably, resolved; e.g., by seasonal operational plans or well-defined shipping lanes.

Dredging operations to expand cruise ship traffic near Cordova could have a disruptive effect on other vessel movements during both the construction and operational phases. Potential direct disruptive effects on the fish resources may be minimized by controlling activities during critical periods of fish production and migration.

Trans-Alaska Gas Pipeline construction and operation may have a similar, but lesser, effect on fish or fisheries in the EVOS area as would the Trans-Alaska Oil Pipeline. Some local effects may occur, and shipping may increase the number of tankers in the same shipping lanes, but accidental leakage of gas in the EVOS area is not expected to harm the aquatic environment. Increased tanker traffic in the shipping lanes may increase the likelihood of a tanker collision.

Recreational development near Child's Glacier would increase the number of visitors and recreational fishers, but it is unlikely to have an important effect on commercial fishing or fishes in the EVOS area.

Fisheries restoration projects that have already been funded would contribute to the recovery of commercial fish and fisheries, but these projects alone would not have a substantial effect. Fish hatchery operations in FY 1994 are a continuation of established programs that help provide stability to the operation of the fishery and habitat-restoration programs to improve protection and production of wild stocks of fish.

Discussion. Several of these potential actions might have an individual or cumulative negative impact on commercial fish and fisheries; one would be beneficial. Each, however,

must be evaluated with it's own environmental review and designed to minimize or avoid potential damage during both the construction and operational phases.

Conclusions

The cumulative effects of the proposed action and these other actions should not change the expected benefits of the EVOS restoration for pink salmon, sockeye salmon, Pacific herring, and commercial fishing.

Sport Fishing, Pink Salmon, Sockeye Salmon, Cutthroat Trout, and Dolly Varden

Proposed Actions and Expected Effects. Increased road access to Whittier and Cordova and an expansion of the capacity of the Whittier boat harbor may cause an increase number of visitors, tourists, and fishers or increase the ease of access to recreational fisheries, so pressure on the fisheries resources could be expected to increase. Increased demand for the available resources could be expected to be offset by an increased effort to enhance the fisheries or manage them more conservatively. These actions also could increase the volume of other recreational and tourist activities, which could have a disruptive effect on the execution of the fisheries and potentially could lead to a degradation of important fish spawning and rearing habitat.

Development of a Lower Cook Inlet oil field may have a disruptive effect on fish migrations. However, before the oil field is developed, the potential impacts should be discussed and, presumably, resolved. (e.g., by seasonal operational plans or well-defined shipping lanes).

Dredging operations to expand cruise ship traffic near Cordova may have a disruptive effect on other vessel movements during both the construction and operational phases. Potential direct disruptive effects on the fish resource could be minimized by controlling activities during critical periods of fish production and migration.

The Trans-Alaska Gas Pipeline construction and operation may have a similar, but lesser, effect on fish or fisheries in the EVOS area than the Trans-Alaska Gas Pipeline. Some local effects may occur and shipping may increase the number of tankers in the same shipping lanes, but accidental leakage of gas is not expected to harm the aquatic environment in the EVOS area. Increased tanker traffic in the shipping lanes may increase the likelihood of a tanker collision.

Recreational development near Child's Glacier would increase the number of visitors and recreational fishers. Increased demand for the available resource could be expected to be offset by an increased effort to enhance the fisheries or manage them more conservatively. This action also could increase the volume of other recreational and tourist activities, which could have a disruptive effect on the fisheries and potentially lead to a degradation of important fish spawning and rearing habitat.

Fisheries restoration projects that already have been funded would contribute to the recovery of sport and commercial fish and fisheries, but these projects alone would not have a substantial effect. Fish-hatchery operations in FY 1994 are a continuation of established programs that help provide stability to the operation of fisheries, and habitat-restoration programs improve protection and production of wild stocks of fish.

Discussion. Several of these potential actions may have an individual or cumulative negative impact on sport fish and fisheries; one will be beneficial. Each, however, must be evaluated with its own environmental review and designed to minimize or avoid potential damage during both the construction and operational phases.

Conclusions

The cumulative effects of the proposed action and these other actions should not change the expected benefits of the EVOS restoration for sport fishing, pink salmon, sockeye salmon, cutthroat trout, and Dolly Varden.

Social and Economic Resources

Archaeological / Cultural Resources

Factors that might impact cultural resources are: (1) construction that may damage archaeological or historic sites; (2) increased access to or numbers of visitors to sites, thus allowing for activities that could damage archaeological or historic sites; or (3) changes in the levels of site monitoring and/or interpretation.

The Whittier road access would increase ease of access to Whittier, which would produce an increase in the population of visitors to Prince William Sound. This would result in increased numbers of people using small motorboats, the Alaska State Ferry, and boat charters out of Whittier. The proposed expansion of the Whittier harbor would allow more and larger pleasure boats to use the area. The increase in small- motorboat use would allow greater numbers of people to visit culturally sensitive areas, especially within the 30- to 40-mile normal maximum range for weekend boaters. Without sufficient monitoring and/or interpretation, this would increase the possibility of damage to archaeological and historic sites in the region. However, if interpretation and monitoring are increased in proportion to the visitor population, there is the potential for greatly expanded public knowledge and appreciation of the cultural resources of the region.

Cordova Road access similarly would increase the population of visitors to Prince William Sound. In addition to exposing archaeological and historical sites to increased use through boat access, the Cordova Road would allow easier access to areas alongside or near the road. Similar effects could be expected as a result of the Childs Glacier lodge/motel development proposed by Chugach Alaska Corporation and Princess Lodge. Again, site monitoring and public education/interpretation could reduce the levels of impact.

Lower Cook Inlet oil development may increase populations and coastal activities in and around Cook Inlet communities. Depending on the location and extent of these increases, archaeological and historical sites could be adversely affected. If site excavations, monitoring, and interpretation are undertaken as discussed in the proposed alternative, the negative effects of these projects may be reduced.

The proposed harbor at Shepard Point near Cordova would have no substantial impacts that would produce cumulative effects that need to be considered in this EIS. The Trans-Alaska Gas Pipeline terminal likewise would produce site-specific impacts that would not substantially impact the cultural resources of the spill area.

The projects funded by the Trustee Council between FY's 1992 - 94 are producing local benefits to archaeological and historical sites and also should produce some benefit to the understanding and appreciation of cultural resources in EVOS communities.

Conclusions (Cumulative impacts on cultural resources)

Taken into consideration in conjunction with other ongoing or planned projects in the spill area, the benefits of Alternative 5 would be somewhat reduced. The benefits of this proposed alternative would help offset the negative impacts of the cumulative actions.

Subsistence Uses

Cumulative impacts on subsistence are those that affect the populations and distributions of species that subsistence users harvest as well as those that affect the attitude subsistence users have toward harvesting those species. This includes impacts of the proposed action and other ongoing planned projects in the EVOS area.

The main impact on subsistence from other ongoing or planned projects in the spill area would be from increased competition for resources that are both subsistence and recreation species. It is anticipated that these cumulative effects would be restricted to Prince William Sound. The road projects to Whittier and Cordova, the Whittier harbor expansion, and the lodge development at Childs Glacier each may add increments of additional numbers of recreational boaters in Prince William Sound. While it is unlikely that increased numbers of recreational boaters would affect the numbers of sea mammals, it is possible that increased boat traffic could cause some disturbance of harbor seals or sea otters in localized areas. There also may be increased competition for salmon or other fish used by sport anglers. However, the primary impact may be competition for deer in Prince William Sound, especially at locations like Montague Island.

Projects funded by the Trustee Council from FY's 1992 - 94 (Subsistence Food Testing, Subsistence Planning, and efforts to increase populations of subsistence harvest species) have produced some benefits to the confidence levels of subsistence users toward the safety of consuming traditional foods.

Conclusions (Cumulative impacts on subsistence)

Increased competition for subsistence resources may result from ongoing or planned projects in the Prince William Sound region. The benefits expected from the proposed alternative, Alternative 5, will not substantially offset the impact of that competition.

Recreation and Tourism

The factors that may come into play in the cumulative effects on recreation and tourism include the numbers and types of visitors, their distribution, and the availability of suitable facilities or sites. This analysis is concerned with recreation and tourism in the entire EVOS area.

Whittier road access and Cordova road access would increase the numbers of visitors to Prince William Sound and the Copper River Delta. They also would increase the use of vehicle access to tourist facilities and businesses in Whittier as well as to recreation sites in Prince William Sound. This would allow more people to use existing campgrounds,

interpretive sites, picnic areas, and so on, especially in the Cordova area. The proximity of Whittier to Anchorage would allow potentially large increases in numbers of visitors, which would allow for new tourism-based businesses. The increased access to both Cordova and Whittier also would likely increase the number of small motorboats using Prince William Sound. This would put additional stress on recreation sites, which could have damaging effects to local ecosystems and cause shifting in recreation use patterns. Recovery of recreation as discussed for the proposed alternative, Alternative 5, would help balance the shift in recreation use patterns and provide new recreational use opportunities. Habitat protection and acquisition would allow additional public access to lands that were previously privately owned, thereby providing new recreation site opportunities. Recreation projects developed for general restoration may provide additional facilities or enhance existing facilities or sites in a way that would reduce the impact of increased numbers of visitors.

The proposed lodge/motel at Childs Glacier also would increase the numbers of visitors along the Cordova road system, and there is additional potential for airplane and boat charter operations in connection with this development. Again, the recovery of recreation as discussed for Alternative 5 would help balance the shift in recreation use patterns and provide new recreational use opportunities.

Should a deep-water harbor be constructed at Shepard Point, Cordova could become a focus for cruise ship-based tourism. A harbor of that type potentially would be a major positive impact to tourism in Cordova, primarily affecting retail sales. Some additional charter business (bus, small boat, and airplane) is expected as a result of this development; however, little effect is expected on dispersed or remote recreation in the area.

The proposed Lower Cook Inlet oil development would result in the development of infrastructure, which would entail both short-term and long-term population increases in some communities. It also would entail considerable aerial and marine support from a shore base. This could have a substantial local impact on demand for recreation opportunities in the Lower Cook Inlet region. During the construction phase, the additional air and marine traffic could disrupt the recreation quality in the area and along the transportation routes. Acquisition of lands through the EVOS restoration process may make more lands available for public recreation, and public education/ information availability may help distribute recreational activities to decrease impact from overuse of a few areas. The presence of 48 production/service wells and 3 production platforms would impact the visual character of the landscape, which would change the recreational experience in the region.

The Trans-Alaska Gas Pipeline is anticipated to have little impact on recreation and tourism in the EVOS area.

Projects funded for recreation and tourism by the Trustee Council for FY's 1992-94 have been directed toward gaining information on the quantity and types of impacts to those services. While this information is expected to have considerable benefits to the Trustee Council's ability to appropriately plan restoration activities, no projects have yet been funded that would directly benefit these services.

Conclusions (Cumulative effects on recreation and tourism)

In combination with the effects of the proposed alternative, the cumulative effects of these projects would be increased pressure on facilities and undeveloped sites and a change in recreation experience for visitors to Prince William Sound.

Wilderness

Conclusions

None of the developments considered would, in combination with actions under the proposed alternative, have a cumulative effect on Wilderness.

Economy

The actions described in the cumulative case would have an economic impact of increasing employment and output by 1 percent per year over a 10-year period. An increase in employment of 1 percent per year is projected in a report by the Institute for Social and Economic Research (ISER) (1992). These employment projections in the ISER report assume approximately the same range of projects and factors affecting the economy as described in this cumulative case. The 1-percent annual increase in employment and output as a result of cumulative-case activity plus the economic impact from Alternative 5 would result in moderate economic effects.

EIS
A

Comments on Responses from John Farrell 8/19/94

- had difficulty matching all of the comments to appropriate response.

- 192-1 does not answer the question about the contingent evaluation report. The issue is that important data was not considered

- 192-3 misses the point of unequal weight between Gen. Rest. projects and habitat protection. The rest is examples. Combine with 192-4?

192-6 change "guesses" to "judgement"

192-19 #26 Be more direct that they are correct & that development adversely affects wilderness values. Also the comment focused on the No Action alternative and the fact that development on private lands will have a major long-term negative effect on wilderness.

EIS
A

CHUGACH NATIONAL FOREST
FAX COVER SHEET

TO: Jerry Langer FAX NO.: 276-7178

DEPT.: _____ PHONE NO.: _____

FROM: Warren Olga FAX NO.: _____

DEPT.: _____ PHONE NO.: 271-2838

REMARKS: _____

TOTAL NUMBER OF PAGES (EXCLUDING COVER): 3

DATE SENT: 8/29 TIME: 1130

CHUGACH NATIONAL FOREST
TIMBER HARVEST RECORD
FY 80-93

FY	ACRES	NET MBF VOLUME
1993	446	1,914
1992	357	2,445
1991	187	941
1990	237	916
1989	140	1,498
1988	126	1,026
1987	106	692
1986	54	370
1985	115	790
1984	80	546
TOTAL	1,848	11,138
1983	154	1,054
1982	52	358
1981	298	2,041
1980	199	1,363
TOTAL	2,551	15,954

Chugach Timber Harvest

Volumes

1916 – 1993

FY	MBF
93	
92	2443.0
91	
90	
89	
88	
87	691.7
86	370.4
85	709.0
84	545.5
83	1054.2
82	357.5
81	2041.5
80	1363.4
79	8212.2
78	7981.2
77	8923.2
76	4524.7
T-QTR	7658.3
75	6541.4
74	1458.7
73	2786.7
72	2657.4
71	1893.2
70	3101.2
69	4069.3
68	2885.0
67	1063.0
66	2368.0
65	6095.0
64	1722.0
63	6414.0
62	6361.0
61	6730.0
60	7106.0
59	8284.0
58	4116.0
57	2514.0
56	3537.0
55	3176.0
54	3499.0
53	3819.0
52	3935.0

Compute acres

CY	MBF	NOTE THESE FIGURES (V) ARE FOR CALENDAR YEARS!!!!!!!!
51	5803.0	
50	5434.0	
49	5910.0	
48	8278.0	
47	10268.0	
46	5798.0	
45	4783.0	
44	3860.0	
43	3130.0	
42	2238.0	

41	2185.0
40	2004.0
39	1360.0
38	2281.0
37	2045.0
36	2948.0
35	3226.0
34	2744.0
33	3075.0
32	3391.0
31	5736.0
30	6440.0
29	5447.0
28	6480.0
27	3294.0
26	4769.0
25	3801.0
24	3893.0
23	4382.0
22	3320.0
21	2665.0
20	4833.0
19	5079.0
18	5536.0
17	6338.0
16-9	23,179.0

United States Department of Agriculture | Forest Service | Alaska Region | P.O. Box 21628 Juneau, AK 99802-1628

EIS A

August 22, 1994

Memorandum

To: Regional Director, Region 7
Fish and Wildlife Service

From: Phil Genic, Regional Forester
Region 10, Forest Service

Subject: Endangered Species Act Compliance

In response to you memorandum of August 12, 1994, we have enclosed for your review and concurrence, our determinations regarding the biological assessments for the threatened and endangered species which are in the area of consideration or which use the area. Based on the analysis by the interdisciplinary team, there would be no actions which would result in any adverse impacts to any of these species.

The species assessed were:

Species	Determination
Short-tailed albatross (*Demote albatrus*)	No adverse effects
American peregrine falcon (*Falco peregrinus anatum*)	No adverse effects (may benefit)
Arctic peregrine falcon (*Falco peregrinus tundrius*)	No adverse effects
Aleutian Canada goose (*Branta canadensis leucopareia*)	No adverse effects
Steller's eider (*Polysticta stelleri*)	No adverse effects (may benefit)

If possible, we request that this consultation be expedited. If there remains any specific questions regarding compliance with Section 7 of the Endangered Species Act, please contact Rod Kuhn directly at 278-8012 or the Fish and Wildlife team member, Gerry Sanger, at 278-8012.

Biological Assessment of the Proposed Action on Endangered and Threatened Species

Following is a biological assessment of the effects of the Preferred Alternative (Alternative 5) on Threatened and Endangered Species known to occur within the EVOS area. The Office of Endangered Species, Fish and Wildlife Service, Region 7, determined the occurrence of the species considered. As Restoration actions are proposed, each will be re-evaluated for compliance regarding its effects on rare and endangered species.

Current Endangered and Threatened Species in EVOS Area

Short-tailed Albatross (*Diomedea albatrus*) - Status: Endangered
A remnant population of short-tailed albatrosses breeds on a small island off of Japan (AOU 1983). The species is considered a rare summer and fall visitant to oceanic and continental shelf waters of the Gulf of Alaska (DeGange and Sanger 1986). None were sighted anywhere in Alaskan waters during surveys of the Alaskan Outer Continental Shelf Environmental Assessment Program in the 1970's, and there have been few sightings in the Gulf of Alaska in the past 10 years. Alternative 5 will not effect the short-tailed albatross because the chances of this species occurring in the EVOS area are extremely small.

American peregrine falcon (*Falco peregrinus anatum*) - Status: Endangered
Actions proposed under Alternative 5 will not effect American peregrine falcons that may migrate through the EVOS area. Through habitat acquisition, Alternative 5 would provide more habitat for this sub-species than would likely occur under the No Action Alternative in the long term.

Arctic peregrine falcon (*Falco peregrinus tundrius*) - Status: Threatened
This race of peregrine falcon has been proposed for de-listing, and will not be affected by Alternative 5 because the chances of it occurring in the EVOS area are extremely small. There is some doubt whether there are any records for this race within the EVOS zone. However, any habitat acquisition will provide added protection to any Arctic peregrine falcons that may occur in the EVOS area.

Aleutian Canada goose (*Branta canadensis leucopareia*) - Status: Threatened
This endangered race of Canada goose breeds on a few islands in the Aleutians, and also on one of the Semidi Islands, just within the southern limits of the EVOS region. This sub-species is believed to migrate directly between breeding islands and their wintering grounds in the Pacific Northwest. There are no records of this race within the EVOS zone other than at the Semidi Islands. Therefore, Alternative 5 should have no adverse affect on the Aleutian Canada goose, although any habitat acquisition will provide added protection to any Aleutian Canada geese that may happen to occur in the EVOS area.

Steller's eider (*Polysticta stelleri*) - Status: Proposed Threatened
Actions proposed under the Preferred Alternative will not affect this species adversely. Cleaning remaining oil from beneath mussel beds, one of the actions proposed, would benefit small pockets of intertidal eider foraging habitat by decreasing the chances for oil contaminating the eider's food supply. This action would take place in summer when Steller's eiders are not in the EVOS area.

EIS A

OPTIONAL FORM 99 (7-90)

FAX TRANSMITTAL # of pages ▶ 3

To Karen Klinge	From Sandy R.
Dept./Agency	Phone #
Fax # 276-7178	Fax #

NSN 7540-01-317-7368 5099-101 GENERAL SERVICES ADMINISTRATION

of the Interior

VICE

99

Received AUG 18 1994 NPS

AUG 12 1994

Theresa Woods - 786-3505 FAX: 786-3625

FAX: 786-3350

Memorandum

To: Regional Director, National Park Service
Attention: Sandy Rabinowitch, Acting Chief, Coastal Programs Division

From: Acting Regional Director
Region 7 R. Daniel Lumiton

Subject: Review of Draft Environmental Impact Statement for the *Exxon Valdez* Oil Spill Restoration Plan for Endangered Species Act Compliance

At the request of Mr. Phil Janik (July 20, 1994, letter (Re:1590)), the U.S. Fish and Wildlife Service (Service) has reviewed the Draft Environmental Impact Statement (Draft EIS) for the *Exxon Valdez* Oil Spill Restoration Plan for compliance with section 7 of the Endangered Species Act (Act) of 1973, as amended. According to established procedures, we are transmitting the following comments to Mr. Janik, through your office.

The Service has no previous record of section 7 consultation on the proposed restoration actions discussed in the Draft EIS. We recognize that there are many parties to the Draft EIS (including the Service); however, for the purposes of this letter we are considering the U.S. Forest Service as the lead "action agency."

Under 50 CFR 402.12, the first step in section 7 consultation is for the action agency to request a list of threatened and endangered species from the Service. The following list of species occurring within the *Exxon Valdez* Spill restoration project area is provided for your consideration.

Species	Status
Short-tailed albatross (*Diomedea albatrus*)	Endangered - rare, pelagic, non-breeding
American peregrine falcon (*Falco peregrinus anatum*)	Endangered - migrant
Arctic peregrine falcon (*Falco peregrinus tundrius*)	Threatened - migrant (proposed for delisting)
Aleutian Canada goose (*Branta canadensis leucopareia*)	Threatened - migrant
Steller's eider (*Polysticta stelleri*)	Proposed Threatened - winter resident

Through section 7 consultation, the action agency is required to determine whether the actions they fund, conduct, or permit may affect listed species. In the case of Steller's eider, section 7 conferencing is required if the action agency determines that the proposed restoration activities are likely to jeopardize the continued existence of this proposed species. Typically, these determinations are documented in an Endangered and Threatened Species Biological Assessment section within the Environmental Consequences chapter of the Draft EIS. We recommend that you prepare a biological assessment to document the expected impact of the proposed restoration actions on the listed and proposed species occurring within the action area.

If during the preparation of the biological assessment, the action agency determines that the proposed restoration activities are not likely to adversely affect listed species, concurrence from the Service may be requested, and upon receiving concurrence consultation may be concluded. In the event that site-specific actions would adversely affect a listed species, the action agency should continue informal consultation with the Service to determine if adverse effects can be eliminated. If it is determined that adverse affects to a listed species cannot be avoided or that incidental take of listed species would occur, then formal consultation would be required. Based on general descriptions of proposed actions within the Draft EIS, we do not anticipate that the proposed restoration activities would result in adverse effects to these species.

In addition to the listed and proposed species, the Service is also monitoring the status of the following candidate species:

Marbled murrelet (*Brachyramphus marmoratus*)	Candidate 2 - resident
Kittlitz's murrelet (*Brachyramphus brevirostris*)	Candidate 2 - resident
Harlequin duck (*Histrionicus histrionicus*)	Candidate 2 - resident
Northern goshawk (*Accipiter gentilis*)	Candidate 2 - resident
Olive-sided flycatcher (*Contopus borealis*)	Candidate 2 - summer resident

The Draft EIS discusses impacts to marbled murrelets and harlequin ducks.

Category 2 candidate species are designated when the best available scientific and commercial information indicates the species might qualify for protection under the Act, but the Service needs further status survey information, evaluation of threats, or taxonomic clarification before the need for listing can be determined. Candidate species are not afforded legal protection under the Act, but we encourage the action agency to carefully consider the needs of candidate species in your project design.

It is possible that listed species within the jurisdiction of the National Marine Fisheries Service (NMFS) may be affected by the proposed restoration activities. We recommend that the action agency contact NMFS for their comments.

We appreciate the opportunity to review the Draft EIS for compliance with the Act. If you have further questions or need clarification of the consultation process, please contact Jon Nickles, Chief, Division of Endangered Species, (907) 786-3605.

EIS A

Sep 7 08:24 1994 Page 1

Timber Harvest Acreages (no projections included)
9/7/94

PWS region:

Eyak lands in Cordova region: Approximately 4,000 harvested acres **

Tatitlek lands in Port Fidalgo region: Approximately 6,800 harvested acres (aug 94)

Chugach Alaska lands on Montague Island: Approximately 1,300 harvested acres (" ")

AFOGNAK region:

Afognak Island: Approximately 23,500 harvested acres ** (this figure is unverified by the forester, who returns from vacation on 9/8/94)

KENAI PENINSULA region: No data available at this time

** 1994 logging activity is NOT included in this figure

Jerry,

Please note that these figures are approximate. More accurate numbers could be obtained by the end of the month, if this becomes necessary. Please advise.

Kelly Zeiner
Land Records Information Section, AK DNR
762-2371

AK-DNR, Div of Forestry + LRIS

Post-It™ brand fax transmittal memo 7671 | # of pages ▸ 1

To Jerry Sanger	From Kelly Zeiner
Co.	Co. AK DNR
Dept.	Phone # 762-2371
Fax # 276-7178	Fax # 563-1497

EIS A

SANGER'S INPUT FOR 02-28-94 EIS TEAM MEETING

RE: Rod's summary outline matching Impact Topic (resources, etc), Alternatives, and Actions. Numbers below refer to corresponding numbers on summary outline.

Alternative 1: No Action

1. Common Murre: No **Habitat Protection** would have little impact on COMU pops since major colonies are already protected under FWS refuge status. Loss of some small colonies on SW Kodiak coast may be a very remote possibility. Land status "state or municipal."

2. Common Murre: No **Predator Control** would have little effect on recovery within the spill zone, although **Predator Control** at selected islands on AMNWR land downstream from the spill zone planned by the FWS would be affected, and overall populations in the Gulf of Alaska therefore would be slower to recover to pre-spill levels.

3. Common Murre: No directed **Education** may result in tour and fishing boat operators and general public becoming aware of their potential harmful impacts on COMU colonies at a slower rate than may happen with specific, directed education programs. ADF&G, Chugach National Forest and FWS already have general Watchable Wildlife and public education programs.

4. Harlequin Duck: No **Habitat Protection** may mean loss of nesting habitat, and possibly some foraging habitat, to logging or other development or other activity that destroys or intrudes upon nesting habitat, including tourism and/or recreation development. However, such destruction/intrusion would seem to be best determined on a case-by-case basis; not all habitat not already in a protected status may be equally valuable to HADU's.

5. Harlequin Duck: Not **Cleaning Mussel Beds** may mean a temporary loss/reduction in foraging habitat. This may result in slower recovery in specific segments of the HADU population in the oiled zone. However, the overall affect on Sound-wide population may be negligible, since July post-spill HADU population appears to have been stable in 1990, 1991 and 1993 (no 1992 survey) (Agler et al DRAFT ms).

6. Harlequin Duck: No **Directed Management** re: restricted hunting seasons may mean smaller population to enhance reproduction/natural recovery.

7. Marbled Murrelet: No **Habitat Protection** may mean loss of nesting habitat, and possibly some foraging habitat, to logging or other activity that destroys or intrudes upon forest nesting habitat, including tourism and/or recreation development. However, such destruction/intrusion would seem to be best determined on a case-by-case basis; not all habitat not already in a protected status may be equally valuable to MAMU's.

8. Marbled Murrelet: No **Predator Control** would likely have little impact on MAMU

recovery, because of the practical constraints on controlling MAMU predators. Although predation on MAMU's has been witnessed on Naked Island (Kuletz), it may have been magnified because predators (crows) apparently located MAMU nests by watching biologists working on the nests. Regardless, MAMU's have such an extremely dispersed nesting distribution that predator control would not be a practical consideration. A possible exception would be to eliminate (kill) avian predators on a case-by-case basis near known nest sites; this could cause agency PR problems, however.

9. Pigeon Guillemot. No **Habitat Protection** could possibly mean loss of nesting habitat. However, PIGU's nesting habitat consists of a very narrow strip of land immediately adjacent to the intertidal zone, and usually in rocky, steep, and generally inaccessible locations. Also, with only two exceptions, the largest PIGU colonies in PWS are on CNF land that is not slated for logging or other development (B. Vanzee, pers comm.). Development of coastal facilities such as harbors that happened to be at or near colonies may impact PIGU recovery. From a practical standpoint, the two colonies on native land in PWS are on remote, exposed, steep and rocky sites, on The Pleiades Islands and at the SE corner of Bligh Island, and do not appear to be suitable for any development that would hinder PIGU breeding anyway.

10. Pigeon Guillemot. No **Predator Control** could hinder PIGU restoration in PWS. Predation has been suggested as a possible factor in declining PIGU pops in PWS, although there are very few data on the extent and nature of predation on PIGU's in the spill zone or elsewhere in PWS.

Alternative 2: Habitat Protection

11. Common Murre: Maximizing **Habitat Protection** as allowed under this alternative would have relatively little impact on COMU populations since major colonies are already protected under FWS refuge status. However, purchasing The Triplets (owned by Ouizinkie Corp?), in Marmot Bay, between Kodiak and Afognak Islands, would assure protection of a colony of about 1,300 COMU (1977 census). Similarly, assuring protection of the few small colonies State/Municipal on SW Kodiak coast would affect a small portion of the COMU population in the spill area.

12. Common Murre: Theoretically, **Predator Control** would address an injured resource and would provide improvement over natural recovery. However, the degree of predation on COMU's within the spill zone alone (Alt 2 policy) may be insignificant. Red foxes and avian predators occur naturally adjacent to colonies on the mainland and Kodiak, but it seems unlikely that introduced predators are a factor within the spill zone.

13. Common Murre: **Education** funds may be limited under this alternative.

14. Harlequin Duck: **Habitat Protection** under this alternative would maximize protection of HADU nesting habitat, and possibly some foraging habitat. However, without knowing breeding population sizes on individual parcels of land, it is difficult to say what affect the protection of any given parcel would have on overall harlequin population size. Sound-wide population estimates showed a decline in the oiled zone after the spill (Klosiewski and Laing Draft ms). However, estimates for the entire Sound, oiled and unoiled zones combined, suggest that populations in March were essentially the same before and after the spill, and that they actually increased significantly in July between 1972, and 1990, 1991 and 1993 (Klosiewski and Laing DRAFTms, Agler et al DRAFT ms).

If the above estimates are accurate, it implies that, while there was a population decline in the oiled zone of PWS, which corroborates Patten's studies, the decline was more than offset by an overall population increase in the non-oiled zone. The three-year post-spill population estimates for July were consistent at approximately 5,500 - 11,500, but more years of data are needed to determine if there is a trend. We should not ignore the fact that the best data for PWS population size does not support a conclusion of a declining population in PWS. FWS data should be examined for frequency of duckling broods in July data as index of production to corroborate/refute Patten's data.

15. Harlequin Duck: **Cleaning Mussel Beds** would likely enhance recovery by speeding up recovery of mussels and other HADU prey, thus broadening the food base. However, the overall affect on Sound-wide population may be difficult to determine.

16. Harlequin Duck: **Directed Management** re: restricted hunting seasons may mean a larger population to enhance reproduction/natural recovery.

17. Marbled Murrelet: **Habitat Protection** would enhance population stability by not allowing a decrease in nesting habitat. However, the most recent PWS population assessment suggests that the population has been stable for years 89, 90, 91 and 93; more years of data are needed to determine if this is a satistical trend. The population estimate is still lower than the 200,000 - 400,000 estimated in 1972, although the July 93 estimate (117,000 to 200,000) is higher than the prior three years of post-spill data, and it is approaching the lower limit of the 1972 estimate.

Practical considerations re: murrelets: It would be difficult if not impossible to assess overall affect of forest habitat protection for individual parcels of land without knowing breeding population size on each parcel. In my view, the best available data (Agler et al) suggest that the population as a whole is more likely to be stable than declining.

18. Marbled Murrelet: **Predator Control** would likely have little impact on MAMU recovery, because of the practical constraints on controlling MAMU predators. Isolated cases of predation on MAMU's has been witnessed on Naked Island (Kuletz), but it may have been magnified because predators (crows) apparently located MAMU nests by watching biologists working on them. Regardless, MAMU's have such an extremely dispersed nesting distribution

that predator control would not be a practical consideration. A possible exception would be to eliminate (kill) avian predators on a case-by-case basis near known nest sites; this could cause agency PR problems, however.

Alternative 3: Limited Restoration

21. Common Murre: **Habitat Protection** as allowed under this alternative would have relatively little impact on COMU populations since major colonies are already protected under FWS refuge status. Protection of The Triplets (owned by Ouizinkie Corp?), in Marmot Bay, between Kodiak and Afognak Islands, would assure protection of a colony of about 1,300 COMU (1977 census). Similarly, assuring protection of the few small colonies State/Municipal on SW Kodiak coast would affect a small portion of the COMU population in the spill area. However, since these are not major colonies, and thus would not produce substantial improvement in population recovery, it seems doubtful that these actions would fall under this alternative.

22. Common Murre: **Predator Control** within the spill zone would not seem to provide substantial improvement over natural recovery. The degree of predation on COMU's within the spill zone alone (Alt 2 policy) is unknown.

23. Common Murre: **Education** directed specifically to tour and fishing boat operators would increase their awareness of *their* potential harmful impacts on EVOS-impacted COMU colonies. This would help maximize improvement over natural restoration. This is reportedly a growing problem near the Barren Islands; e.g., noise from guns discharged to kill halibut on fishing charter boats flushes adult COMU's from nesting cliffs, which knocks eggs and chicks off the cliffs. It's unlikely that this is a problem in the Kodiak area, but Kodiak charter operators should also be made aware of the situation.

24. Harlequin Duck: **Habitat Protection** under this alternative would help protect HADU nesting habitat, and possibly some foraging habitat. However, without knowing breeding population sizes on individual parcels of land, it is difficult to say what affect the protection of any given parcel would have on overall harlequin population size. The Sound-wide population estimates showed a decline in the oiled zone after the spill (Klosiewski and Laing Draft ms). However, the population estimate for the entire Sound, oiled and unoiled zones combined, suggest that populations in March were essentially the same before and after the spill, and that they actually increased significantly in July between 1972, and 1990, 1991 and 1993 (Klosiewski and Laing DRAFTms, Agler et al DRAFT ms).

These estimates imply that the decline in the oiled zone was more than offset by an overall population increase in the non-oiled zone. The three-year post-spill population estimates for July were consistent at approximately 5,500 - 11,500, but more years of data are needed to determine if there is a population trend. I could not say confidently that the trend is decreasing. Given that this alternative strives for *substantial* improvement over natural recovery, this action may not be justified unless substantial populations are discovered nesting on specific parcels of land being considered for protection.

25. Harlequin Duck: **Cleaning Mussel Beds** would likely enhance recovery by speeding recovery of mussels and other HADU prey, thus broadening the food base. However, the overall affect on Sound-wide population may be difficult to determine. This alternative aims for *substantial* improvement over natural recovery, so this action may not be justified unless substantial populations are discovered utilizing specific parcels of land being considered.

26. Harlequin Duck: **Directed Management** re: restricted hunting seasons may mean a larger population to enhance reproduction/natural recovery. This relatively inexpensive action would seem to fall under this alternative.

27. Marbled Murrelet: **Habitat Protection** would enhance population stability by not allowing a decrease in nesting habitat. However, the most recent PWS population assessments (89, 90, 91 and 93) suggest that the population may be stabilizing. I would not confidently say the population has decreased since the spill. More years of data are needed to determine any trend. The population estimate is still lower than the 200,000 - 400,000 estimated in 1972, although the July 93 estimate (117,000 to 200,000) is higher than the prior three years of post-spill data, and it is approaching the lower limit of the 1972 estimate.

Practical considerations re: murrelets: It would be difficult if not impossible to assess overall affect of forest habitat protection for individual parcels of land without knowing breeding population size on each parcel. In my view, the best available data (Agler et al) suggest that the population as a whole is more likely to be stable or increasing than declining.

28. Marbled Murrelet: **Predator Control** would likely have little impact on MAMU recovery, because of the practical constraints on controlling MAMU predators. Predator control does not seem to be a viable avenue to help substantial improvement over natural recovery, especially considering that PWS population may be stabilizing.

29. Pigeon Guillemot. **Habitat Protection** would not seem to be to be a strong enhancement for substantial improvement over natural recovery. Except for the northern Afognak Island area, knowledge of colonies outside PWS are largely unknown. If large colonies are discovered on non-protected land during future surveys, this action may be considered under this alternative.

30. Pigeon Guillemot. **Predator Control** This action does not seem to be addressed directly under this alternative, but some general observations may give some perspective here too. Any consideration of this action is hampered by the general lack of knowledge about the significance of predation on PIGU populations. Determining whether this action would give substantial improvement over natural recovery should be determined on a case-by-case basis, after necessary studies are completed.

Alternative 4: Moderate Restoration

31. Common Murre: **Habitat Protection** as allowed under this alternative would have some impact on COMU populations if smaller colonies at The Triplets (owned by Ouizinkie Corp?), in Marmot Bay, between Kodiak and Afognak Islands, and the few small colonies on State/Municipal land on SW Kodiak coast would be protected; other colonies appear to be protected under FWS refuge status.

32. Common Murre: **Predator Control** within the spill zone would not seem to provide substantial improvement over natural recovery. The degree of predation on COMU's within the spill zone alone (Alt 2 policy) is unknown. Affect of predator control downstream from spill zone unknown, but would be allowed under this alternative. I have little personal knowledge of the degree of predation on murres at colonies downstream from the spill zone, but predator control program being supported in 1994 by Trustee Council funds establishes a precedent.

33. Common Murre: **Education** directed specifically to tour and fishing boat operators would increase their awareness of *their* potential harmful impacts on EVOS-impacted COMU colonies. This action seems particularly justified under this alternative, although it's unlikely a much of a problem at present away from the Barren Islands, and possibly Kodiak area and near the Chiswell Islands.

34. Harlequin Duck: **Habitat Protection** under this alternative would help protect HADU nesting habitat, and possibly some foraging habitat. However, without knowing breeding population sizes on individual parcels of land, it is difficult to say what affect the protection of any given parcel would have on overall harlequin population size.

35. Harlequin Duck: **Cleaning Mussel Beds** would likely enhance recovery by speeding recovery of mussels and other HADU prey, thus broadening the food base. However, the overall affect on Sound-wide population may be difficult to determine. There is little knowledge of population status outside PWS.

36. Harlequin Duck: **Directed Management** re: restricted hunting seasons may mean a larger population to enhance reproduction/natural recovery. This relatively inexpensive action would seem to fall under this alternative.

37. Marbled Murrelet: **Habitat Protection** would enhance population stability by not allowing a decrease in nesting habitat. However, the most recent PWS population assessments (89, 90, 91 and 93) suggest that the population may be stabilizing. More years of data are needed to determine if this is a trend, which would be easier to obtain given the added M&R funds available. Also, the FWS has identified MAMU's as one of several ecosystem monitoring species. It is one of the few PWS species for which pre-spill feeding ecology data are available. More frequent monitoring would also enhance monitoring population trends. Again, the best available data (Agler et al) suggest that the population as a whole is more likely to be stable or increasing than declining, and population M&R would be easier to justify under this alternative..

38. Marbled Murrelet: **Predator Control** would likely have little impact on MAMU recovery, because of the practical constraints on controlling MAMU predators.

39. Pigeon Guillemot. **Habitat Protection** would again not seem to be to be a strong enhancement for *substantial* improvement over natural recovery, given the protective status of the large majority of potential MAMU nesting habitat. If large colonies are discovered on non-protected land during future surveys, this action maybe considered under this alternative.

40. Pigeon Guillemot. **Predator Control** This action may be most easily justified under this alternative. But again, any consideration of this action is hampered by the general lack of knowledge about the significance of predation on PIGU population status. Determining whether this action would result in improvement over natural recovery should be determined on a case-by-case basis, after necessary studies are completed.

41. Black-legged Kittiwake and other species. The FWS has given this species a very high priority as a key element in any ecosystem monitoring study in PWS. Should be included in our assessment for Alternative 4. Population in PWS has been stable since the spill, but productivity has been down. The PI states in his final report that lowered productivity "may or may not" have been from the spill. Other seabird species that would lend themselves to an ecosystem study include pigeon guillemots, horned and tufted puffins, and parakeet auklets because of prior data and/or the relative ease of studying their feeding habits.

Karen's Comments re: 2/28 EIS Meeting Input

Alternative 1: No Action

This section describes what will happen to the resources if the Trustee Council does nothing. This would be the place to discuss Natural Recovery. In other words, how long will it take the injured murre colonies to return to their prespill levels? (20-80 yrs has been the accepted prediction, so far)

You will also take in any other factors (outside of the EVOS program) that may influence the population. For instance, under a "worse case" scenario you estimate that up to X% (10%?) of private lands will be logged. This may, or may not, influence the decline of MAMU's in the spill area.

IF you provide the above information, I do not believe you need to consider each of the proposed actions in this alternative.

Alternative 2.

Only consider habitat protection, ~~MAMU~~ MAMU.

Alternative 3.

The option write-up I gave you discusses poisoning gulls (I think)! Would that technique be beneficial to the injured colonies within the spill area? murre

* The Education option was not considered effective enough for Alternative 3 or 4.

Alternative 4.

Remember that this alternative allows for actions to be taken outside of the spill zone. That means predators could be removed from Aleutian or Pribilof Islands. I have some good background information on this from Vern Byrd.

Education alternative not considered effective enough for this alternative.

Alternative 5 → the Restoration Plan

* Would include the education option

Can include removing predators from outside of EVOS IF the individual birds from the targetted colony are thought to use the spill area for feeding or something.

Exxon Valdez Oil Spill Trustee Council
Restoration Office
645 G Street, Suite 401, Anchorage, Alaska 99501-3451
Phone: (907) 278-8012 Fax: (907) 276-7178

EIS A

FAX COVER SHEET

FAX COMPLETE

To: Kathy Kuletz Number: 786-3641

From: Gerry Sanger Date: 8-30-94

Comments: Total Pages: 11

Hi Kathy - Here's my draft changes to DEIS as result of public comment. any comments would be appreciated, but especially note NANV reference, & how I cite your "oral comm."s. No word back from Trustee Council review yet, so there could be more changes.

Thanks! Gerry

P.S. - any data on NANV use of stream buffers? are stream buffers any use to NANV's, as well as salmon?

Document Sent By: Gerry Sanger

9408011196

EIS

A

Sierra Club
241 East Fifth Avenue, Suite 205
Anchorage AK 99510
(907) 276-4048
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August 1, 1994

Exxon Valdez Oil Spill Trustee Council
Attn: EIS Comments
645 G Street
Anchorage AK 99501 fax 276-7178

6 PAGES

Gentlemen:

Thank you for this opportunity to comment on the Draft Environmental Impact Statement for the Exxon Valdez Oil Spill Restoration Plan.

Faulty assumptions

Some of the DEIS conclusions about impacts of the various alternatives are, at first, surprising. On further investigation, it appears that they are faulty, because they are based on faulty assumptions.

One faulty assumption which leads to many faulty conclusions concerns the amount of land (or interests in land) available for the various amounts of money considered for Habitat Protection.

Under Alternative 2 (the "Habitat Protection" alternative) the last paragraph of page 2-7, states "At this time, we do not know what the cost of various levels of protection will be at fair market value. For purposes of analysis in this alternative, we are assuming that all the parcels shown in Figures 2-1 though 2-3 would receive some level of protection...." (Figures 2-1 through 2-3 are maps of all the large parcel private lands in the oil spill area.) While the first sentence is clearly correct (the fair market value price is not yet known), the second sentence clearly is not. It is completely arbitrary to assume that the amount dedicated to habitat protection in Alternative 2 ($564 million) would purchase fee simple title, interests in land, or cooperative agreements on all the large parcel private lands in the oil spill area, estimated at 863,100 acres. This assumes an average price of roughly $650 per acre, which is well below the available owners' asking prices and the price of the parcels purchased so far. It would also leave no funds at all available for the small parcels, which are the most easily developed and the most expensive lands per acre.

Subsequent alternatives drift even further from likely real prices, stating, "For purposes of analysis in this alternative, we are assuming one end of the range of protection possibilities is that all parcels ... would receive some level of protection."

The problem with these assumptions is that they lead to the faulty conclusion that a smaller amount of money (such as the $295-325 million in the preferred alternative) will be sufficient to buy the valuable habitat. Therefore, spending more money on habitat protection (beyond the Preferred Alternative) is mistakenly viewed as allowing only the addition of low value parcels. It is, in fact, probably impossible to do an adequate analysis without appraised values for the land. However, the assumed price is almost certainly too low. Some Trustee Council members themselves have remarked that all the available funds ($620 million) may not be sufficient to buy even the highest ranked large parcel areas, much less the medium and low ranked parcels.

Another faulty assumption is that "General Restoration" is necessarily a significant benefit to the injured resources and services. In fact, many of the General Restoration options are designed to increase raw numbers of one resource (such as salmon) without regard to possible negative impacts on other resources and services. In some cases, the impacts can even turn out to be negative on the target resource. For example, hatchery rearing of salmon often has a negative impact on wild salmon stocks. Worldwide experience with hatcheries is that short term results are often very good, but after a number of years, populations may decline precipitously. Also, a General Restoration project may increase the raw numbers of a resource, but this may be a poor measure of restoration. For example, sport hatcheries may increase the number of sport fish available, but these hatchery fish may be of much less interest than wild fish to the serious angler.

Of course, General Restoration projects are subject to further NEPA analysis. The point here is that there appears to be a faulty assumption that the listed General Restoration projects have a significant positive impact -- more significant, in fact, than Habitat Protection. This assumption is not overtly stated and not justified in the DEIS, but it nevertheless drives the conclusions.

Faulty conclusions

The impacts are summarized in Table 2-3 "The Comparison of the Impacts of the Alternatives From Chapter 4" (page 2-19).

The most appalling of the faulty conclusions is the supposed effects on wilderness. The DEIS concludes that the Habitat Protection Alternative (#2) will have only a "low to moderate" impact on wilderness, whereas the Preferred Alternative (#5) will have a "moderate to high" impact. How is this possible? Less money for Habitat Protection means more land will be logged and otherwise developed. In addition, the General Restoration options themselves all have negative impacts on wilderness.

Much of the confusion stems from the fact that between the Brochure and the Draft Restoration Plan, de facto wilderness was inexplicably replaced by "Designated Wilderness Areas" as an injured resource. This does not make sense. If "Designated Wilderness Areas" are an injured resource, then other conservation units should also be listed, including injured National Parks, National Monuments, National Wildlife Refuges, National Forests, Wilderness Study Areas, State Parks, etc. In fact, the actual injured resource should simply be "wilderness." Wilderness occurs throughout most of the oil spill area, it was severely injured by the oil spill, and it will be further injured by a failure to provide adequate habitat protection.

Even if the Trustees consider only "Designated Wilderness Areas" the conclusions are still faulty. The DEIS considers only impacts on the actual land in the Wilderness Area -- so logging on a private inholding is considered to have no impact. In fact, the human experience of a Designated Wilderness Area can be ruined by logging on adjacent land.

Here are some other examples of faulty conclusions:

Sea otters are ranked "low" under Alternative 2 and "moderate" under the others. Sea otter biologist Lisa Rotterman has testified that logging causes significant harm to sea otters because sedimentation injures the intertidal organisms upon which they feed. It seems unlikely that the "cooperative programs" with subsistence users and fishermen, listed under "General Restoration" would be more important than the lost food source.

"Harlequin ducks" are ranked "high" in every alternative. Habitat protection is clearly important to harlequin ducks, which nest in old growth forest. Cleaning mussel beds might also help them, but the rest of the "General Restoration" projects would not.

Marbled Murrelets are ranked "high" in each alternative. There is nothing under "General Restoration" that will help marbled murrelets. Only Habitat Protection will help them.

Pink salmon are ranked "high" for Alternative 5, and "moderate" for the others. No distinction is made between hatchery stocks (which may not have been injured) and wild stocks (which clearly were). Some General Restoration projects may help hatchery stocks at the expense of wild stocks. Logging can damage wild stock habitat.

Sockeye salmon are ranked "moderate" in Alternative 2, and "high" in the other alternatives. See comments for pink salmon above. Logging is even more detrimental to wild sockeye.

Subsistence is ranked "low to moderate" under Alternative 2 and "moderate to high" under Alternatives 4 and 5. This does not reflect the very large negative impact on subsistence of logging and other development.

Recreation/tourism is ranked "moderate" for Alternatives 2 and 3, "moderate to high" for Alternatives 4 and 5. This does not reflect the very negative impact on recreation and tourism of clearcut logging.

Wilderness is discussed above.

Sport fishing is ranked "moderate" under Alternative 2 and "high" under the other alternatives. This does not reflect the opinion of sport fishing organizations, which have strongly supported habitat protection in past testimony.

Value of Each Category of Spending

Administration and Public Information: Administration has consumed far too large a portion of the Trustee Council's budget. Fortunately, the Trustees and staff have recently taken steps to reduce administrative costs. It is essential to continue this trend.

Monitoring and Research: It is useful to understand the extent of recovery and to measure the impacts of restoration projects. However, monitoring and research do not actually bring about restoration. Much of the research which has been conducted or proposed has little chance of contributing to actual restoration. The $130-165 million budget in the Preferred Alternative is highly excessive.

General Restoration: As discussed above, General Restoration is a double edged sword. The impacts can be negative as well as positive. Few of the listed options would provide cost-effective net benefits.

Habitat Protection: The Trustees should consider the nature of threats to habitat, not only their intrinsic value. For example, a forest habitat which will otherwise be logged should be preferred over habitat which is unlikely to be developed. It is also a public benefit to acquire private lands inside conservation unit boundaries to facilitate land management. In addition, it is essential to have sufficient funds available for important small parcels, as well as for the large parcels. The small parcels are often the areas most threatened with development. They are also often the key access areas.

Restoration Reserve: It is a good idea to have some funds available for restoration after the payments from Exxon stop in 2001. The Trustees do not need to set aside a certain amount of money each year, but can instead set aside funds from the last payment or two from Exxon. It appears likely that restoration reserve funds would be used mostly for research and monitoring. It is possible, but does not seem likely, that significant areas of habitat will become available that are not available now. The determination of the size of the restoration reserve should reflect the fact that it is most likely to be used for more research and monitoring.

A note on overall costs: Not only administration, but all expenses should be rigorously questioned. Public funds should not be wasted on helicopters and large boats when small boats are sufficient. Field work should be coordinated so that field staff for different projects can travel together. Travel for meetings should be minimized. In the past, the annual workplan process was designed to support projects with an <u>urgent</u> need for immediate funding -- with little regard to the actual <u>importance</u> of the project, its contribution to restoration, or its cost. The opportunity cost of every project must be considered. The Trustees should choose the restoration projects which have the "biggest bang for the buck."

<u>Sierra Club recommendations</u>

The Sierra Club does not favor any of listed alternatives.

We support purchase of land or interests in land from willing sellers for all of the following areas:

Prince William Sound
- Eyak Corporation - all lands bordering Prince William Sound
- Chenega Corporation - all lands
- Tatitlek - upper Port Fidalgo
- Chugach Alaska Corporation - Knight Island, subsurface for acquired village corporation lands

Kenai Peninsula
- Port Graham and English Bay Corporation lands inside the boundaries of Kenai Fjords National Park
- East Chugach Island (Port Graham)

Kodiak Archipelago
- Afognak Joint Venture - all lands, especially the northern part of the island
- All lands inside the boundaries of Kodiak National Wildlife Refuge, including lands owned by Koniag, Akhiok-Kaguyak and Old Harbor Corporations

We also support sufficient funds to purchase small parcels which are priorities to land management agencies or to neighboring communities.

We believe that restoration inside Alaska but outside the boundaries of the spill zone should be pursued if the benefits outweigh restoration within the spill zone. The boundaries of the injured resources and services are not the same as the boundaries of the spilled oil. Birds, fish, sea mammals, and people all travel more widely.

We believe that at least $500 million will be necessary for these priority habitat purchases. We believe that most of the options listed under "General Restoration" have little net benefit for restoration or are not worth their cost. We recommend not more than $10 million for General Restoration.

Although this Draft EIS is concerned mainly with expenditure of restoration funds, other decisions also have a profound impact on oil spill restoration. While the Trustee Council considers purchasing land or interests in land from private owners, the federal government and especially the state government are pursuing plans to log vast areas on the Kenai Peninsula, inside the oil spill area. State and federal land management planning should consider the impacts of logging on injured resources and services.

Thank you again for your consideration of public comments.

Sincerely,

Pamela Brodie

Pamela Brodie
Alaska Rainforest Coordinator

940729159

EIS A

Pacific Seabird Group

DEDICATED TO THE STUDY AND CONSERVATION OF PACIFIC SEABIRDS AND THEIR ENVIRONMENT

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Vice Chair for Conservation
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July 29, 1994

Molly McCammon
Exxon Valdez Oil Spill Trustee Council
645 G Street, Suite 401
Anchorage, Alaska 99501-3451

Re: Comments on Draft Restoration Plan and Draft EIS

Dear Ms. McCammon:

This letter contains the Pacific Seabird Group's (PSG) comments on the draft EVOS Restoration Plan (November 1993) and the draft programmatic environmental impact statement (June 1994). PSG is an international organization that was founded in 1972 to promote knowledge, study and conservation of Pacific seabirds. PSG draws its members from the entire Pacific Basin, and includes biologists who have research interests in Pacific seabirds, state and federal officials who manage seabird populations and refuges, and individuals with interests in marine conservation. PSG has hosted symposia on the biology and management of virtually every seabird species affected by the Exxon Valdez oil spill, and has sponsored symposia on the effects of the spill on seabirds.

I. Restoration Policies

PSG generally agrees with the policies set forth in the Restoration Plan[1/] and the proposed action (alternative 5) in the DEIS. The $65-$100 million targeted for general

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[1/] Chapter 2.

restoration seems reasonable.[2] PSG specifically endorses Policy No. 3 which allows restoration outside the spill area (but within Alaska) "when the most effective restoration actions for an injured migratory population are in part of its range outside the spill area."[3] As we have commented previously, virtually all the bird species killed in the spill are migratory, and many birds that breed outside the spill area were injured. For this reason, we strongly disagree with Alternative 3 of the DEIS which would limit all actions to the spill area only.[4]

PSG agrees that manipulation of the environment is a useful restoration activity under appropriate circumstances, and that technical feasibility is a key factor that must be considered with each restoration proposal.[5] In this regard, we reiterate our view that the best means to restore most of Alaska's seabird populations would be to remove rats, foxes and other alien creatures from colonies and former colonies as compensatory restoration in areas that may be far from the spill area. This would allow the islands to regain their natural biodiversity. One reason that the harm caused by the oil spill is biologically important is because the intentional introduction of foxes on other seabird colonies during the past 150 years has greatly diminished the natural population of seabirds in Alaska.

We agree with the overall goal of restoring all injured resources and services.[6] We agree that common murres, harlequin ducks, marbled murrelets and pigeon guillemots do not seem to be recovering and need restoration efforts. However, we strongly believe that the Trustee Council should also restore other bird species. The Trustee Council should add the category "other seabirds" and "other sea ducks" to the list of "recovery unknown" resources.[7] The Restoration Plan acknowledges that current population status is "unknown" for the following seabirds that were collected dead in 1989: yellow-billed, Pacific, red-throated loon; red-necked and horned grebe; northern fulmar; sooty and short-tailed shearwater; double-crested, pelagic and red-faced cormorant; herring and mew gull; Arctic and Aleutian tern; Kittlitz's and ancient murrelet; Cassin's, least, parakeet and rhinoceros auklet; and horned and tufted puffin.[8] The decline after the oil spill "varies by species" and

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2 DEIS, p. 2-12.

3 Restoration Plan, p. 9.

4 DEIS, p. 2-12.

5 Restoration Plan, chapter 3.

6 Restoration Plan, p. 25.

7 Restoration Plan, p. 30.

8 Appendix B, p. B-41.

cormorant, Arctic tern and tufted puffin clearly declined.[9] The Restoration Plan also acknowledges that the current population status is "unknown" for the following species of sea ducks that were collected dead in 1989: Steller's, king and common eider; white-winged, surf and black scoter; oldsquaw; bufflehead; common and Barrow's goldeneye; and common and red-breasted merganser.[10]

We raised this issue in our earlier comments[11] and the DEIS concedes these injuries.[12] Nevertheless, the DEIS does not seem to propose spending funds on restoring these populations. According to the federal estimates published in 56 Federal Register 14687 (April 11, 1991), these "other" seabirds and "other sea ducks" totalled 14,000 dead birds. The Trustee Council estimates that "in general, the number of dead birds recovered probably represents only 10-15% of the total numbers of individuals killed."[13] Simple mathematics indicates these losses were 90,000 to 140,000 birds, which the DEIS would have us ignore.

As a reference point for this magnitude of injury to seabirds, the federal government recently settled the Apex Houston case in central California concerning a spill that may have damaged about 4,200 seabirds (the actual number being an unknown multiple of 4,200). The insurance company paid about $6 million to settle this claim. If Alaska seabirds are worth as much as California seabirds, the Trustee Council should spend at least $18 million of the trust funds to restore "other seabirds" and "other sea ducks." Predator removal is a cost effective technique that would benefit all seabirds and all sea ducks.

II. Habitat and Acquisition Policies

PSG generally agrees with the Trustee Council's habitat and acquisition protection policies,[14] and recognizes that protecting uplands may greatly benefit harlequin ducks and marbled murrelets. We agree that those lands that provide the greatest benefit to injured resources should be ranked highest. We have previously provided the trustees with a list of seabird colonies that should be considered for purchase. While we believe that less than fee simple ownership may be appropriate in certain circumstances, the Trustee Council should insure that the ownership rights it purchases will be sufficient to protect the injured resources

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[9] Appendix B, p. B-41.

[10] Appendix B, p. B-42.

[11] Letter to EVOS Trustee Council from PSG (August 6, 1993).

[12] DEIS, Table 1-1, p. 1-13.

[13] Restoration Plan, p. B-16.

[14] Restoration Plan, chapter 3.

in perpetuity. For example, the government should not spend any of the $295-$325 million in trust funds targeted to land purchase for the purchase of logging rights unless those rights are permanent. We understand that historically the government has bought the same land rights more than once.

III. Monitoring and Research

We agree that monitoring and research provide important information to help guide government restoration activities.[15] We believe that this is an area where the Trustee Council must make special efforts to guard against violating Policy No. 9 ("Government agencies will be funded only for restoration work that they do not normally conduct.")

Alternative No. 5 in the DEIS establishes a $100-$130 million restoration reserve for "long-term restoration and research activities."[16] We interpret this reserve to allow the Trustee Council to adopt one of PSG's proposals, namely, the endowment of chairs in marine ornithology at the University of Alaska.[17] If our understanding is correct, we enthusiastically endorse the establishment of a reserve account, and suggest that the Trustee Council proceed with establishing chairs in marine ornithology. The use of funds for this purpose would begin to make up for the fact that, for example, the Trustee Council directed only 3.4% of its expenditures to marine birds in the 1994 work plan. On a comparative basis, seabirds suffered far more than 3.4% of the damage caused by the spill, and we doubt that the public will accept such a result over the course of the restoration period.

We question the basis for the conclusion that "predator control outside the EVOS area . . . would provide a low overall benefit to murre populations."[18] FWS has identified 18 islands that are suitable for predator removal.[19] Kaligagan Island's seabird population increased by 125,000 burrowing birds after foxes died out.[20] We suggest that the Trustee Council estimate for each of the 18 islands the increase in murre population that might result after foxes have been removed, and allow PSG to review that study. Without such information and analysis, this conclusion seems to be arbitrary and capricious.

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[15] Restoration Plan, p. 21.

[16] DEIS, p. 2-12.

[17] See letter from PSG to EVOS Trustee Council (April 14, 1993).

[18] DEIS, p. 4-84.

[19] DEIS, p. 4-84.

[20] D.R. Nysewander et al. 1982. Marine bird and mammal survey of the eastern Aleutian Islands, summers of 1980-81. Unpublished FWS report.

Finally, we understand alternative 5 to be identical to alternative 4 except for the addition of a restoration fund. We believe that fox control, which is included in alternative 4 for murres and pigeon guillemots[21] should also be expressly included in alternative 5 for these species.[22]

IV. Use of Regulatory Authorities to Assist Restoration

Neither the draft Restoration Plan nor the DEIS address questions that the Trustee Council raised in the scoping process during 1992. Are federal and state agencies using their regulatory powers to modify human uses of resources or habitats that the spill injured? We noted in June 1992 that such efforts would not exhaust a single dollar of the trust fund, but would merely require that the state and federal natural resource agencies enforce the laws or redirect their programs.

Have agencies curtailed the hunting seasons for sea ducks or harlequin ducks? What has been done to manage commercial fisheries to reduce the incidental mortality of marbled murrelets in drift gillnets (a violation of the Migratory Bird Treaty Act)? Has logging (both on government and private lands) been curtailed under federal or state law in uplands that are prime habitat for marbled murrelets or harlequin ducks?

V. Competitive Proposals for Restoration Projects

PSG welcomes Policy No. 6 in the Restoration Plan, whereby the Trustee Council will encourage competitive proposals for restoration projects. We believe that this policy should be broadly implemented, because it will maximize the benefits that can be obtained from the remaining $600 million in trust funds.

PSG thanks the Trustee Council for this opportunity to lend our expertise and views on these important issues. We also acknowledge and appreciate the careful consideration the Trustee Council has given our previous comments during the past several years.

Sincerely,

Craig S. Harrison

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[21] DEIS, pp. 4-84 to 4-85.

[22] For example, fox removal should be included in pp. 4-118 to 4-120.

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THE WILDERNESS SOCIETY

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THE WILDERNESS SOCIETY

August 1, 1994

Exxon Valdez Trustee Council
Attn: EIS Comments
645 G Street, Suite 401
Anchorage, AK 99501-3451

Dear Trustee Council:

The Wilderness Society is pleased to provide comments on the proposed Restoration Plan draft environmental impact statement (EIS) for the Exxon Valdez oil spill. National interests are truly at stake because most oiled shorelines were within the boundaries of conservation units designated by the Alaska National Interest Lands Act and the Chugach National Forest. The public trust of all Americans in restoration of wilderness, wildlife, and the entire ecosystem must be upheld in the restoration plan.

To put it simply, the Trustees must buy more habitat to reach this goal. The Proposed Action is clearly unacceptable for upholding the public interest because it does not contain a sufficient goal for habitat acquisition funds. Since restoration planning began in 1990, we have advocated that the vast majority of the entire settlement fund be used for habitat acquisition because this will most effectively restore the ecosystem. The public provided overwhelming support for habitat acquisition in its response to the summary of alternatives "brochure," the most widely distributed scoping document for the restoration plan, and therefore, for this EIS.

We support alternative 2 because it provides the most funding for habitat acquisition, but believe it is flawed by a poor set of accompanying policies and an unrealistically low level of funding for a well-integrated ecosystem monitoring and research program (see Table 1 and below). We oppose alternatives 1, 3, 4, and 5 because they fail to give adequate priority for habitat acquisition which will most effectively restore the most ecosystem components, and provide too much emphasis on unjustified "general restoration". Furthermore, #5 needlessly dedicates 1/6 of the remaining funds to an undefined "restoration reserve" even though maximum flexibility is needed immediately for negotiations over habitat acquisition.

The Trustees must do more to restore the wilderness values of solitude and to prevent further degradation of the ecosystem from logging and other extractive activities than in the proposed action. Habitat acquisition will do more to protect the scenic ecosystem and quiet that visitors come to experience, and that Americans living in all parts of the country treasure, than any other actions. The plan needs to better cover non-market values, such as recreation, subsistence, and passive uses of wilderness. The EIS should

incorporate the results of A Contingent Valuation Study of Lost Passive Use Values Resulting from the Exxon Valdez Oil Spill which focused on the economic values of wilderness to the lower 48 public into its evaluation of plan alternatives. This survey found that 90% of Americans believed there should be more protection of lands where no development is allowed, i.e. wilderness.

Table 1. Policies that should be included in Preferred Alternative.

Issue	Policy Question
Injuries Addressed by Restoration Actions	Restoration actions may be considered for all injured resources and services. There does not have to be a population decline, but priority to species with such declines.
Restoration Actions for Recovered Resources	Continue restoration actions even after a resource has recovered, but priority to species with population declines.
Effectiveness of Restoration Actions	Enhancement and manipulations should be required to produce substantial improvement over natural recovery. High priority to actions that minimize further harm to an injured resource or service.
Location of Restoration Actions	Undertake restoration actions in the entire spill affected ecosystem. Allow actions outside the spill area for species with continuing population declines.
Opportunities for Human Use	No restoration actions to promote new human uses of the spill area, or to conduct activities that are regular agency functions for recreation, etc.

GENERAL COMMENTS

Key data has been ignored-- We are stunned that the Department of the Interior has failed to release its Congressionally-mandated study of Afognak Island and its habitat values for resources injured by the spill. Because this report was completed by the Fish & Wildlife Service over a year ago, we presume that its release has been suppressed. This report should be released prior to the released of the Final EIS on the Restoration Plan.

Flawed impact analysis-- The impact analysis is flawed due to its assumptions and lack of substantiation for benefits to the environment or negative impact. "General restoration" is assumed to have positive environmental impact, even in cases where the feasibility of techniques is unknown (such as planting Fucus) or where significant negative effects may result (such as from genetic damages or food competition resulting from hatchery fish stocks). Furthermore, "general restoration" gets more weight in the impact conclusions than does habitat protection even though such projects tend to be focused on single species unlike habitat protection which would benefit a broad array of species.

These flaws are obvious when comparing alternatives. For example, the EIS shows alternative #5 providing more benefit to wilderness values than alternatives #2 or #3 even though it includes projects to promote increased visitor use and construction of new facilities and #2 would provide protection of more habitat from clear-cut logging and other development activities. Another obvious example is marbled murrelets where a "high" benefit is shown for alternatives 2, 3, 4, and 5, even though #2 calls for the most funding for protecting habitat and nearly twice as much as #5. This is illogical when considering that "acquisition of old-growth forest habitat would have the highest possible benefit for enhancing marbled murrelet recovery."

Because of underlying assumptions, Alternative #5 unfairly favors actions for consumptive natural resources, such as fish, and fails to assure that adequate action will be taken to restore--or prevent further impacts-to already hard-hit declining species such as marbled murrelets, black-legged kittiwakes, or harbor seals. Actions that provide benefits to many species, or are critically important benefits to certain species, should be more important than those for which benefits are uncertain or are accompanied by negative consequences. For example, the analysis should favor actions should that sustain or enhance wild salmon stocks as opposed to hatchery-raised stocks.

Unacceptable definition of recovery for some species-- It is unacceptable to define recovery for any species at lower than pre-spill levels. If species were in decline before the spill, such as marbled murrelets, then it is even more important that recovery actions be taken that optimize recovery with the goal of achieving pre-spill levels. That the marbled murrelet, harlequin duck and other species which suffered major effects from the spill are in trouble not just in the spill region, but in fact throughout their range should increase the priority for taking actions that most effectively help them recover. It would be irresponsible for the government to pick some point on a declining chart to decide that enough action has been done for recovery of marbled murrelets or harlequin ducks, for example, if there is more habitat protection that could be undertaken to prevent further declines.

[illegible] Endangered Species Act. The EIS fails to

address issues related to the fact that these species are listed as Candidate II species on the List of Threatened and Endangered Species: harlequin duck, marbled murrelet, Kittlitz' murrelet, and Montague Island vole. Analysis of alternatives for impacts/benefits to these Candidate species should provided. Furthermore, the plan needs to contain an additional policy to ensure that acquisition of high value habitats for marbled murrelets, and other declining species does indeed occur.

Opposition to endowments or "restoration reserve"-- There is no rationale in the EIS for how this "reserve" fund would improve restoration, or even how it would work or what it is. Therefore, the "reserve" should not be included as part of the proposed action because the public has had nothing substantive to comment on in the draft EIS. If the "restoration reserve" does go forward, it should be made clear that this could be used for any restoration purpose, including habitat acquisition.

We oppose endowments or the "reserve" due to the imminent need for maximum leeway in negotiations for habitat that must occur as soon as possible. We also believe that endowments for research are not needed to ensure that the Trustees make a commitment to a targeted, long-term ecological monitoring program.

Most "general restoration" is not justified-- We oppose virtually all enhancement and manipulation forms of restoration because there is little evidence that they would be effective, and these kinds of restoration generally address only one single species. We find the term "general restoration" misleading, and prefer use of the terms enhancement and manipulation as they are more descriptive as to what is really involved. For all alternatives, manipulation of resources should emphasize management that protects wild fish stocks and natural wildlife diversity and should avoid focusing on only single species. Enhancements should not compromise wilderness and recreational values.

Specifically, we oppose general restoration projects which are experimental or for which the feasibility is unknown: cleaning oiled mussel beds, the clam mariculture program, accelerated recovery of the upper intertidal zone. We generally oppose fishery manipulation or enhancement projects which would increase the number of hatchery-raised stock into the ecosystem and therefore interfere with wild stocks or other species such as birds, including new hatchery rearing, most lake fertilization or fish ladders, or projects which increase human structures in de-facto or designated wilderness in the region. We oppose predator control except on islands where human introduced (i.e. alien) predators (foxes or cattle) have wreaked havoc on nesting seabirds.

We support these "general restoration" projects: removal of non-native predators (i.e. alien foxes) on islands that previously supported murre colonies; to preserve and salvage archeological sites and the site stewardship program; testing of subsistence foods for contamination; and cooperative programs with subsistence users and fishermen, reduction of disturbance at marine mammal haulouts and bird nesting colonies (except that these may programs already conducted in the course of normal agency functions, and therefore should

· Better criteria for unsuitable projects are needed-- The EIS does an especially poor job of clarifying what won't be included in Alternative 5. The parameters for identifying what

kinds of projects are not eligible for Exxon Valdez funds must be more clearly laid out so that the Trustee Council does not spend lots of time evaluating proposals that are not suitable. The final EIS should include a list of projects which have been deemed unsuitable, and those that are of low priority, for EVOS restoration funding.

We oppose certain projects which have been proposed by the agencies for EVOS funds in the past: wetlands restoration on Montague Island, hazardous waste cleanups, second-growth forest enhancements, "in situ" oil test burns by Alaska Clean Seas or others, and cold water dispersant development. We also oppose using EVOS funds for baseline studies that are needed prior to federal OCS and state offshore oil leasing in areas such as Cook Inlet/Shelikof Strait or Yakataga; these are the normal agency responsibility of MMS as part of its on-going OCS program.

Funds should not go for promoting increased human uses-- We are shocked that this federal Administration is promoting expansion of human uses of the spill area, and even so-called "appropriate" new uses. We agree that the spill-affected ecosystem must be restored to the pre-spill level so that the existing human uses, particularly subsistence and wilderness-type recreational uses may resume. We oppose using spill settlement funds to create new recreation opportunities (facilities, cabins, trails, docks, airports, or other new access or supply means) as these are normal agency functions that should be scrutinized and considered under normal agency operations. In rare cases where an existing facility, such as a cabin, might have been destroyed or trashed out by oil spill cleanup activities, replacement is warranted, or if a new trail got started by cleanup workers, and fixing it is necessary to prevent further degradation of the environment by future visitors. If indeed there is now increased recreational demand since the spill, and this is the rationale for proposing new facilities, then it is contradictory to then promote new uses.

The projects listed under "promoting recreation use" are pure pork. New visitor centers are not needed, and if they are deemed necessary should be funded using normal agency funds. A marine environmental institute already exists in the spill region at Cordova; another is unnecessary. The EIS should address, however, specifically that the IMS Infrastructure Improvement Project (aka "Seward Sealife Center) has already been funded, and that a separate EIS is under preparation. To provide recreation information in Portage could be done at the existing visitor center without any additional funding. The Forest Service already has a "leave no trace" education program on the Kenai Peninsula in the Chugach National Forest, and distribution of other recreation information should be done using existing agency funds at existing visitor centers and contact points, and further marketing left up to the private sector.

More restoration for wilderness values is needed-- Designated Wilderness shorelines of Katmai National Park and Becharoff National Wildlife Refuge, proposed Wilderness in Chugach National Forest and Kenai Fjords National Park, and the spectacular defacto wilderness coasts of other national parks and wildlife refuges were harmed by the oil spill. We believe that an option should be added under "Designated Wilderness Areas": priority for habitat acquisition in the Nellie-Juan/College Fjords and other Wilderness Study areas. The EIS should explain that acquisition of fee-simple title to both surface and subsurface rights would allow federal designation as wilderness, and therefore is a benefit.

As well, the intrinsic values of solitude, quiet, and scenic values of the wilderness ecosystems, and the services these provide to visitors and the American public who may never visit them must be a larger part of the restoration plan, as was discussed earlier. A higher priority to habitat acquisition would best accomplish this goal.

We oppose removing more residual oil--especially under the pretext that this will improve the enjoyment of visitors, including the "perception" about its wilderness nature-- as there is no evidence in the EIS to suggest specific locations where this could still yield more positive benefits to the environment than would natural processes, and could likely produce more harm by disturbance or transferring contamination from one media (beach sediments) to another (water, subtidal, etc).

Habitat protection should be based on widely accepted ecological concepts-- Despite stating the policy that the "restoration program will take an ecosystem approach," there is little evidence of such an approach in the EIS. It is not enough to provide a chart ranking individual parcels that may be acquired for their values to individual species, or to evaluate impacts of the various alternatives solely on a species by species. The question that still must be answered is, how well does each alternative achieve the most restoration for sustaining the whole fabric of life sustained by the entire ecosystem--not just the pieces.

A new section should be added to the Restoration Plan to explain the scientific rational for an ecosystem approach, and more specifics about how the Trustees intend to incorporate this into the on-going work.

Habitat protection and acquisition should generally occur on a broad scale in order to achieve settlement goals. As Trustees, you have the rare opportunity to protect still intact expanses of habitat used by a diversity of species and that support a range of services which were injured by the spill. Elsewhere, resource managers are left with crumb-sized pieces of habitat for designing nature reserves and from which to decide acquisition priorities. Here, we have the opportunity to apply our finite financial resources creatively and maximize habitat protection on an ecosystem-scale instead of simply biting off a few prime chunks.

In the spill-affected region, we are blessed with the opportunity to do more than just protect isolated pieces such as nesting sites or streamside buffers. Acquisition of especially rich sites is important, but the integrity of these areas cannot be maintained in isolation from the adjacent habitats, nor is their value independent of the quality of the larger watershed or ecosystem. It is well known that habitat loss causes population declines and can facilitate extinction by transforming large populations into smaller, more isolated ones through the process of habitat fragmentation. *Consensus exists among biologists that, all else being equal, continuous suitable habitat supports more individuals of a species targeted for conservation than does fragmented (discontinuous) habitat* (Thomas et al. 1990).

Certain concepts of conservation strategy widely accepted by specialists in the fields of ecology and conservation biology (Den Boer 1981, Harris 1984, Thomas et al. 1990, Wilcove et al. 1986) that are applicable to Exxon Valdez restoration include:

- "Bigger is better." Large blocks of habitat are better than small ones.

- Blocks of contiguous habitat are better than loose aggregations of fragmented blocks due to problems associated with fragmentation and edge effects including increased predation and susceptibility to blow-down, reduced wildlife dispersal and altered movements, erosion, and others.

- Protected habitats should be distributed across a species' complete geographic distribution.

Our priorities for acquisition are broad areas, including entire watersheds, in these areas:

♦ Shuyak Straits - Afognak Island (Afognak Joint Venture holdings) old-growth forest habitat located along the north part of the island adjacent to and east of the Kodiak National Wildlife Refuge unit on this island.

♦ Kenai Fjords National Park - All English Bay and Port Graham inholdings.

♦ Kodiak National Wildlife Refuge inholdings on Kodiak Island.

♦ Port Gravina / Orca Bay - Eyak Corporation inholdings in Chugach National Forest, including Orca Narrows/Nelson Bay, Sheep Bay, Simpson Lagoon.

♦ Port Fidalgo - On-going logging threatens densely forested habitat along sheltered bays near Valdez and Tatitlek.

♦ Knight Island Passage - Chenega Corporation inholdings in Chugach National Forest, including Knight Island and Jackpot/Eshamy.

♦ Port Chatham - This last stretch of intact forest habitat along the tip of the outer Kenai Peninsula coast, and adjacent to Kenai Fjords National Park, is threatened by logging.

SPECIFIC COMMENTS

Summary

The titles to the alternatives are confusing because "restoration" is both the over-arching goal of the entire project described by the EIS, and used as a term to describe enhancement and manipulation activities and certain types of research and monitoring. Therefore, it would be less confusing to call #3 "Limited Enhancement", and #4 "Moderate Enhancement".

Alternative 1-- We disagree that the negative effects from no action would be low to tourism and moderate to recreation, and believe they should be listed as major. Without using the majority of the EVOS funds on habitat acquisition, clearcut logging of old-growth forests will occur in some of the most heavily visited areas, or the most pristine defacto wilderness areas. Because the trees in these forests are hundreds of years old, the effects to visual aesthetics, as well as to wildlife habitats upon which many recreational activities depend (i.e. hunting, fishing, birdwatching) will be very long-term.

The effects from no action on Wilderness would also be major because of massive clearcut logging on the private lands, in addition to the reasons listed in the EIS.

The government has provided insufficient information to state that there may not be a major negative effect on marbled murrelets in the spill affected region if no action is taken. This species is a Candidate II species for the list of Threatened and Endangered Species under the Endangered Species Act. Because of continuing negative impacts on the population from chronic oil spills, logging, and fishing conflicts, it seems that the Trustees have no evidence that the species may not recover to pre-spill conditions, and therefore, we believe the EIS downplays the effects of no action for this species, especially compared with the description for pink salmon and others. CHECK

Despite all the emphasis on peer review, that this document contains in the summary the statement "however, recent insight on population recovery of common murre populations, based on 20-years of data from the Bering Sea, suggests that the population at the Barren Islands may recover within 20 years (Roseneau, pers.comm., 1994)." The rate of recovery of murres is of great scientific controversy, and it is premature to put such a statement, especially one based not on a peer-reviewed publication, but on verbal communication, in the summary. Furthermore, these statements contradict those in the description of affected environment (Ch. 3-15-16). And even if recovery was within 20-years, this would be many generations later and therefore, there would still be major long-term negative effects from no action. Because the Roseneau information so controversial, it should be deleted from the summary, and the description given in a way consistent with those for other species. Furthermore, murres were injured in areas besides the Barren Islands-- in fact many of the smaller colonies throughout the spill zone were not even systematically studied. Furthermore, murres are still among the most vulnerable species to effects of chronic on-going and future oil spills and other factors may contribute to the decline of the population.

Alternative 2-- Because this alternative would give the most protection to habitat through acquisition and other measures, it should also have included some actions beyond the area directly affected by the oil spill. Measures to restore the populations of seabirds affected by the spill, especially common murres, may be most effective in areas of Alaska beyond the areas hit by oil and may involve habitat acquisition or protection.

Furthermore, this alternative should not have as a policy to promote increased use of the spill area to greater than pre-spill levels. This is especially important for designated wilderness areas, and Wilderness Study areas.

We believe the benefits to Recreation and Tourism and Wilderness would be major over the long-term if a major program of habitat acquisition and protection if undertaken.

Alternative 3-- We find it ironic that this alternative calls for the most limited habitat protection or acquisition, but is the only one that does not mention a policy to increase existing human use of the spill area, but only

Alternative 4-- The first policy under this alternative is written in such a way to bias the reader. Of course, the public wants the "most effective" actions to protect and restore resources. Prevention of further damage to the ecosystem is the most effective thing that may be done for injured resources, and it is ludicrous to imply otherwise with the terminology given under this alternative.

There is a contradiction in the evaluation of impacts. If it is seen as a moderate to high benefit to have increasing recreational use levels, then there must be a corresponding negative effect on wilderness values-- i.e. level of solitude, quiet, and pristine quality of an area. There could be more increases if permanent protection through wilderness designation were part of any of the alternatives, but this is not the case.

Alternative 5-- The summary gives an extremely misleading characterization of this alternative relative to the others for marbled murrelets. By underlining "highest," the statement at quick glance implies this alternative gives highest benefits, whereas, alternative 5 probably will provide the least benefits to marbled murrelets of all alternatives, except #1, because it will give the least funds for habitat acquisition. This statement should be changed to say there would be minor benefits to marbled murrelets, depending on the amount of old-growth forest habitat that is acquired.

It is extremely misleading to characterize the proposed action as one that would provide more wilderness benefits when it at the same time calls for many more intrusive activities such as hatchery stock introductions, other habitat manipulations, and actions that will increase many kinds of human activities in the areas, while offering no proposal for additional permanent protection of land. Furthermore, it is illogical that more types of general restoration are listed for this alternative than for #4, even though half as much money would be spent on them.

Summary - Chapter 4, Environmental Consequences-- Impact levels must address habitat factors, as well as changes in populations levels. Furthermore, quality of habitats, such as contamination levels should be addressed.

Table of Contents-- Appendices should be listed. Appendix E was not included in the document.

Ch.1-13 Although we believe it is reasonable for the Trustees to focus on the impacts to selected species where there was greater initial mortality, or better evidence of on-going damages, we do not believe that the other species should be completely ignored in this EIS.

Ch.1-13 Give the full name of the sea lion species; for birds list all species, not just major groupings such as loons. Perhaps in the "affected environment" section, or in an appendix, all of the species of organisms known to have been affected by the spill should be listed.

Ch.1-16 If certain specific actions, such as developing new facilities or employing habitat manipulation techniques may be in conflict with the Kodiak or Alaska Maritime Refuge plans, then the proposed action should exclude such restoration activities for this refuge. If such proposals are currently being advanced, this EIS should address them in a site specific way.

Ch.1-16 The specific activities which could be carried out on State land under the Area Plan for Prince William Sound that would conflict with the Restoration plan should be identified. It is not in the public interest to have one hand spending money to restore resources and services, while the other hand spends money fostering activities that would impact these same resources or services.

Ch.1-19 More information about the Regional Comprehensive Salmon Enhancement Plans should be provided in this EIS, especially concerning issues of increasing hatchery stock runs vs. other rehabilitation efforts, and the specific proposals currently on the books.

Ch.1-19 It is unclear that if no actions are proposed for certain species, like bald eagle, river otter, rockfish, or Dolly Varden, whether restoration projects could later be done that benefit the habitats these species depend on, or their populations, and whether these species may be used in deciding ranking of projects, including habitat [illegible] that without [illegible] Dolly Varden should have no actions proposed to benefit these

unknown, then why is it any more justified to do projects to address the services, than it is to help the species themselves. We believe that habitat protection best provides restoration for all of the above mentioned species, except rockfish.

Although bald eagle, black oystercatcher, and killer whale may be in the process of recovering, this is not an adequate reason that they should not be considered as components of the injured ecosystem for which recovery actions are sought, and therefore such species should be considered in project and habitat acquisition ranking criteria. Furthermore, the choice to not analyze subtidal resources--even if there is nothing humans can do to foster recovery or prevent further degradation of such habitats--unnecessarily downplays this critical part of the damaged ecosystem. And there could be other actions proposed for intertidal resources, such as giving closer scrutiny to dredge or fill activities which will cause future loss or degradation of such habitats.

Ch.2-4 This section should also include the Fish & Wildlife Service's responsibilities under the Migratory Bird Treaty Act, the Endangered Species Act (for candidate species), and the Fish & Wildlife Coordination Act.

Ch.2-9 "Predator control" should specify that this is only of introduced, alien predators on islands.

Ch.2-13,14 It doesn't make sense that alternative 5 calls for at most half the amount of funds to be spent on general restoration as alternative 4, but contains an even longer list of possible projects.

Ch.2-14 The restoration reserve needs to be better described. Where would the funds be placed. How much interest would be expected? What projects could these funds be used for? What are the fiscal and environmental advantages and disadvantages of such as reserve.

Ch.2-19 This chart should list "very high" benefits to marbled murrelet for alternative 2.

Ch.2-21 The table of definitions of impact levels should include degree of protection to critical habitats used by species--especially for birds--in addition to enhancing measurable levels of populations, productivity or sub-lethal injuries.

Ch.2-22 The definitions of impact levels for wilderness need to be modified so that they also include impacts to degree of solitude and quiet, absence of permanent human activity, and intact, natural qualities of the ecosystem. The "perception" of injury to the wilderness qualities from the oil spill was not only due to the oiling itself, but also the intrusion of massive numbers of people, vehicles, machinery. Especially because the Proposed Action calls for promotion of increased human uses of the spill area, this EIS must address all types of wilderness impacts, not just the ones which allow this EIS skew or hide the negative impacts of the Action.

Ch.3-6 Maps should be included in this EIS which show boundaries of the Chugach National Forest (including the Nellie Juan Wilderness Study area), National Wildlife Refuges, National Parks, State Parks and Refuges, and outlines of designated federal wilderness areas so that the public can better understand how the plan will address the values of the public lands.

Ch.3-6 Maps should be provided that show the distribution of various terrestrial habitats, especially old-growth forest, and the location of already logged areas. This will help the reader assess the alternatives and impacts of the proposed action.

Ch.3-8 Maps showing the locations of 60 oiled mussel beds should be provided so that a reader may consider the type of activities that may be carried out there with other values, such as designated wilderness shorelines, bird habitats, subsistence use areas, etc.

Ch.3-11 Harlequin duck section should include that this species is a Candidate II species for list of threatened and endangered species under the Endangered Species Act.

Ch.3-10 The date and nature of "written communications" should be listed in the references. It should be explained if these are initial results of Trustee funded work, who their work is conducted for if it is not the Trustee Council

Ch.3-12 A better description of the "timbered areas" adjacent to streams used by harlequin ducks for nesting should be given, including whether it is old-growth, and the type of stands.

Ch.3-18 The section on marbled murrelets should include references to studies showing that this species is among the most closely linked for nesting to old-growth forest habitat of any in the pacific Northwest and California, and that it is listed as threatened in the lower 48 part of its range. Furthermore, evidence of the effects of logging of its nesting habitat, oil spills, and the effects of fishing elsewhere in its range, as well as whatever information exists for the spill region, should be included in this description of its status.

Ch.3-23 The terrestrial habitats surrounding Dolly Varden and Cutthroat trout spawning streams should also be described.

Ch.3-25 The paragraph on the authorization of the Trans-Alaska Pipeline should include specifics on what provisions of NEPA were waived, and description of the lawsuits. That there were major concerns over impacts from the Valdez marine terminal, including risks of oil spills and tanker collisions due to icebergs, should be included.

Ch.3-50 The economics should also be shown for the EVOS area without Anchorage included. An economic model that is not able to account for economic activity related to subsistence activities is inappropriate for use in thei EIS. As well, more specific work on the economics of recreation should be done.

Ch.4-2 The description of an ecosystem approach should also discuss that proposed actions will be taken throughout the geographical region of the oil spill.

Ch.4-4 How can 1990-- a post-spill year-- be used as an economic baseline?

Ch.4-18 Delete speculative, and controversial, information about 20-year recovery time for murres in the Barren Islands which is based on a personal communication.

Ch.4-19 Provide quantitative information on the acreage of forest habitat that has been logged since the oil spill, and the total in the oil spill region to date. Evidence of marbled murrelet nesting on Montague Island (available from the Fish & Wildlife Service) should be included in this section. The conclusions regarding projected logging underplay the negative effects of no action on this species.

Ch.4-27 The conclusions statement about long-term effects to wilderness should also mention the high degree of negative impacts from extractive activities that would occur without the proposed action.

Ch.4-49 A more complete description of the process "cleaning" mussel beds should be included. Would the mussels be lifted using handtools or heavy machinery? What would be done with the contaminated sediments, and how much oil might be released into the water, and therefore into the intertidal and subtidal zone? Would this be more oil than is currently entering the food chain? Could the action be taken at a time that would not disturb nesting birds or hauled out marine mammals? We are concerned about this source of continuing contamination of the food chain, but would could not support proposals to clean mussel beds without more information and a better assessment that it would not result in further impact to the ecosystem.

Ch.4-55 We support acquisition of Gull Island as part of the Alaska Maritime National Wildlife Refuge.

Ch.4-56 We oppose predator control programs except in circumstances on islands where introduced (i.e. alien) predators have had major effects on nesting productivity.

Ch.4-57 Typographical mistakes refer to pigeon guillemots in the section on marbled murrelets. Greater analysis of the best opportunities to protect threatened marbled murrelet nesting habitat should be included. Data from the Congressionally-mandated studies on Afognak Island, and from the on-going studies of the characteristics of nesting habitat should be included here.

This ranking include results from the Congressionally-mandated study of Afognak Island and

Ch.4-59,60 This section on general restoration should document the substantial evidence from the lower 48 that there may be major adverse impacts from some of these activities, especially hatchery rearing. Furthermore, the possible negative effects to bird forage fish from producing more hatchery-raised fish should not just be buried in the assumptions at the beginning of this chapter, but should also be listed in the conclusions.

Ch.4-69 We do not believe there would be increased benefits to wilderness values for there to be "marketing" or more public information campaigns about how residual oils were removed. We do not support removal of residual oil in beaches if the Trustees main purpose is to increase the public's perception of the wilderness-- this is an insult. We far prefer to see funds spend on actions resulting in real evidence on the ground, for example, protecting wilderness values from future degradation by preventing clearcutting or other extractive uses.

Ch.4-107 Even though the small parcel analysis is still being developed, maps showing the locations of these small parcels, and general descriptions of their ownership and the past, present, and potential uses should be given in this EIS.

Ch.4-109 We oppose a clam mariculture program that would target new areas of the intertidal zone because on the negative effects. We do not believe the Trustees should dedicate more funds to experimental projects such as seeding/planting Fucus for which feasibility is unknown.

Ch.4-146 The proposed MMS lease sale at Yakataga should also be included in this analysis because oil spills could affect the resources and ecosystem where restoration is planned. Unless the State does not plan on offering any more offshore lease sales in Cook Inlet, these should be listed under cumulative effects because tanker shipping and oil spills could impact the resources for which restoration is being undertaken. Future oil spills from tankers calling at the Trans-Alaska Pipeline terminal at Valdez should also be included in this analysis. The IMS Infrastructure Improvement Project at Seward should also be specifically included here. The construction of new docks at villages, and log dump facilities that would occur under most alternatives should be added.

Ch.4-155 It is illogical to say that the greatly increased number of tourists, recreational users, and industrial traffic would not have a cumulative effect on wilderness. Clearly, there would be reduced opportunities for solitude and quiet, a reduction in the number of areas where the presence of humans was not a permanent mark on the landscape, and a long-term degradation of the pristine, natural qualities of the landscape. Admit it!

Appendix D- Economic Analysis-- The IMPLAN economic model fails to address critical economic values, especially the non-market values of recreation and subsistence. Studies have shown that these non-market values can be substantial and have a direct contribution to personal economic resources. Because the IMPLAN model requires a significant number of simplifying assumptions, these should be identified in the EIS. Additionally, passive use economic values derived from contingent valuation studies should be added to the analysis. The extensive information compiled for the MMS has through economic studies for the spill-affected region should be included in the EIS.

The Wilderness Society has actively participated in the restoration process, since the settlement was signed, on behalf of our members and the interests of the public throughout the nation. We are a national membership organization devoted to preserving wilderness and wildlife, protecting America's prime forests, parks, rivers, and shorelands, and fostering an American land ethic. The non-profit organization has 280,000 members nationwide, nearly 1,400 of whom live in Alaska and many who reside along or use the shorelines of areas affected by the spill. We appreciate this opportunity to comment and look forward to continued involvement in the Restoration Process.

Sincerely,

Pamela A Miller

Pamela A. Miller

'94 HADV 276-7178; FAX EVOS

EIS N

Unoiled, 8~~4~~0

oil: 1,480

3-4-94

Talked to Steve Kendall @ FWS lunchhouse, Homer

- He'll FAX cc. PWS unoiled ± oiled pop estimates for all survey years, for HADV, COMU, PIGU, ~~HAVE~~ BRMU.

- ~~Ok~~ Meanwhile:

1993 PWS census / HADV estimates:

Habitat	N
oiled	1,480 ± 95% C.I.
Unoiled	6,841 ± 95% C.I.