

## Restoration Planning Working Group

EXXON VALDEZ OIL SPILL RESTORATION OFFICE

645 "G" Street Anchorage, Alaska 99501

### PEER REVIEW OF ANALYSIS OF PUBLIC COMMENTS

On June 16, Jack Kruse (University of Alaska) and Jon Isaacs (Jon Isaacs & Associates) met with the Restoration Planning Working Group to advise us on analysis of public comments on alternatives for the draft Restoration Plan. The meeting was held at 1:30 p.m. in the Large Conference Room on the fourth floor of the Simpson Building.

Staff in attendance were: Veronica Gilbert, Bob Loeffler, Karen Klinge, Chris Swenson, and Ray Thompson, and Barbara Iseah.

The peer reviewers asked us two key questions:

1. What do these comments represent?
2. To what standards will you be held accountable?

We replied that the comments represent the views of those interested members of the public who attended meetings or commented on the alternatives. They are not a statistically valid sample of the population of the spill area or the public in general. We will be expected to reflect major trends within these views accurately and understandably.

The peer reviewers gave us the following general advice:

1. In both responses to multiple-choice questions and open-ended comments, look for major areas of agreement and disagreement, perhaps by region or group.
2. Because this is not a statistically valid sample of any of the populations represented, use statistics only to the extent that they underscore a major trend, e.g., "Based on 300 responses received from within the spill area on question x, a majority (70%) preferred y." If the tally is close, e.g., 45% in favor and 55% opposed, it is best to report that opinion is mixed.
3. Develop a list of stakeholders in the process. At least acknowledge them and perhaps report major trends in the views of these groups.
4. Organize the report and issue codes by questionnaire topic to the extent possible.
5. Report "quotable quotes" that illustrate the viewpoint reported.
6. Report comments on potential allocations separately. Be cautious. The strongest method would be to develop pie charts representing trends by interest group or region. Either look for a trend or take the arithmetic mean. Alternatively develop a typology of responses, e.g., group together responses within 15% of each other. Avoid using precise percentages. If the allocations don't add up to 100%, prorate.
7. If one person devises codes, a different person should either code responses or at least check the codes assigned. There is a tendency to make comments fit the codes one has devised.
8. Be careful not to infer reasons for responses unless explicitly stated in the response.



Mark B

[Note to Reviewers, Page 9 of the brochure begins here]

## How should these issues be resolved?

### INTRODUCTION

The Trustees can use the settlement funds in a variety of ways. We would like to know your views about the appropriate policies, categories of restoration activities, and spending guidelines. Please fill out the questions on this page and let the Trustees know which approaches you believe will best restore the injuries of the oil spill. If you need more information, please come to one of the public meetings. Also, feel free to comment on other parts of the plan alternatives in the space provided. Attach additional sheets if you need more space. Thanks for your help!

### QUESTIONS ABOUT ISSUES AND POLICIES

The alternatives presented policy questions. The answers to those questions will help guide some restoration activities. The policy questions are reprinted below. Please mark the appropriate box to let us know your views.

If you think that these policies should apply to some restoration activities but not others, please write your views down in the space provided beneath each question. For example, if you think that some general restoration activities are appropriate outside the spill area but that habitat protection should concentrate only on the spill area, you would write that information in the comment space under question four.

ISSUES AND POLICY QUESTIONS
<p><b>Injuries Addressed:</b> Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the spill?</p> <p> <input type="checkbox"/> Target restoration activities only to resources whose populations declined because of the spill.  <input type="checkbox"/> Target restoration activities to all injured resources  <input type="checkbox"/> No preference            Comments:         </p>
<p><b>Status of Resource Recovery:</b> Should restoration actions cease when a resource has recovered?</p> <p> <input type="checkbox"/> Continue appropriate activities even after resources recover.  <input type="checkbox"/> Cease funding restoration once a resource recovers.  <input type="checkbox"/> No preference            Comments:         </p>
<p><b>Effectiveness of Restoration Actions:</b> Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?</p>

- Fund all effective restoration actions
- Fund only highly effect restoration actions
- No preference

Comments:

**Location:** Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

- Fund activities within the spill-area only.
- Allocate some funds for activities outside the spill-area but within Alaska. The activities must be linked to injured resources or services.
- No preference

Comments:

**Strategies for Human Use:** To what extent should restoration actions be used to increase opportunities for human use?

- Do not fund activities that increase human use.
- Fund only habitat protection.
- Only fund restoration activities that are designed not to increase use levels but only to protect existing human use. Examples are recreation facilities that protect the environment in over-used areas, or testing the safety of subsistence foods.
- Fund restoration activities that protect or increase existing uses. Examples are funding to increase existing sport- or commercial fishing runs, or funding to construct recreation facilities such as public-use cabins.
- In addition to activities that protect or increase existing human use, also fund appropriate new uses. Examples are new fishing runs, commercial facilities, or visitor centers.
- No preference

Comments:



## QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM

The questions below discuss the different categories of restoration activities. The questions ask about what groups of activities you believe the trustees should fund.

**Spill Prevention and Response.** The alternatives propose using up to 15% of the remaining settlement funds for spill prevention and response to prevent catastrophic and chronic oil pollution.

*Should the Trustee Council fund spill prevention and response activities?*

- No
- Yes. *Please indicate which spill prevention and response activities you believe are appropriate (you may mark more than one answer):*
- Spill prevention and response technology.
  - Infrastructure
  - Prevention of chronic pollution
  - Other:

Comments:

**Monitoring and Research.** Some components of monitoring and research are included in all alternatives. We would like to know your views.

*Should the Trustee Council fund monitoring and research activities?*

- No
- Yes. *Please indicate which monitoring and research activities you believe are appropriate (you may mark more than one answer):*
- Recovery monitoring
  - Restoration monitoring
  - Ecological monitoring
  - Restoration Research
  - Other:

Comments:

**Endowment.** Some alternatives assume that the settlement funds will be spent within ten years. Others propose placing 20% to 40% of the remaining settlement funds into a savings account to fund restoration, spill prevention, research, or monitoring after that time.

*Are you in favor of an endowment or savings account of some kind?*

- No, I believe the funds should be spent within 10 years.
- Yes. *Please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):*
- Research and Monitoring
  - General Restoration
  - Spill preparedness
  - Habitat Acquisition
  - Other:

Comments:

QUESTIONS ABOUT SPENDING GUIDELINES

The table below shows the spending guidelines in the five alternatives. If one of the alternatives reflects your view of how the funds should be allocated, please circle the name of that alternative. If not, please put write in your percentages in the space to the right. If needed, you may write in new suggestions for restoration plan components in the blank lines. If you believe that an endowment is appropriate, please put in the appropriate percentage in the endowment line. (Make sure your percentages add to 100%!).

	Alternative #1 Natural Recovery	Alternative #2 Habitat Protection	Alternative #3 Limited Restoration	Alternative #4 Moderate Restoration	Alternative #5 Comprehensive Restoration	<b>YOUR ALTERNATIVE</b> If none our alternatives reflect your views about allocating the funds, please write your percentages below.
Administration & Public Information	1%	4%	6%	7%	7%	Administration & Public Information
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Balance	94%					Balance
Total:	100%	100%	100%	100%	100%	
						100% Total

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 7  
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 10 15 20 27  
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## HABITAT PROTECTION: PRIVATE LANDS

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We are requesting your views on several issues concerning Habitat Protection on private lands. Please answer the questions below.

1. When purchasing land we can purchase large areas that protect the overall landscape or integrity of the habitat, or purchase small but important parcels such as stream corridors and camping areas to stretch the funds. Would you prefer acquisitions to emphasize:

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2. Buying habitat may affect the economic condition or quality of life in your community. We'd like your views on this.

What positive impacts would you like habitat protection to have in your community?

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What negative impacts would you like habitat protection to avoid in your community?

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3. Acquired lands or interests will be managed to aid the recovery of injured resources and services. Should these lands or interests in these lands be retained forever?

- No
- Yes
- No Preference

4. All habitat protection will benefit resources and services injured by the spill. Should the decision to purchase lands also protect resources and services not injured by the spill?

- No
- Yes
- No Preference

5. Other comments?

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March 9, 1993

Comments on restoration plan summary and survey  
J.Kruse

What population is the plan summary and survey designed to reach?

- Likely to substantially under-represent:
  - o Natives
  - o less educated
  - o lightly or moderately active voters
  
- Intent of summary and survey appears to be to measure policy and alternative preferences. How will you use data you receive?

Possible solutions:

- o invite official positions of interest groups and major stakeholders
  
- o involve randomly selected residents in workshops (1 per community in region plus Anchorage, Kenai/Soldotna)
  
- o Drastically reduce amount of information presented in newspaper insert and requested in survey; augment with probability survey.

I also suggest you pretest insert and survey:

- o Call 10 people in Seward; ask them to review a copy of the brochure and go to Seward to run a focus group to get their reactions.

See comments on insert.

[Note to Reviewers, Page 9 of the brochure begins here]

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*includes human use? clarify*

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Comments:

*some improvement  
substantial*

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Comments:

*term should be defined..*

## QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM

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- No
- Yes. *Please indicate which spill prevention and response activities you believe are appropriate (you may mark more than one answer):*
  - Spill prevention and response technology.
  - Infrastructure — *more detail on what is meant*
  - Prevention of chronic pollution
  - Other: *definition*

Comments:

*— need more of a definition, description*

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  - Ecological monitoring
  - Restoration Research
  - Other: *need more on purpose or definition*

Comments:

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*Are you in favor of an endowment or savings account of some kind?*

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Comments:



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*Other,  
or write in  
additional  
categories*

really  
Habitat or  
general land  
acquisition ....

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strange question ....  
why is it being asked?

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What positive impacts would you like habitat protection to have in your community?

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What negative impacts would you like habitat protection to avoid in your community?

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- No
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*if the resources recover, should it be available for other uses?*

*confusing question... hidden agendas*

4. All habitat protection will benefit resources and services injured by the spill. Should the decision to purchase lands also protect resources and services not injured by the spill?

- No
- Yes
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*unclear, if a ranking question explain, but may*

5. Other comments?

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## COMMENTS

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Please use the space below to write comments. Any comment you write will be greatly appreciated. Thank you.



[Note to Reviewers, Page 9 of the brochure begins <sup>here</sup>]

How should these issues be resolved? *Ray*

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## COMMENTS

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[Note to Reviewers, Page 9 of the brochure begins here]

*David G*

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*post in June*

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*Brochure*

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- Only fund restoration activities that are designed not to increase use levels but only to protect existing human use. Examples are recreation facilities that protect the environment in over-used areas, or testing the safety of subsistence foods.
- Fund restoration activities that protect or increase existing uses. Examples are funding to increase existing sport- or commercial fishing runs, or funding to construct recreation facilities such as public-use cabins.
- In addition to activities that protect or increase existing human use, also fund appropriate new uses. Examples are new fishing runs, commercial facilities, or visitor centers.

- No preference

Comments:

## QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM

The questions below discuss the different categories of restoration activities. The questions ask about what groups of activities you believe the trustees should fund.

**Spill Prevention and Response.** The alternatives propose using up to 15% of the remaining settlement funds for spill prevention and response to prevent catastrophic and chronic oil pollution.

*Should the Trustee Council fund spill prevention and response activities?*

- No
- Yes. *Please indicate which spill prevention and response activities you believe are appropriate (you may mark more than one answer):*
- Spill prevention and response technology.
  - Infrastructure
  - Prevention of chronic pollution
  - Other:

Comments:

**Monitoring and Research.** Some components of monitoring and research are included in all alternatives. We would like to know your views.

*Should the Trustee Council fund monitoring and research activities?*

- No
- Yes. *Please indicate which monitoring and research activities you believe are appropriate (you may mark more than one answer):*
- Recovery monitoring
  - Restoration monitoring
  - Ecological monitoring
  - Restoration Research
  - Other:

Comments:

**Endowment.** Some alternatives assume that the settlement funds will be spent within ten years. Others propose placing 20% to 40% of the remaining settlement funds into a savings account to fund restoration, ~~spill prevention~~, research, or monitoring after that time.

*Are you in favor of an endowment or savings account of some kind?*

- No, I believe the funds should be spent within 10 years.
- Yes. *Please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):*
- Research and Monitoring
  - General Restoration
  - ~~Spill preparedness~~
  - Habitat Acquisition
  - Other:

Comments:



### HABITAT PROTECTION: PRIVATE LANDS

Habitat Protection on private lands is a major element in all but the natural recovery alternative of the draft Restoration Plan. Habitat protection on private lands may include acquisition of full title or acquisition of partial rights such as conservation easements and timber rights. Partial rights may be less expensive than full title.

*OR  
lesser  
option*

Because land purchases are negotiated and are dependent both on price and on the will of the seller, final purchases will be dependent on landowner's preferences as well as those of the public and the trustees. (The habitat protection process was described in the Restoration Framework Supplement.)

*the applicants*

In response to public support, the Trustee Council is proceeding in advance of the Restoration Plan by protecting several <sup>some</sup> <sup>was</sup> <sup>at</sup> <sup>specific</sup> ~~several~~ <sup>specific</sup> ~~in~~ <sup>specific</sup> ~~advance~~ <sup>specific</sup> of the Trustee Council decided to go ahead with the purchase of inholdings in Kachemak Bay State Park. *they may decide upon more parcels in the future.*

We are requesting your views on several issues concerning Habitat Protection on private lands. Please answer the questions below.

*Only  
purchase*

1. When <sup>protecting habitat</sup> ~~purchase~~ <sup>protect</sup> ~~large~~ <sup>protect</sup> ~~areas~~ <sup>protect</sup> that ~~protect~~ <sup>protect</sup> the overall landscape or integrity of the habitat, or ~~purchase~~ <sup>protect</sup> ~~small~~ <sup>protect</sup> but important parcels such as stream corridors and camping areas to stretch the funds. Would you prefer acquisitions to emphasize:

*purchase fund*

- a few large parcels of land
- many small parcels of land
- mix of large and small parcels
- no preference

2. <sup>Protecting</sup> ~~Buying~~ habitat may affect the economic condition or quality of life in your community. We'd like your views on this.

What positive impacts would you like habitat protection to have in your community?

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What negative impacts would you like habitat protection to avoid in your community?

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3. <sup>protected</sup> Acquired lands or interests will be managed to aid the recovery of injured resources and services. Should these lands or interests in these lands be ~~retained~~ <sup>protected</sup> forever?

- No
- Yes
- No Preference

4. All habitat protection will benefit resources and services injured by the spill. Should the decision to ~~purchase lands also protect~~ <sup>protect</sup> resources and services not injured by the spill?

*include consideration of*

- No
- Yes
- No Preference

5. Other comments?

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## COMMENTS

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Please use the space below to write comments. Any comment you write will be greatly appreciated. Thank you.

*Byron*

[Note to Reviewers, Page 9 of the brochure begins here]

## How should these issues be resolved?

### INTRODUCTION

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The alternatives presented policy questions. The answers to those questions will help guide some restoration activities. The policy questions are reprinted below. Please mark the appropriate box to let us know your views.

If you think that these policies should apply to some restoration activities but not others, please write your views down in the space provided beneath each question. For example, if you think that some general restoration activities are appropriate outside the spill area but that habitat protection should concentrate only on the spill area, you would write that information in the comment space under question four.

#### ISSUES AND POLICY QUESTIONS

**Injuries Addressed:** Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the spill?

- Target restoration activities only to resources whose populations declined because of the spill.
- Target restoration activities to all injured resources
- No preference

Comments:

**Status of Resource Recovery:** Should restoration actions cease when a resource has recovered?

- Continue appropriate activities, *to enhance a resource, then* even after resources recovered
- Cease funding restoration once a resource recovers.
- No preference

Comments:

**Effectiveness of Restoration Actions:** Should the plan include only those restoration actions that *are highly* produce *may be less than* substantial improvement over unaided recovery or also those that produce at least some improvement?

- Fund all effective restoration actions
- Fund only highly effective restoration actions
- No preference

Comments:

**Location:** Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

- Fund activities within the spill-area only.
- Allocate some funds for activities outside the spill-area but within Alaska. The activities must be linked to injured resources or services.
- No preference

Comments:

**Strategies for Human Use:** To what extent should restoration actions be used to increase opportunities for human use?

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- No preference

Comments:

**QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM**

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- No
- Yes. *Please indicate which spill prevention and response activities you believe are appropriate (you may mark more than one answer):*
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  - Infrastructure
  - Prevention of chronic pollution
  - Other:

Comments:

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- No
- Yes. *Please indicate which monitoring and research activities you believe are appropriate (you may mark more than one answer):*
- Recovery monitoring
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  - Ecological monitoring
  - Restoration Research
  - Other:

Comments:

**Endowment.** Some alternatives assume that the settlement funds will be spent within ten years. Others propose placing 20% to 40% of the remaining settlement funds into a savings account to fund restoration, spill prevention, research, or monitoring after that time.

*Are you in favor of an endowment or savings account of some kind?*

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- Yes. *Please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):*
- Research and Monitoring
  - General Restoration
  - Spill preparedness
  - Habitat Acquisition
  - Other:

Comments:

DELINES

guidelines in the five alternatives. If one of the alternatives reflects your view of how the funds should be allocated, please circle the name of that alternative and your percentages in the space to the right. If needed, you may write in new suggestions for restoration plan components in the blank lines. If appropriate, please put in the appropriate percentage in the endowment line. (Make sure your percentages add to 100%).

Alternative #1	Alternative #2 Habitat Protection	Alternative #3 Limited Restoration	Alternative #4 Moderate Restoration	Alternative #5 Comprehensive Restoration	<b>YOUR ALTERNATIVE</b> If none of our alternatives reflect your views about allocating the funds, please write your percentages below.	
	4%	6%	7%	7%		Administration & Public Information
	5%	7%	8%	10%		Monitoring & Research
		12%	25%	33%		General Restoration
			10%	15%		Spill Preparedness
						Endowment
	91%	75%	50%	35%		Habitat Protection
						Balance
	100%	100%	100%	100%		
					100%	Total

## QUESTIONS ABOUT SPENDING GUID

The table below shows the spending for alternative. If not, please ~~put~~ write in you believe that an endowment is app

	Alternat #1 Natur Recove
Administration & Public Information	1%
Monitoring & Research	5%
General Restoration	
Spill Preparedness	
Endowment	
Habitat Protection	
Balance	94%
Total:	100%

### HABITAT PROTECTION: PRIVATE LANDS

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We are requesting your views on several issues concerning Habitat Protection on private lands. Please answer the questions below.

1. When purchasing land we can purchase large areas that protect the overall landscape or integrity of the habitat, or purchase small but important parcels such as stream corridors and camping areas to stretch the funds. Would you prefer acquisitions to emphasize:

- a few large parcels of land
- many small parcels of land
- mix of large and small parcels
- no preference

2. Buying habitat may affect the economic condition or quality of life in your community. We'd like your views on this.

What positive impacts would you like habitat protection to have in your community?

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What negative impacts would you like habitat protection to avoid in your community?

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3. Acquired lands or interests will be managed to aid the recovery of injured resources and services. Should these lands or interests in these lands be retained forever?

- No
- Yes
- No Preference

4. ~~All~~ habitat protection will benefit resources and services injured by the spill. Should the decision to purchase lands also protect resources and services not injured by the spill?

- No
- Yes
- No Preference

5. Other comments?

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[Note to Reviewers, Page 9 of the brochure begins here]

## How should these issues be resolved?

### INTRODUCTION

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ISSUES AND POLICY QUESTIONS
<p><b>Injuries Addressed:</b> Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the spill?</p> <p> <input type="checkbox"/> Target restoration activities only to resources whose populations declined because of the spill.  <input type="checkbox"/> Target restoration activities to all injured resources  <input type="checkbox"/> No preference            Comments:         </p>
<p><b>Status of Resource Recovery:</b> Should restoration actions cease when a resource has recovered?</p> <p> <input type="checkbox"/> Continue appropriate activities even after resources recover.  <input type="checkbox"/> Cease funding restoration once a resource recovers.  <input type="checkbox"/> No preference            Comments:         </p>
<p><b>Effectiveness of Restoration Actions:</b> Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?</p>

- Fund all effective restoration actions
- Fund only highly effect restoration actions
- No preference

Comments:

**Location:** Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

- Fund activities within the spill-area only.
- Allocate some funds for activities outside the spill-area but within Alaska. The activities must be linked to injured resources or services.
- No preference

Comments:

**Strategies for Human Use:** To what extent should restoration actions be used to increase opportunities for human use?

- Do not fund activities that increase human use.
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- No preference

Comments:

## QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM

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*Should the Trustee Council fund spill prevention and response activities?*

- No
- Yes. *Please indicate which spill prevention and response activities you believe are appropriate (you may mark more than one answer):*
- Spill prevention and response technology.
  - Infrastructure
  - Prevention of chronic pollution
  - Other:

Comments:

**Monitoring and Research.** Some components of monitoring and research are included in all alternatives. We would like to know your views.

*Should the Trustee Council fund monitoring and research activities?*

- No
- Yes. *Please indicate which monitoring and research activities you believe are appropriate (you may mark more than one answer):*
- Recovery monitoring
  - Restoration monitoring
  - Ecological monitoring
  - Restoration Research
  - Other:

Comments:

**Endowment.** Some alternatives assume that the settlement funds will be spent within ten years. Others propose placing 20% to 40% of the remaining settlement funds into a savings account to fund restoration, spill prevention, research, or monitoring after that time.

*Are you in favor of an endowment or savings account of some kind?*

- No, I believe the funds should be spent within 10 years.
- Yes. *Please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):*
- Research and Monitoring
  - General Restoration
  - Spill preparedness
  - Habitat Acquisition
  - Other:

Comments:

delete if attorneys don't keep text



### HABITAT PROTECTION: PRIVATE LANDS

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- a few large parcels of land
- many small parcels of land
- mix of large and small parcels
- no preference

2. Buying habitat may affect the economic condition or quality of life in your community. We'd like your views on this.

What positive impacts would you like habitat protection to have in your community?

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What negative impacts would you like habitat protection to avoid in your community?

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3. Acquired lands or interests will be managed to aid the recovery of injured resources and services. Should these lands or interests in these lands be retained forever?

- No
- Yes
- No Preference

4. All habitat protection will benefit resources and services injured by the spill. Should the decision to purchase lands also protect resources and services not injured by the spill?

- No
- Yes
- No Preference

5. Other comments?

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# COMMENTS

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Please use the space below to write comments. Any comment you write will be greatly appreciated. Thank you.

Re-order location



Optional information :

Name \_\_\_\_\_

Address \_\_\_\_\_



Ken R

[Note to Reviewers, Page 9 of the brochure begins here]

## How should these issues be resolved?

### INTRODUCTION

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ISSUES AND POLICY QUESTIONS
<p>Injuries Addressed: Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the spill?</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Target restoration activities only to resources whose populations declined because of the spill.</li><li><input type="checkbox"/> Target restoration activities to all injured resources</li><li><input type="checkbox"/> No preference</li></ul> <p>Comments:</p>
<p>Status of Resource Recovery: Should restoration actions cease when a resource has recovered?</p> <ul style="list-style-type: none"><li><input type="checkbox"/> Continue appropriate activities even after resources recover.</li><li><input type="checkbox"/> Cease funding restoration once a resource recovers.</li><li><input type="checkbox"/> No preference</li></ul> <p>Comments:</p>
<p>Effectiveness of Restoration Actions: Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?</p>

*conduct*

- Fund all effective restoration actions
- Fund only highly effect restoration actions
- No preference

Comments:

Location: Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

- conduct* Fund activities within the spill-area only.
- conduct* Allocate some funds for activities outside the spill-area but within Alaska. The activities must be linked to injured resources or services.
- No preference

Comments:

Strategies for Human Use: To what extent should restoration actions be used to increase opportunities for human use?

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Comments:

## QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM

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  - Other:

Comments:

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Comments:

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Comments:



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What negative impacts would you like habitat protection to avoid in your community?

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- No
- Yes
- No Preference

4. All habitat protection will benefit resources and services injured by the spill. Should the decision to purchase lands also protect resources and services not injured by the spill?

- No
- Yes
- No Preference

5. Other comments?

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## COMMENTS

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Please use the space below to write comments. Any comment you write will be greatly appreciated. Thank you.

Marty

[Note to Reviewers, Page 9 of the brochure begins here]

- type style  
- mix + match alts

# How should these issues be resolved?

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<p><b>Status of Resource Recovery:</b> Should restoration actions cease when a resource has recovered?</p> <p><input type="checkbox"/> Continue appropriate activities even after resources recover.</p> <p><input type="checkbox"/> Cease funding restoration once a resource recovers.</p> <p><input type="checkbox"/> No preference</p> <p>Comments:</p>	
<p><b>Effectiveness of Restoration Actions:</b> Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?</p>	



- Fund all effective restoration actions
- Fund only highly effect restoration actions
- No preference

*some  
substantial*

Comments:

Location: Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

- Fund activities within the spill area only.
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- No preference

Comments:

Strategies for Human Use: To what extent should restoration actions be used to increase opportunities for human use?

*ask  
don't  
↑*

- ~~Do not fund activities that increase human use.~~
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Comments:

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Comments:

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- Recovery monitoring
  - Restoration monitoring
  - \*  Ecological monitoring
  - \*  Restoration Research
  - Other:
- } built in with alternatives*  
*expand definitions*

Comments:

**Endowment.** Some alternatives assume that the settlement funds will be spent within ten years. Others propose placing 20% to 40% of the remaining settlement funds into a savings account to fund restoration, spill prevention, research, or monitoring after that time.

*Are you in favor of an endowment or savings account of some kind?*

- No, I believe the funds should be spent within 10 years.
- Yes. *Please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):*
- Research and Monitoring
  - General Restoration
  - Spill preparedness
  - Habitat Acquisition
  - Other:
- Let people know the next chart has place to allocate endowment vs. other activities.*

Comments:

Marty

[Note to Reviewers, Page 9 of the brochure begins here]

- type style

- mix + match alts

## How should these issues be resolved?

### INTRODUCTION

The Trustees can use the settlement funds in a variety of ways. We would like to know your views about the appropriate policies, categories of restoration activities, and spending guidelines. Please fill out the questions on this page and let the Trustees know which approaches you believe will best restore the injuries of the oil spill. If you need more information, please come to one of the public meetings. Also, feel free to comment on other parts of the plan alternatives in the space provided. Attach additional sheets if you need more space. Thanks for your help!

### QUESTIONS ABOUT ISSUES AND POLICIES

The alternatives presented policy questions. The answers to those questions will help guide some restoration activities. The policy questions are reprinted below. Please mark the appropriate box to let us know your views.

If you think that these policies should apply to some restoration activities but not others, please write your views down in the space provided beneath each question. For example, if you think that some general restoration activities are appropriate outside the spill area but that habitat protection should concentrate only on the spill area, you would write that information in the comment space under question four.

ISSUES AND POLICY QUESTIONS
<p><b>Injuries Addressed:</b> Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the spill?</p> <p> <input type="checkbox"/> Target restoration activities only to resources whose populations declined because of the spill.  <input type="checkbox"/> Target restoration activities to all injured resources  <input type="checkbox"/> No preference            Comments:         </p> <p style="text-align: right;"><i>doesn't apply to services?</i></p>
<p><b>Status of Resource Recovery:</b> Should restoration actions cease when a resource has recovered?</p> <p> <input type="checkbox"/> Continue appropriate activities even after resources recover.  <input type="checkbox"/> Cease funding restoration once a resource recovers.  <input type="checkbox"/> No preference            Comments:         </p>
<p><b>Effectiveness of Restoration Actions:</b> Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?</p>

- Fund all effective restoration actions
- Fund only highly effect restoration actions
- No preference

*some  
substantial*

Comments:

Location: Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

- Fund activities within the spill area only.
- Allocate some funds for activities outside the spill-area but within Alaska. The activities must be linked to injured resources or services.
- No preference

Comments:

Strategies for Human Use: To what extent should restoration actions be used to increase opportunities for human use?

*add ?  
don't ↑  
human use*

- ~~Do not fund activities that increase human use.~~
- Fund only habitat protection.
- Only fund restoration activities that are designed not to increase use levels but only to protect existing human use. Examples are recreation facilities that protect the environment in over-used areas, or testing the safety of subsistence foods.
- Fund restoration activities that protect or increase existing uses. Examples are funding to increase existing sport- or commercial fishing runs, or funding to construct recreation facilities such as public-use cabins.
- In addition to activities that protect or increase existing human use, also fund appropriate new uses. Examples are new fishing runs, commercial facilities, or visitor centers.
- No preference

Comments:

## QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM

The questions below discuss the different categories of restoration activities. The questions ask about what groups of activities you believe the trustees should fund.

**Spill Prevention and Response.** The alternatives propose using up to 15% of the remaining settlement funds for spill prevention and response to prevent catastrophic and chronic oil pollution.

*Should the Trustee Council fund spill prevention and response activities?*

- No
- Yes. *Please indicate which spill prevention and response activities you believe are appropriate (you may mark more than one answer):*
- Spill prevention and response technology.
  - Infrastructure
  - Prevention of chronic pollution
  - Other:

Comments:

**Monitoring and Research.** Some components of monitoring and research are included in all alternatives. We would like to know your views.

*Should the Trustee Council fund monitoring and research activities?*

- No
- Yes. *Please indicate which monitoring and research activities you believe are appropriate (you may mark more than one answer):*
- Recovery monitoring
  - Restoration monitoring
  - \*  Ecological monitoring
  - \*  Restoration Research
  - Other:
- built in with alternatives*
- expand definitions*

Comments:

**Endowment.** Some alternatives assume that the settlement funds will be spent within ten years. Others propose placing 20% to 40% of the remaining settlement funds into a savings account to fund restoration, spill prevention, research, or monitoring after that time.

*Are you in favor of an endowment or savings account of some kind?*

- No, I believe the funds should be spent within 10 years.
- Yes. *Please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):*
- Research and Monitoring
  - General Restoration
  - Spill preparedness
  - Habitat Acquisition
  - Other:
- Let people know the next chart has place to allocate endowment vs. other activities.*

Comments:





Land Acquisition

HABITAT PROTECTION: PRIVATE LANDS

Habitat Protection on private lands is a major element in all but the natural recovery alternative of the draft Restoration Plan. Habitat protection on private lands may include acquisition of full title or acquisition of partial rights such as conservation easements and timber rights. Partial rights may be less expensive than full title. Because land purchases are negotiated and are dependent both on price and on the will of the seller, final purchases will be dependent on landowner's preferences as well as those of the public and the trustees. (The habitat protection process was described in the Restoration Framework Supplement.)

In response to public support, the Trustee Council is proceeding in advance of the Restoration Plan by protecting several imminently threatened parcels. For example, the Trustee Council decided to go ahead with the purchase of inholdings in Kachemak Bay State Park.

We are requesting your views on several issues concerning Habitat Protection on private lands. Please answer the questions below.

1. When purchasing land we can purchase large areas that protect the overall landscape or integrity of the habitat, or purchase small but important parcels such as stream corridors and camping areas to stretch the funds. Would you prefer acquisitions to emphasize:

- a few large parcels of land
- many small parcels of land
- mix of large and small parcels
- no preference

Delete

? buy land  
stretch the funds  
on landscape or results?

2. Buying habitat may affect the economic condition or quality of life in your community. We'd like your views on this.

Community to be  
developed  
- restrictions on activities  
- poll. control impact  
- buying the land  
= not under trust?

What positive impacts would you like habitat protection to have in your community?

\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Delete

What negative impacts would you like habitat protection to avoid in your community?

\_\_\_\_\_  
\_\_\_\_\_

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3. Acquired lands or interests will be managed to aid the recovery of injured resources and services. Should these lands or interests in these lands be retained forever?

- No
- Yes
- No Preference

4. All habitat protection will benefit resources and services injured by the spill. Should the decision to purchase lands also protect resources and services not injured by the spill?

- No
- Yes
- No Preference

5. Other comments?

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*if sentence 1 is true, what is the purpose of sentence 2?*



# COMMENTS

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Please use the space below to write comments. Any comment you write will be greatly appreciated. Thank you.

[Note to Reviewers, Page 9 of the brochure begins here]

## How should these issues be resolved?

### INTRODUCTION

---

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<p><b>Injuries Addressed:</b> Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the spill?</p> <p> <input type="checkbox"/> Target restoration activities only to resources whose populations declined because of the spill.  <input type="checkbox"/> Target restoration activities to all injured resources  <input type="checkbox"/> No preference         </p> <p>Comments:</p>	
<p><b>Status of Resource Recovery:</b> Should restoration actions cease when a resource has recovered? <i>or</i></p> <p> <input type="checkbox"/> Continue appropriate activities even after resources recover.  <input type="checkbox"/> Cease funding restoration once a resource recovers.  <input type="checkbox"/> No preference         </p> <p>Comments:</p>	
<p><b>Effectiveness of Restoration Actions:</b> Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?</p>	

- Fund all effective restoration actions
  - Fund only highly effect restoration actions
  - No preference
- Comments:

**Location:** Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

- Fund activities within the spill-area only.
  - Allocate some funds for activities outside the spill-area but within Alaska. The activities must be linked to injured resources or services.
  - No preference
- Comments:

**Strategies for Human Use:** To what extent should restoration actions be used to increase opportunities for human use? *not mutually exclusive*

- Do not fund activities that increase human use. *^*
  - Fund only habitat protection.
  - Only fund restoration activities that are designed not to increase use levels but only to protect existing human use. Examples are recreation facilities that protect the environment in over-used areas, or testing the safety of subsistence foods.
  - Fund restoration activities that protect or increase existing uses. Examples are funding to increase existing sport- or commercial fishing runs, or funding to construct recreation facilities such as public-use cabins.
  - In addition to activities that protect or increase existing human use, also fund appropriate new uses. Examples are new fishing runs, commercial facilities, or visitor centers.
  - No preference
- Comments:

**QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM**

The questions below discuss the different categories of restoration activities. The questions ask about what groups of activities you believe the trustees should fund.

**Spill Prevention and Response.** The alternatives propose using up to 15% of the remaining settlement funds for spill prevention and response to prevent catastrophic and chronic oil pollution.

*Should the Trustee Council fund spill prevention and response activities?*

- No
- Yes. *Please indicate which spill prevention and response activities you believe are appropriate (you may mark more than one answer):*

- Spill prevention and response technology.
- Infrastructure *meaning dikes of app. - spill out ~~the~~ meaning has*
- Prevention of chronic pollution
- Other: *def.? smaller, more freq. oil leaks + spills*

Comments:

**Monitoring and Research.** Some components of monitoring and research are included in all alternatives. We would like to know your views.

*Should the Trustee Council fund monitoring and research activities?*

- No
- Yes. *Please indicate which monitoring and research activities you believe are appropriate (you may mark more than one answer):*

- Recovery monitoring
- Restoration monitoring
- Ecological monitoring
- Restoration Research
- Other:

Comments:

**Endowment.** Some alternatives assume that the settlement funds will be spent within ten years. Others propose placing 20% to 40% of the remaining settlement funds into a savings account to fund restoration, spill prevention, research, or monitoring after that time.

*Are you in favor of an endowment or savings account of some kind?*

- No, I believe the funds should be spent within 10 years.
- Yes. *Please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):*

- Research and Monitoring
- General Restoration
- Spill preparedness
- Habitat Acquisition
- Other:

Comments:



### HABITAT PROTECTION: PRIVATE LANDS

Habitat Protection on private lands is a major element in all but the natural recovery alternative of the draft Restoration Plan. Habitat protection on private lands may include acquisition of full title or acquisition of partial rights such as conservation easements and timber rights. Partial rights may be less expensive than full title. Because land purchases are negotiated and are dependent both on price and on the will of the seller, final purchases will be dependent on landowner's preferences as well as those of the public and the trustees. (The habitat protection process was described in the Restoration Framework Supplement.)

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- a few large parcels of land
- many small parcels of land
- mix of large and small parcels
- no preference

2. Buying habitat may affect the economic condition or quality of life in your community. We'd like your views on this.

What positive impacts would you like habitat protection to have in your community?

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What negative impacts would you like habitat protection to avoid in your community?

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*Camping \$?*  
*use?*

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3. Acquired lands or interests will be managed to aid the recovery of injured resources and services. Should these lands or interests in these lands be retained forever?

- No
- Yes
- No Preference

*Fact, Assertion?*

4. ~~All habitat protection will benefit resources and services injured by the spill.~~ Should the decision to purchase lands also protect resources and services not injured by the spill?

- No
- Yes
- No Preference

5. Other comments?

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## COMMENTS

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Please use the space below to write comments. Any comment you write will be greatly appreciated. Thank you.



[Note to Reviewers, Page 9 of the brochure begins here]

# How should these issues be resolved?

## INTRODUCTION

The Trustees can use the settlement funds in a variety of ways. We would like to know your views about the appropriate policies, categories of restoration activities, and spending guidelines. Please fill out the questions on this page and let the Trustees know which approaches you believe will best restore the injuries of the oil spill. If you need more information, please come to one of the public meetings. Also, feel free to comment on other parts of the plan alternatives in the space provided. Attach additional sheets if you need more space. Thanks for your help!

Other ways around

## QUESTIONS ABOUT ISSUES AND POLICIES

The alternatives presented policy questions. The answers to those questions will help guide some restoration activities. The policy questions are reprinted below. Please mark the appropriate box to let us know your views.

If you think that these policies should apply to some restoration activities but not others, please write your views down in the space provided beneath each question. For example, if you think that some general restoration activities are appropriate outside the spill area but that habitat protection should concentrate only on the spill area, you would write that information in the comment space under question four. not #1ed

ISSUES AND POLICY QUESTIONS	
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<p><b>Status of Resource Recovery:</b> Should restoration actions cease when a resource has recovered?</p> <p> <input type="checkbox"/> Continue appropriate activities even after resources recover.  <input type="checkbox"/> Cease funding restoration once a resource recovers.  <input type="checkbox"/> No preference         </p> <p>Comments:</p>	
<p><b>Effectiveness of Restoration Actions:</b> Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?</p>	

- Fund all effective restoration actions
- Fund only highly effect restoration actions
- No preference

Comments:

Location: Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

- Fund activities within the spill-area only.
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- No preference

Comments:

*opportunities*

**Strategies for Human Use:** To what extent should restoration actions be used to increase opportunities for human use?

- Do not fund activities that increase human use.
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- In addition to activities that protect or increase existing human use, also fund appropriate new uses. Examples are new fishing runs, commercial facilities, or visitor centers.
- No preference

Comments:

?

*read again*

**QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM**

The questions below discuss the different categories of restoration activities. The questions ask about what groups of activities you believe the trustees should fund.

**Spill Prevention and Response.** The alternatives propose using up to 15% of the remaining settlement funds for spill prevention and response to prevent catastrophic and chronic oil pollution. *which alternatives?*

Should the Trustee Council fund spill prevention and response activities?

- No
- Yes. Please indicate which spill prevention and response activities you believe are appropriate (you may mark more than one answer):
  - Spill prevention and response technology.
  - Infrastructure
  - Prevention of chronic pollution
  - Other:

Comments:

*Keep?*

**Monitoring and Research.** Some components of monitoring and research are included in all alternatives. ~~We would like to know your views.~~

Should the Trustee Council fund monitoring and research activities?

- No
- Yes. Please indicate which monitoring and research activities you believe are appropriate (you may mark more than one answer):
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  - Ecological monitoring
  - Restoration Research
  - Other:

Comments:

*not a category*

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Are you in favor of an endowment or savings account of some kind?

- No, I believe the funds should be spent within 10 years.
- Yes. *Yes* Please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):
  - Research and Monitoring
  - General Restoration
  - Spill preparedness
  - Habitat Acquisition
  - Other:

*amount of \$?*

Comments:

*move to p. 38*



### QUESTIONS ABOUT SPENDING GUIDELINES

The table below shows the spending guidelines in the five alternatives. If one of the alternatives reflects your view of how the funds should be allocated, please circle the name of that alternative. If not, please put write in your percentages in the space to the right. If needed, you may write in new suggestions for restoration plan components in the blank lines. If you believe that an endowment is appropriate, please put in the appropriate percentage in the endowment line. (Make sure your percentages add to 100%!)

	Alternative #1 Natural Recovery	Alternative #2 Habitat Protection	Alternative #3 Limited Restoration	Alternative #4 Moderate Restoration	Alternative #5 Comprehensive Restoration	<b>YOUR ALTERNATIVE</b> If none our alternatives reflect your views about allocating the funds, please write your percentages below.
Administration & Public Information	1%	4%	8%	7%	7%	Administration & Public Information
Monitoring & Research	5%	5%	7%	8%	10%	Monitoring & Research
General Restoration			12%	25%	33%	General Restoration
Spill Preparedness				10%	15%	Spill Preparedness
Endowment						Endowment
Habitat Protection		91%	75%	50%	35%	Habitat Protection
Balance	94%					Balance
Total	100%	100%	100%	100%	100%	
						100% Total

Separate  
Question

(Note to Reviewers, Page 9 of the brochure begins here)

How should these issues be resolved?

**INTRODUCTION**

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<p>Effectiveness of Restoration Actions: Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?</p>	

*Marina*  
 — this section should again note that comments received now will not be incorporated in DRAFT pla

*This section should simply ask for public comment on the issues and alternatives — this is too much like a questionnaire, which is not the purpose*



United States  
Department of  
Agriculture

Office of  
General  
Counsel

P.O.Box 21628  
Juneau, Alaska  
99802-1628  
(907) 586-8826

March 11, 1993

CONFIDENTIAL ATTORNEY WORK PRODUCT/DO NOT RELEASE UNDER FOIA

TO: Dave Gibbons  
Interim Administrative Director

FROM: Maria Lisowski *ML*  
Attorney

SUBJECT: "Brochure" for Draft Restoration Plan, Exxon Valdez Oil  
Spill

ISSUE

You have requested my comments regarding the draft brochure for the Draft Restoration Plan to be released to the public in April, 1993. My general comments appear below; page specific comments are attached.

SUMMARY/DISCUSSION

1. There appears to be a basic misconception regarding the purpose of this document. As Mark Brodersen represented to the Trustee Council during its February meeting, this informational package is to serve as a pre-release of the Draft Restoration Plan and Environmental Impact Statement (EIS) targeted at those members of the public that will be unavailable to comment on the Draft Plan during the summer months because of commercial fishing or other outdoor activities. The restoration effort should not at this point be asking the public what should be included in the Draft Restoration Plan; rather, it should be telling the public what will be in the Draft Restoration Plan, which will stimulate public comment. The purpose of this document, therefore, is simply to reach those members of the public that will not be available during the public comment period for the Draft Plan; it is not a questionnaire. The questionnaire approach is prominent on pages 35-40 and should be eliminated.

2. The document needs to make clear that public comments received will NOT be incorporated in the Draft Restoration Plan. This is critical as otherwise the trustees will receive comments on the Draft Plan regarding the failure of the trustees to address the public comment received prior to issuance of the Draft Plan.

3. I have not reviewed the accuracy of the summary of injuries at pages 7-10. Dr. Spies should review and approve this section before release.

4. References to Spill Prevention and Response should be eliminated from the document. While the State Department of Law has circulated a draft legal opinion potentially permitting the use of trust funds for this purpose, currently there is no agreement among the agency legal counsels on this issue. Removal from the document at this time does not preclude the trustees from expending trust funds in the future for this purpose if an agreement is reached among the parties that it is allowable under the settlement agreements.

5. The charts depicting the allocation of funds for each alternative should have a more explicit disclaimer to provide greater flexibility for the use of funds in the future. I suggest the following: "The display of allocation is illustrative only and is not a commitment of actual expenditures." References throughout the text for each alternative, which indicate the percentage of funds to be dedicated to specific restoration activities, should be deleted as they appear to commit the trustees to a specific percentage of expenditure.

cc: J.Wolfe  
K.Rice

EXXON VALDEZ OIL SPILL RESTORATION  
PUBLIC MEETINGS BEFORE A DRAFT RESTORATION PLAN

A DRAFT RESTORATION PLAN is currently being written to guide restoration activities through the year 2001 in the area affected by the EXXON Valdez Oil Spill. Community meetings in April may be your last chance to discuss your ideas directly with planning staff.

Look for brochures distributed in newspapers or to boxholders before local meeting dates. Brochures will explain the five options being considered for restoration spending.

If you attend only ONE meeting on Exxon Valdez Oil Spill restoration, make this the meeting! →

(Town, place of meeting, and time here.)

(Graphic - I would recommend using a graphic from the brochure, so increase the chance that people will recognize and connect the two notices.)

< Americans with Disabilities Act Blurb Here. >

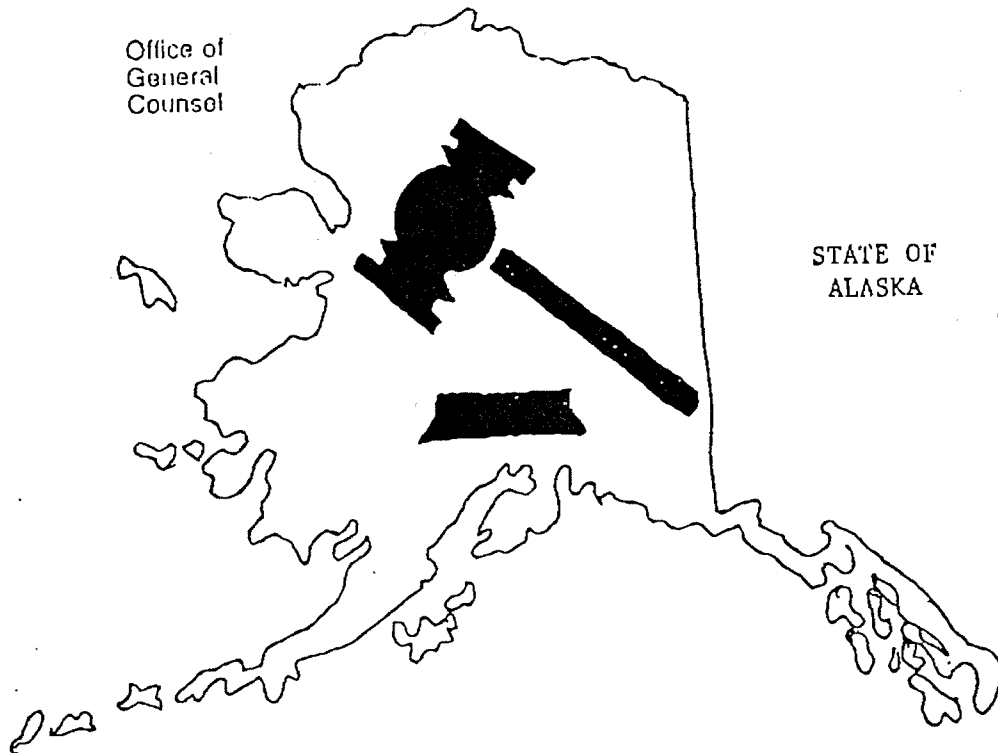
Please call L.J. Evans at 1-800-478-7745  
~~at~~ about special needs for accessibility  
or interpreter service.





United States  
Department of  
Agriculture

Office of  
General  
Counsel



TELECOPY COVER PAGE

OFFICE OF THE GENERAL COUNSEL  
P.O. BOX 021628  
JUNEAU, ALASKA 99802  
(907) 586-8826  
FTS 871-8826  
FAX (907) 586-7251  
FAX FTS 871-7251

TO: Ken Rice  
Dave Gibbons

UNIT: \_\_\_\_\_

FAX: 276-7178

FROM: Navia Lisowski

NUMBER OF PAGES (not including the cover sheet) 30

DATE: 3/11/93

TIME: 2:35

COMMENTS:

*Ken - Coming in 2 parts  
Please share w/ Dave*

This transmission may contain confidential information. It is intended for use of the addressee only. If you are not the addressee or an employee responsible for delivering it to the addressee, you are hereby notified that any use, dissemination, distribution or copying of this information is strictly prohibited. If you have received this transmission in error, please notify us immediately by telephone, and return this to us via the U.S. Postal Service. THANK YOU.

agreements.

5. The charts depicting the allocation of funds for each alternative should have a more explicit disclaimer to provide greater flexibility for the use of funds in the future. I suggest the following: "The display of allocation is illustrative only and is not a commitment of actual expenditures." References throughout the text for each alternative, which indicate the percentage of funds to be dedicated to specific restoration activities, should be deleted as they appear to commit the trustees to a specific percentage of expenditure.

cc: J.Wolfe  
K.Rice



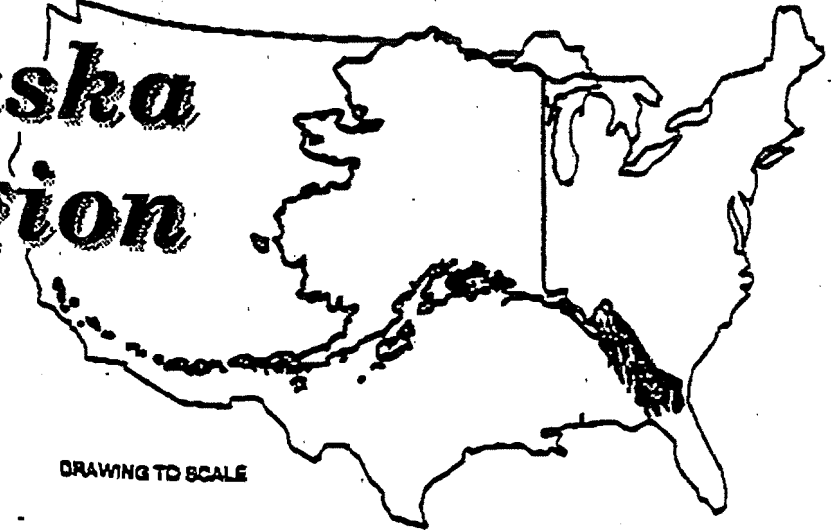
Department of  
Agriculture

Forest Service

Alaska Region



# Alaska Region



DRAWING TO SCALE

USDA Forest Service, Regional Office, P.O. Box 21628, Juneau, AK 99802

### Cover Page

To: Bob Loeffler Fax No.: (907) 276-7178  
 Unit: Oil Spill Cond. Verification No.: (907) 278-8012  
 WO (DC): \_\_\_\_\_ WO (Arlington/Rosslyn): \_\_\_\_\_  
 From: D. Larson Fax No.: (907) 586-7892  
 Unit: Public Affairs Office Verification No.: (907) 586-8806

### Remarks:

Bob - Our writer-editor & I have reviewed the  
copy. I cut + pasted some and would like to  
recommend an "outline or list" be added rather  
like a table of contents.

Call if questions.

Total number of pages (excluding cover): 46

Date Sent: 3/8/93 Time: 4:40

①

Bob -

If a "Table of Contents" isn't appropriate for your newspaper format, could we include a "list" of contents? .i.e.

The following information is included in this newsletter:

What is the Restoration Plan - - - - - pg - - -

Background

Civil Settlement & Rest Fund  
map spill area

Current Situation

What was injured

Planning Process

Issues and Policy Questions

Categories of the Plan

Habitat Protection

Spill Prevention & Response

Monitoring & Research

Administration & Public Diplomacy

General Restoration

Category and Spending Judicial Table

Comparison of alternatives & Expected

Natural Recovery table

Funding

Civil Settlement

Endowments

alternatives

Description of alternatives

Alternative 1 Natural Recovery

Alternative 2 Habitat Protection

alt 3 Limited Restoration

alt 4 Moderate Restoration

alt 5 Comprehensive Rest.

Summary of alternatives

Resolving the Issues

Introduction

Your Views about Issues & Policies

" " " " Categories ... deli

could have list also

Habitat Protection  
Endowments

Bob (cont.)

(2)

The reason I reorganized it was because we thought it needed form and clarity. Sometimes folks are so close to their subject matter they think it is crystal clear to an uninformed reader and it isn't.

It took me a while to figure out that the issue questions and the categories were part of the various alternatives. Also the funding (endowments) were all mixed here + there)

If we ~~are~~ are off track on the order in which things should come, at least maybe consider some form of reorganization.

I have a couple pages of "notes" to go along + clarify our margin comments.

My heartiest apologies for the "hand written" comments. I had the draft all over my desk! — and you said you needed it in one day turn around!

Hope it helps

Dolores Larson  
Creative Services / Public Affairs  
Forest Service

(907) 586-8804

Notes pg 1

Notes

Page 3 What is the Restitution Plan?

add to first PP although there were various other restitutive payments, the Civil Settlement funds are the subject of this plan.

Background P 3

Exxon fined 150 million (125 forgiven)   
 also agreed (?) to pay "another" 100 million restit   
 (50 to state 50 to Fed)   
 (Plus) ? \$900 million civil settlement?

These numbers are confusing - they don't add up and not clear

Page 4

Funding	\$ 610 million	107.3
	240 "	19.5
	<hr/>	<hr/>
	850 - not 900	13.3
		20.0
		39.9
		<hr/>
		200 - not 240 <sup>00</sup>

(old) page 7 - new title Current Situation

P 2 "only one factor" what is an "AB" pod?

(old) page 8 relationship of carcasses to "estimated" Kill why do they vary so? How determined?

(old) page 9 I thought P 3 on pg 7 defined "sub-lethal" but this confused

(old) pg 8 PP 4 species or use decline

☆ Page 11 (old) add new title "Planning Process" or similar

This revision seems critical because it took a long time to figure out that both the issues & the categories were in the alternatives

add <sup>opening</sup> sentence "Planning process identified five significant issues and surfaced 5 categories of activities. Each of the five alternatives developed for your review present...."

Notes pg 2

(old) page 11

- Would be easier to understand if issues were numbered-
- Total table on (old) pg 12

(old) page 14

Make "Categories of the Restoration Plan new subtitle  
I added the long subsection on General Restoration under here (you may want it a separate subtitle) or it may need a statement of introduction. old pg 31

(old) pg 29

Category & Spending Priorities.  
(This could even come earlier)

old pg 26

Comparison of alternatives  
and Expected Natural Recovery  
(Title the table)

If room, can this narrative (old pg 26)  
be on same page?

Page 22

New Section on "Funding"

The "entitlements" prices didn't fit where they were.

# 3 was the \$90 mill extra?

These numbers don't add up

610	107.3	160.1
<u>240</u>	19.7	39.9
85.0 (not 900)	17.3	<u>200.00</u> (not 240)
	20.0	
	<u>100.1</u>	



Notes pg 3

page 23 Alternatives (new subsection)  
 Add opening sentences (Summary could precede)  
 (old) 25

The more "comprehensive" alternative  
 say "some" improvement. Is that  
 less than "substantial"?

old pg 35

Need new title "Resolving the Issues"  
 Changed the "Questions about" to "Your Views"  
 We are asking their opinion here are we  
 not?

old pg 37

Same w/ "Views" of categories  
 and following table as well

# Draft *Exxon Valdez* Oil Spill Restoration Plan Summary of Alternatives for Public Comment

We need your help to determine how to restore the injuries from the *Exxon Valdez* Oil Spill. You can let us know your views by attending a public meeting in your community.

**DRAFT**

## PUBLIC MEETINGS

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WHERE

WHEN

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If you cannot attend the public meetings, please send us your comments by August \_\_, 1993 on the enclosed comment sheet. For additional copies of this brochure or for more information contact:

*Exxon Valdez* Oil Spill Restoration Office  
645 "G" Street  
Anchorage, Alaska 99501  
(907) 278-8012

Thank you,  
*Exxon Valdez* Oil Spill Trustee Council

Charles E. Cole  
Attorney General  
State of Alaska

Carl L. Rosier  
Commissioner  
Alaska Department of Fish and Game

John A. Sandor  
Commissioner  
Alaska Department of Environmental Conservation

Michael A. Barton  
Regional Forester  
Alaska Region - USDA Forest Service

Paul Gates  
Interim Trustee Council Representative  
U.S. Department of the Interior

Steven Pennoyer  
Director, Alaska Region  
National Marine Fisheries Service

**DRAFT**

[Note to reviewers, Page 1 of the brochure begins here.]

## How Should the Trustees Spend the *Exxon Valdez* Civil Settlement?

### Your comments are Needed!

The purpose of this brochure is to give you the opportunity to express your opinion about the best use of the *Exxon Valdez* civil settlement funds. By going through this brochure and attending meetings you have a chance to tell us what you like and dislike about alternative ways to spend the money. You can also make recommendations about things we may have overlooked. If you cannot attend the meetings, please note your ideas on the enclosed response form and mail it back to us by August \_\_, 1993.

The U.S. National Environmental Policy Act requires that an Environmental Impact Statement be part of any significant federal action such as the program for restoring injuries caused by the oil spill. The Draft Environmental Impact Statement and the full text of the Draft Restoration Plan, however, will not be available until June. Because many people are unavailable during the summer, this summary is being released now to allow the public to give the Trustees their ideas. If you would like, you may wait to see the Draft Environmental Impact Statement and Draft Restoration Plan this June before you make your comments.

In addition to including information found here, the Draft Environmental Impact Statement will analyze the impacts of these alternatives on the physical, biological, social, and economic aspects of the environment. It will help the Trustees and the public understand the consequences of alternative methods of spending the civil settlement funds.

The information you provide will be used to prepare a final restoration plan that will be presented to the public this fall. The plan adopted by the Trustee Council may contain parts of several of the alternatives presented here plus new information provided by you.

**DRAFT**

### What is the Restoration Plan?

The *Exxon Valdez* Restoration Plan will provide long-term guidance for the Trustee Council to use when allocating the civil settlement funds for restoring injuries caused by the oil spill. The Council will implement the plan through annual work plans. The annual work plan is a mix of restoration activities to be funded based on the policies and budget guidelines of the plan, future public comments and changing restoration needs. The plan may be changed by the Trustees in response to new information about the injuries and recovery, new technologies, or as social and economic conditions change.

*see note*

*Although there were provisions within the Civil Settlement Funds on the subject of the plan.*

The Trustee Council allocates funds from the civil settlement for activities to restore the oil spill injuries. The Trustee Council *does not* direct land uses on federal, state, or private lands and *does not* manage fish and wildlife resources. Land use and fish and game management decisions are made by the appropriate federal or state agencies. The Trustee Council may make recommendations to state and federal agencies, provide funds for state and federal management, or fund research to provide information to those agencies or other groups. The Trustee Council may also purchase private land or private property rights, but no purchases will be forced on an unwilling seller.

### BACKGROUND

Shortly after midnight on March 24, 1989 the T/V *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound spilling 11 million gallons of North Slope crude oil. This was the largest tanker oil spill in United States history. All through the Spring, the oil moved along the coastline of Alaska contaminating the shoreline of Prince William Sound, the Kenai Peninsula, lower Cook Inlet, the Kodiak Archipelago, and the Alaska Peninsula. Portions of 1,200 miles of coastline were oiled, including part of one National Forest, four National Wildlife Refuges, and three National Parks.<sup>1</sup> Oil eventually reached shorelines nearly 600 miles from Bligh Reef.

On October 8, 1991, an agreement was approved by the U.S. District Court that settled the claims of the United States and the State of Alaska against Exxon Corporation and Exxon Shipping Company for various criminal violations and for recovery of civil damages resulting from the oil spill.

*set out*

As part of the criminal plea agreement, the court fined Exxon and Exxon Shipping \$150 million -- the largest fine ever imposed for an environmental crime. Of this amount, \$125 million was forgiven due to their cooperation with the governments during the cleanup, timely payment of many private claims, and environmental precautions taken since the oil spill. The remaining \$25 million was paid into the North American Wetlands Conservation Fund, and into the Victims of Crime Act Account.

*another fine*

The Exxon companies also agreed to pay \$100 million as restitution. Fifty million dollars were paid to the United States and \$50 million to the State of Alaska. The state and federal governments separately manage the \$50 million payment that each has received. These funds are not under the authority of the Trustee Council and are not considered by this plan. However they must be used exclusively for restoration activities, within the State of Alaska, relating to the *Exxon Valdez* oil spill.

*add short sentence*

*The civil settlement, subject of this plan was the amount of \$150 million*

*(need a sentence to clarify moved left to "Funding")*

<sup>1</sup>. Two turtle doves, and a partridge in a pear tree.

### Civil Settlement and Restoration Fund

In the civil settlement, the Exxon companies agreed to pay the United States and the State of Alaska up to \$900 million over a period of 10 years. [The use of the civil settlement funds are the subject of this plan.]

*McNeil*

*Who can spend the civil settlement money?* Decisions on spending the civil settlement funds are made by a council of six state and federal Trustees:

**State of Alaska Trustees:**

- Commissioner of the Department of Environmental Conservation;
- Commissioner of the Department of Fish and Game; and
- Alaska Attorney General.

**Federal Trustees:**

- Secretary of the U.S. Department of the Interior;
- Secretary of the U.S. Department of Agriculture; and
- Administrator of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

The Federal Trustees have appointed representatives to the Trustee Council from local federal agencies.

*What are the rules for spending the civil settlement money?*

- All decisions made by the Trustee Council (such as spending settlement funds) must be made by unanimous consent.
- The Trustees must use the settlement funds "...for the purposes of restoring, replacing, enhancing, or acquiring the equivalent of natural resources injured as a result of the Oil Spill and the reduced or lost services provided by such resources..." (except for the reimbursement of certain expenses to the governments).
- The settlement funds must be spent on restoration of natural resources in Alaska unless the Trustees unanimously agree that spending funds outside of the state is necessary for effective restoration.

The settlement defines natural resources as the land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to or managed by the state or federal governments. Examples of natural resources are birds, fish, mammals, subtidal plants and organisms, and archaeology.

In addition to restoring natural resources, the settlement requires restoration funds be used to restore reduced or lost services provided by injured natural resources. For example, subsistence, commercial fishing, and recreation including sport-fishing and sport-hunting, are services that were damaged by injuries to fish and wildlife. Other damaged services include commercial tourism, and the enjoyment that people receive from the undisturbed wild areas.

*McNeil  
Funding*

[Note to reviewers, the brochure map (the spill-area map) will go on this page.

5<sup>8</sup>

MAP SPILL AREA (label map)

New 144

[Note to reviewers, Page 3 of the Brochure begins here]

Current Situation

7  
6

### What Was Injured By the Spill and Is It Recovering?

The *Exxon Valdez* oil spill injured resources and services throughout the spill area. The oil spill occurred just before the most biologically active season of the year in Southcentral Alaska. During the four-month period after the oil spill, seaward migration of salmon fry, major migrations of birds, and the primary reproductive period for most species of bird, mammals, fish, and marine invertebrates took place. The organisms involved in these critical periods of their life cycle encountered the most concentrated, volatile and damaging forms of oil. The oil spill also directly impacted archaeological resources, subsistence, recreation, designated wilderness areas, and wilderness qualities, aesthetics, and other services. Oil affected each resource and service differently; these injuries are briefly described below.

The *Exxon Valdez* oil spill was only one factor that affected the health of several populations in the area. We do not know the cause of the long-term declines of marbled murrelets, pigeon guillemots or harbor seals.

Implication is that "other" factors caused decline

For some resources, the oil spill caused a measurable decline in their population. For example, an estimated 8,000 to 12,000 marbled murrelets were killed during the oil spill. For other resources, the spill caused an injury to one life stage, but that injury did not measurably lower the overall population. An example of a sublethal effect is abnormal herring fry. This has not yet caused a measurable population decline.

#### MAMMALS

**HARBOR SEALS:** The oil spill caused population declines and sublethal injuries to harbor seals. Many were directly oiled and an estimated 345 died. Oil residues found in seal bile were 5 to 6 times higher in oiled areas than unoiled areas in 1990. The population was declining prior to the oil spill which makes it difficult to know the continuing effects. There is no indication of recovery.

**KILLER WHALES:** The oil spill caused sublethal injuries to at least one of the killer whale pods in Prince William Sound. Debate continues about whether the oil spill caused a population decline. Thirteen whales out of 36 in the AB pod are missing and presumed dead. Circumstantial evidence links whale disappearance to the oil spill. Additionally, several adult males have collapsed dorsal fins. Social disruption of family units has been observed. In the AB pod, no new births were recorded in 1989 or 1990; one birth was recorded in 1991; and two births were recorded in 1992. These births show that the AB pod is beginning to recover.

What is an AB pod.

**RIVER OTTERS:** The oil spill caused at least sublethal injuries to river otters. However, the population is difficult to census and it is unknown if there were population declines. Sublethal indicators of possible oil exposure remained in 1991. River otters feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment.

**SEA OTTERS:** The oil spill caused population declines and sublethal injuries to sea otters. It is estimated that 3,500 to 5,000 otters died. Surveys in 1989, 1990 and 1991 showed measurable differences in population numbers and survival between oiled and unoiled areas. In 1992, lower juvenile survival rates and higher than normal numbers of dead prime age otters indicate that the populations in Prince William Sound continue to be stressed. Sea otters feed in the lower intertidal and subtidal areas and may still be exposed to oil persisting in the environment. Little or no evidence of recovery has been detected.

8  
7

**BIRDS**

**BALD EAGLES:** The oil spill caused sublethal injuries and possibly population declines in bald eagles. In 1989, 151 carcasses were recovered from beaches. Productivity in Prince William Sound was disrupted in 1989, but returned to normal in 1990. Exposure to oil and some sublethal injuries were found in 1989 and 1990, but no continuing effects were observed on populations. Bald eagles are recovering and may have recovered, from effects due to the oil spill.

**BLACK OYSTERCATCHERS:** The oil spill caused population declines and sublethal injuries to black oystercatchers. In 1989, nine carcasses were recovered from beaches, but the actual number killed were many more. In 1989, smaller eggs were found in oiled areas. Black oystercatchers feed in the intertidal areas and may still be exposed to oil persisting in the environment. The population is recovering although evidence of sublethal injuries persisted in 1992.

**COMMON MURRES:** The oil spill caused population declines and sublethal injuries at murre colonies within the oil spill area. In 1989, 10,428 carcasses were recovered from beaches representing between 175,000 to 300,000 murres killed. Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding was still inhibited in some colonies in the Gulf of Alaska in 1992. The degree of recovery varies between colonies, however some colonies show little evidence of recovery.

*relationships  
of  
carcasses  
recovered  
was  
?*

**HARLEQUIN DUCKS:** The oil spill caused population declines and sublethal injuries to harlequin ducks. In 1989, 213 carcasses were recovered from beaches which probably represents over 400 birds killed. Post-spill samples showed oil contamination and poor health in 1989 and 1990. In the three years since the oil spill, it appears that harlequin ducks still are not successfully breeding in oiled areas. Harlequin ducks feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment. Although the population continues to show evidence of sublethal injuries and is not yet showing signs of recovering, it is possible that the decline has stabilized.

*2X*

**MARBLED MURRELETS:** The oil spill caused population declines, but it is unknown if there were sublethal injuries. In 1989, 612 carcasses were recovered from beaches. It is estimated that 8,000 to 12,000 birds died. Measurable population effects were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the oil spill. In 1989, oil contamination was found in livers of adult birds. Although the recovery status in 1992 was uncertain and no signs of an increasing population have been observed, it is possible that the decline has stabilized.

*10X*

**PIGEON GUILLEMOTS:** The oil spill caused population declines to pigeon guillemots. In 1989, 614 carcasses were recovered from beaches representing from 1,500 to 3,000 birds killed. Pigeon guillemot populations were declining prior to the spill. In 1989, oil contamination was found in birds and, externally, on eggs. The recovery status in 1992 is uncertain with no evidence of an increase in the population.

*2-3X*

**FISH**

**CUTTHROAT AND DOLLY VARDEN TROUT:** The oil spill caused sublethal injuries and possibly population declines for these two species. Differences in the survival and growth between anadromous adult populations in the oiled and unoiled areas persisted from 1989 to 1991 despite less indications of oil exposure. This was possibly due to continuing injury to the food base, however, scientists disagree as to whether these differences in survival and growth existed before the spill. It is unknown whether these species are recovering.



**PACIFIC HERRING:** The oil spill caused sublethal injuries to Pacific herring. It is unknown whether this will result in a population decline. Measurable differences in egg counts between oiled and unoled areas were found in 1989 and 1990. Lethal and sublethal effects on eggs and larvae were evident in 1989 and, to a lesser extent, in 1990. In 1991 there were no differences between oiled and unoled areas. It is possible that the 1989 year class was injured which could result in reduced recruitment to the adult population. If so, an adult population decline will not become apparent until 1993. Overall recovery status is unknown.

**PINK SALMON:** The oil spill caused sublethal injuries to wild stock populations, and there is debate on whether the wild stock population has declined. Abnormal fry were observed in 1989 and egg mortality continued to be higher than expected in 1990 and 1991. The debate about population declines focuses on the whether the observed injuries necessarily result in reduced adult returns. Reduced growth of juveniles was found in 1989 and 1991, which correlates with reduced survival. In 1992, there was continued evidence of sublethal injuries. Overall recovery status is unknown.

**ROCKFISH:** The oil spill caused at least sublethal injuries, however, it is unknown whether or not population declines also occurred. Twenty dead fish were found in 1989, but only a few were in condition to be analyzed. Those showed exposure to oil with some sublethal injuries. Closures to salmon fisheries increased the fishing pressure on rockfish and the increasing catch may be impacting the population. It is unknown if the population has recovered from sublethal injuries, or the from any population decline.

*Thought P2  
Pg 7  
defined  
sublethal  
but this  
confused*

**SOCKEYE SALMON:** Kenai River and Red Lake sockeye salmon stocks both suffered population declines as well as sublethal injuries. Smolt survival continues to be poor in both systems due to overescapements that occurred at Red Lake in 1989 and in the Kenai system in 1987, 1988, and 1989. As a result, adult returns are expected to be low in 1994 and successive years. Overall recovery status is unknown.

## COASTAL HABITAT

**COASTAL HABITAT - INTERTIDAL ZONE:** The oil spill caused population declines and sublethal injuries to the populations of plants and animals that live in the area between low and high tide. The lower intertidal and, to some extent, the mid intertidal zones are recovering. However, in the upper intertidal zone, some species have not recovered, and oil persists in and under mussel beds. Intertidal organisms were impacted by both oiling and clean-up, particularly the high pressure hot water washing. Recovery varies by species largely based on their position within the intertidal zone.

**COASTAL HABITAT - SUBTIDAL ZONE:** The oil spill caused population declines and sublethal injuries to the populations of plants and animals found below low tide. Eel grass and some species of algae appear to be recovering. Amphipods in eel grass beds recovered to pre-spill densities in 1991. Leather stars and helmet crabs showed little sign of recovery through 1991. Overall recovery is variable by species.

## ARCHAEOLOGY

**ARCHAEOLOGY:** Twenty-four archaeological sites are known to have been adversely affected by oiling, clean-up activities, or looting and vandalism linked to the oil spill. An additional 113 sites are estimated to have been similarly affected. Injuries attributed to increased looting and vandalism which have been linked to the oil spill are still occurring. Archaeological sites and artifacts cannot recover, they are finite non-renewable resources.

**DESIGNATED WILDERNESS AREAS:** Hundreds of miles of wilderness coastlines were affected by oil. Some oil remains embedded in the sediments of these areas.

10  
9

## SERVICES

**RECREATION AND COMMERCIAL TOURISM:** The nature and extent of injury varied by user group and by areas of use. About one quarter of survey respondents reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects and, in some, a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have achieved pre-spill values.

**RECREATION: SPORT FISHING AND HUNTING:** Between 1989 and 1990, a decline in sport fishing effort (number of anglers, fishing trips and fishing days) was recorded for Prince William Sound, Cook Inlet and the Kenai Peninsula. In 1992, an emergency order restricting cutthroat trout fishing was issued for western Prince William Sound due to low adult returns. The closure is expected to continue at least through 1993. Sport hunting of harlequin ducks was reduced by restrictions imposed in 1991 and 1992 in response to damage assessment studies. It is likely that these restrictions will continue until the species shows signs of recovery.

**PASSIVE USE:** In 1991, over 90% of those surveyed nation-wide were aware of the oil spill. Over 50% believed that the oil spill was the largest environmental accident caused by humans anywhere in the world. There was also a perception that the values of wild areas has diminished. Although some people's feelings of lost values are diminishing as they sense some recovery is occurring, others' feelings have not changed as they do not believe recovery is occurring. Until oil is completely removed or degrades naturally, injury to wilderness values will continue.

**SUBSISTENCE:** Subsistence harvests of fish and wildlife in 9 of 15 villages surveyed declined from 4 to 78 percent in 1989 when compared to pre-spill averages. Seven of the 15 villages show continued decline in use in 1990 and 1991. This decline was particularly noticeable in the Prince William Sound villages of Chenega and Tatitlek. In 1989, chemical analysis indicated that most resources tested, including fish, marine mammals, deer, and ducks, were safe to eat, but that shellfish from oiled beaches should not be eaten. However, villagers believe that contamination to subsistence food sources continue to be dangerous to their health and some subsistence species continue to decline.

*species or use?*

**COMMERCIAL FISHING:** During 1989, emergency commercial fishery closures were ordered throughout the spill area. This affected salmon, herring, crab shrimp, rockfish and sablefish. The 1989 closures resulted in sockeye over-escapement in the Kenai River and in the Red Lake system (Kodiak Island). In 1990, a portion of Prince William Sound was closed to shrimp fishing. Spill-related sockeye over-escapement is anticipated to result in low adult returns in 1994 and 1995. These over-escapements may result in closure or harvest restrictions during these and, perhaps, subsequent years. Injuries and recovery status of rockfish, pink salmon, shellfish and herring are uncertain.

[Note to reviewers, this begins pages 4 and 5 of the brochure]

**What are the Alternatives?**

Five alternatives have been developed for your review. Each alternative presents a different way of approaching restoration. Each uses different policies and emphasizes different categories of restoration activities to restore injuries caused by the spill. This and the next page summarize the policy questions and categories of restoration activities. The following two pages present the five alternatives.

**Issues and Policy Questions**

The planning process raised five significant issues. Table \_\_\_ presents these issues as questions. Different answers to these questions will influence which restoration activities are conducted.

ISSUE	POLICY QUESTION
① Injuries Addressed	Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the spill?
② Status of Resource Recovery	Should restoration actions cease when a resource has recovered?
③ Effectiveness of Restoration Actions	Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?
④ Location	Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

Number issues

See notes

add sentence

*[Handwritten scribbles and signatures]*

*Wm*  
The settlement requires Exxon to deposit funds each year beginning December 1991 and ending September 2001. Of the \$900 million in the settlement, approximately \$610 million remains for restoration.

The restoration fund has so far received \$240 million from Exxon in two deposits. Of that amount, \$107.3 million was withdrawn to reimburse the federal and state governments for cleanup; \$19.5 million was withdrawn for the 1992 work plan; \$13.3 million for the 1993 work plan; \$20 million for interim habitat purchases including \$7.5 million for the purchase

of inholdings in Kachemak Bay State Park, and Exxon took a one-time \$39.9 millions deduction for allowable cleanup expenses after January 1, 1991. In addition, further reimbursements to the governments for cleanup and litigation expenses are allowed by the settlement. These are estimated to be \$90 million.

*Added into civil settlement?*

**ENDOWMENTS.** An endowment is not a restoration activity. It is a method of funding restoration. The Exxon Corporation has been depositing funds into the restoration fund since

1991 and will continue to do so until 2001. The Trustees could spend the entire settlement during that time or they could save some for future use. An endowment is a savings program to fund restoration after Exxon deposits end. It would use part of the settlement funds to create a savings account. The savings account could fund a low but constant level of restoration activities indefinitely. An endowment could be used to fund some or all restoration activities. Habitat acquisition, however, does not lend itself to an endowment. Purchase of land or other private property rights are usually made all at once.

The size of an endowment determines the amount of interest it earns and the number of restoration activities it can fund. If approximately 20% of the remaining settlement funds were placed into an endowment and the principal inflation-proofed, the endowment could fund at least \$3 million worth of restoration activities indefinitely, and possibly somewhat more depending on assumptions about future interest rates. This amount is enough to continue the Trustee Council's monitoring program at a minimum level, and provide some funds for other monitoring components. If twice that amount were placed into the endowment, the additional funds could be used for fund general restoration, basic research, or spill prevention.

~~Endowment~~ Whether or not funds are placed into an endowment is a decision about the timing of when restoration activities should occur. The alternatives compared above assume that the funds are spent within ten years. Twenty percent of the remaining restoration funds could be placed into a savings account. If so, fewer restoration activities could be accomplished with ten years, but the annual interest from the account could fund recovery monitoring and possibly a few other restoration activities indefinitely. It is also possible to place 40% of the funds into a savings account and use the annual interest to fund a larger amount of restoration activities indefinitely.

*add to endowment section*

*Alternatives*

29

*The five alternatives developed for your review each use different categories and policy questions*

~~Alternative 1, Natural Recovery~~, will allow the spill-affected area recover on its own, but monitor its recovery and continue normal agency management. Alternative 2, Habitat Protection, will protect injured resources and services by protecting their habitat so they can recover on their own without further disruption. Alternatives 3 through 5, Limited Restoration, Moderate Restoration, and Comprehensive Restoration, present a progression of restoration activities, with each successive alternative increasing the scope of activities.

7  
page 23

**DESCRIPTION OF ALTERNATIVES****ALTERNATIVE 1 - NATURAL RECOVERY**

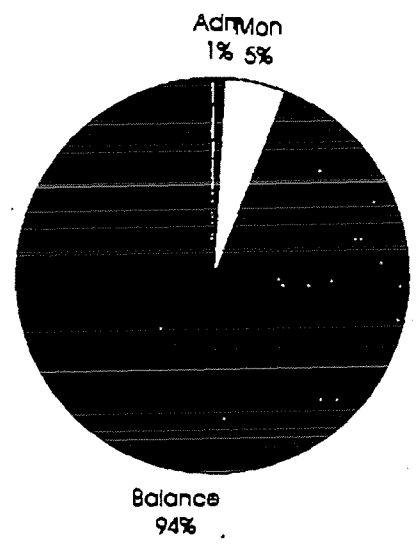
No action other than monitoring and normal agency management.	
ISSUES	POLICIES
Injuries Addressed	Monitor all injured resources and services
Status of Resource Recovery	Monitor resources not recovered.
Effectiveness of Restoration Actions	Not applicable
Location	Monitor within the spill area.
Strategies for Human Use	Not applicable.

What would happen to resources and services injured by the oil spill if no restoration actions were taken other than monitoring? Table \_\_\_\_\_ describes expected times for natural recovery of injured resources and services, if expected patterns of use continue. They range from a few years to 120 years and are unknown for five resources. Archaeological resources and wilderness are not expected to recover. Monitoring of natural recovery is the only restoration action in this alternative. This alternative is the no-action alternative in the draft Environmental Impact Statement that will be released in June.

18

24

### Alternative 1 - Allocation



Cost allocations are presented for illustration only .

Allocations are expressed as percent of remainder of civil settlement.

## ALTERNATIVE 2 - HABITAT PROTECTION

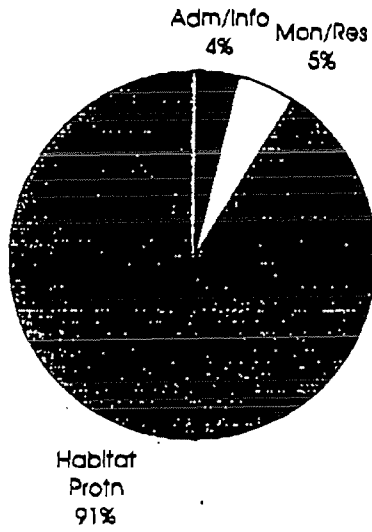
19  
25

Protect injured resources and services within the spill area from further degradation or disturbance.	
ISSUES	POLICIES
Injuries Addressed	All injured resources and services
Status of Resource Recovery	Resources not recovered and resources recovered
Effectiveness of Restoration Actions	Provide some improvement over unaided recovery
Location	Activities within the spill area
Strategies for Human Use	Protect or increase existing use through habitat protection

The goal of this alternative is to protect strategic lands and habitats important to the long-term recovery of resources and services injured by the Exxon Valdez oil spill. In this alternative, 91% of the remaining settlement funds would be dedicated to habitat protection. Monitoring and Habitat Protection are the only restoration actions included in this alternative. Habitat Protection includes the acquisition of private land interests or changes in public land management. Monitoring will evaluate the effectiveness of habitat protection measures undertaken and follow the progress of natural recovery. These activities would be limited to the spill area.

20  
26

### Alternative 2 - Allocation



Cost allocations are presented for illustration only .  
Allocations are expressed as percent of remainder of civil settlement.



-27  
27

### ALTERNATIVE 3 - LIMITED RESTORATION

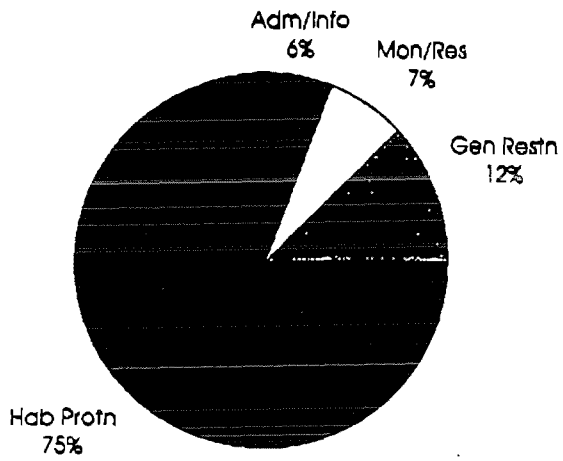
Take the most effective actions within the spill area to protect and restore injured services and resources whose population has declined. Maintain the existing character of the affected area.	
ISSUES	POLICIES
Injuries Addressed	Injured services and resources whose populations declined
Status of Resource Recovery	Resources not recovered
Effectiveness of Restoration Actions	Provide substantial improvement over unaided recovery
Location	Activities within the spill area.
Strategies for Human Use	Protect existing use

The goal of this alternative is to help the worst-injured resources and services recover as efficiently as possible. As its name implies, this alternative is limited in that it addresses only the most severe injuries until the resource or service recovers, includes actions most likely to produce significant improvement over unaided recovery, is limited to the spill area, and does not fund activities that would substantially increase human use of the spill area. Only a few restoration activities meet these standards.

This alternative sets aside 75% of the remaining settlement funds for habitat protection. Of the General Restoration options that have been evaluated, only 21 meet the criteria of this alternative (See page \_\_\_\_). Spill Prevention and Response is not included. Monitoring would evaluate the effectiveness of restoration actions and follow the progress of natural recovery.

22  
28

### Alternative 3 - Allocation



Cost allocations are presented for illustration only .  
Allocations are expressed as percent of remainder of civil settlement.

23

29

**ALTERNATIVE 4 - MODERATE RESTORATION**

Take the most effective actions within Alaska to protect and restore all injured resources and services. Increase, to a limited extent, opportunities for human use in the affected area.	
ISSUES	POLICIES
Injuries Addressed	All injured resources and services
Status of Resource Recovery	Resources not recovered
Effectiveness of Restoration Actions	Provide substantial improvement over unaided recovery
Location	Activities within Alaska
Strategies for Human Use	Protect or increase existing use

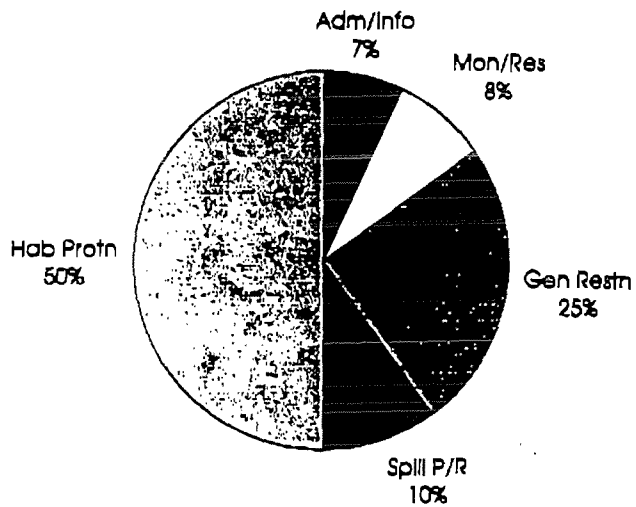
The goal of this alternative is to help all injured resources and services recover as efficiently as possible. It is similar to Alternative 3 in limiting restoration actions to resources not yet recovered and setting the same high standard of effectiveness. It differs from Alternative 3 in addressing additional species injured at a sublethal level, including activities within Alaska but outside the spill area, and increasing opportunities for human use of the area to a limited extent.

This alternative sets aside 50% of the remaining settlement funds for habitat protection. Of the General Restoration options that have been evaluated, 31 meet the criteria for this alternative. Spill Prevention and Response includes research and development to improve spill technology and equipment such as telecommunications and weather information systems. The Monitoring Program includes ecosystem monitoring and restoration research in addition to evaluating the effectiveness of restoration actions and following the progress of natural recovery.

24

30

### Alternative 4 - Allocation



Cost allocations are presented for illustration only .

Allocations are expressed as percent of remainder of civil settlement.

31  
25

## ALTERNATIVE 5 - COMPREHENSIVE RESTORATION

Take all effective actions within Alaska to protect, restore, and enhance all injured resources and services. Increase opportunities for human use in the affected area.	
ISSUES	POLICIES
Injuries Addressed	All injured resources and services
Status of Resource Recovery	Resources not recovered and resources recovered
Effectiveness of Restoration Actions	Provide <u>some</u> improvement over unaided recovery
Location	Activities within Alaska
Strategies for Human Use	Protect or increase existing use or encourage appropriate new use

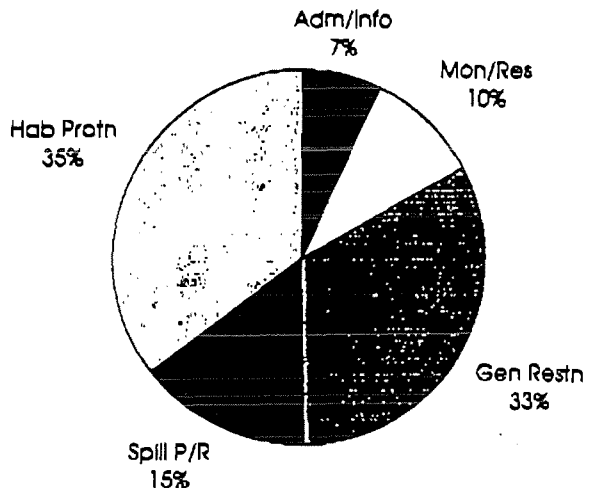
"Some" is this less than "substantial" ?

The goal of this alternative is to help all injured resources and services return to or exceed prespill levels. It is similar to Alternative 4 in addressing all injured resources and services and including activities within Alaska but outside the spill area. It is more expansive than Alternative 4 in including restoration actions for resources whether or not they have recovered, including any action likely to produce at least some improvement over unaided recovery, and encouraging appropriate new human uses.

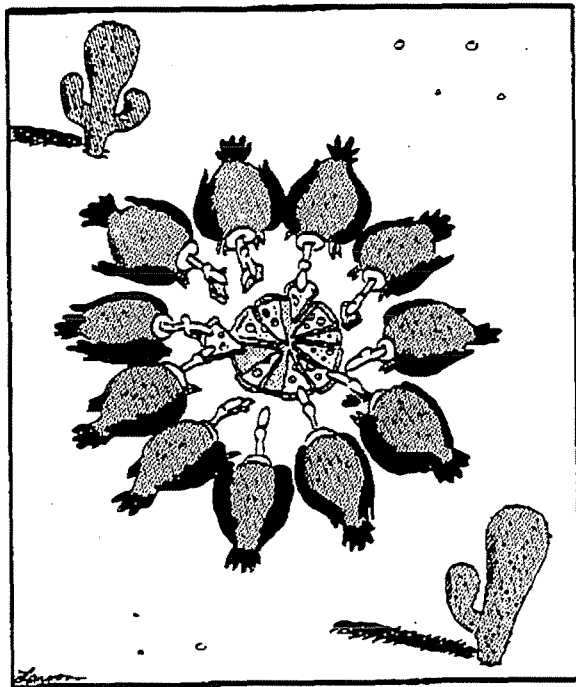
This alternative sets aside 35% of the remaining settlement funds for habitat protection. Of the General Restoration options that have been evaluated, 47 meet the standards of this alternative. Spill Prevention and Response would address chronic sources of pollution as well as research and development to improve spill technology and equipment such as telecommunications and weather information systems. The Monitoring Program includes ecosystem monitoring, restoration research, restoration monitoring, and natural recovery monitoring

AGL  
32

### Alternative 5 - Allocation



Cost allocations are presented for illustration only .  
Allocations are expressed as percent of remainder of civil settlement.



Perspectives in nature we rarely enjoy

## *Summary of Alternatives*

*Precede description  
of alternatives?  
so  
33*

**In general, how does each alternative benefit recovery?**

**Alternative 1** would produce no improvement over natural recovery. Natural recovery means that no restoration activities will be undertaken.

**Alternative 2** would improve natural recovery by preventing some habitat disturbances that might otherwise occur. Benefits accrue to resources and services linked to upland habitat.

**Alternative 3** has the greatest potential to improve recovery of the worst injured resources within the spill area. However, it makes no provision for future oil spills and for sublethal injuries unless there is a measurable population decline. It also funds activities that protect existing human use.

In addition, to the benefits in alternative 3, **alternative 4** addresses potential problems before they occur. It addresses sublethal effects before they produce population decline; prepares for future oil spills through ecosystem monitoring, research and spill prevention and response activities; and reaches outside the spill area if necessary to find better restoration opportunities. It also funds activities that increase human use. These assurances are provided at some expense to habitat protection.

In addition to the benefits in alternative 4, **alternative 5** would enhance recovery of some resources and services beyond prespill levels through actions such as fisheries enhancement or addressing chronic marine sources of oil pollution. Enhancement benefits some resources and services more than others. This alternative allocates the least amount of money to habitat protection.

[Note to Reviewers, Page 9 of the brochure begins here]

*(Title)  
Resolving the Issues*

34

# How should these issues be resolved?

## INTRODUCTION

The Trustees can use the settlement funds in a variety of ways. We would like to know your views about the appropriate policies, categories of restoration activities, and spending guidelines. Please fill out the questions on this page and let the Trustees know which approaches you believe will best restore the injuries of the oil spill. If you need more information, please come to one of the public meetings. Also, feel free to comment on other parts of the plan alternatives in the space provided. Attach additional sheets if you need more space. Thanks for your help!

*Your Views of the*

## QUESTIONS ABOUT ISSUES AND POLICIES

The alternatives presented policy questions. The answers to those questions will help guide some restoration activities. The policy questions are reprinted below. Please mark the appropriate box to let us know your views.

If you think that these policies should apply to some restoration activities but not others, please write your views down in the space provided beneath each question. For example, if you think that some general restoration activities are appropriate outside the spill area but that habitat protection should concentrate only on the spill area, you would write that information in the comment space under question four.

### ISSUES AND POLICY QUESTIONS

**Injuries Addressed:** Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the spill?

- Target restoration activities only to resources whose populations declined because of the spill.
- Target restoration activities to all injured resources
- No preference

Comments:

**Status of Resource Recovery:** Should restoration actions cease when a resource has recovered?

- Continue appropriate activities even after resources recover.
- Cease funding restoration once a resource recovers.
- No preference

Comments:

**Effectiveness of Restoration Actions:** Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce at least some improvement?



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- Fund all effective restoration actions
- Fund only highly effect restoration actions
- No preference

Comments:

**Location:** Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?

- Fund activities within the spill-area only.
- Allocate some funds for activities outside the spill-area but within Alaska. The activities must be linked to injured resources or services.
- No preference

Comments:

**Strategies for Human Use:** To what extent should restoration actions be used to increase opportunities for human use?

- Do not fund activities that increase human use.
- Fund only habitat protection.
- Only fund restoration activities that are designed not to increase use levels but only to protect existing human use. Examples are recreation facilities that protect the environment in over-used areas, or testing the safety of subsistence foods.
- Fund restoration activities that protect or increase existing uses. Examples are funding to increase existing sport- or commercial fishing runs, or funding to construct recreation facilities such as public-use cabins.
- In addition to activities that protect or increase existing human use, also fund appropriate new uses. Examples are new fishing runs, commercial facilities, or visitor centers.
- No preference

Comments:

*Your New 4*

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**QUESTIONS ABOUT CATEGORIES OF THE RESTORATION PROGRAM**

The questions below discuss the different categories of restoration activities. The questions ask about what groups of activities you believe the trustees should fund.

**Spill Prevention and Response.** The alternatives propose using up to 15% of the remaining settlement funds for spill prevention and response to prevent catastrophic and chronic oil pollution.

*Should the Trustee Council fund spill prevention and response activities?*

- No
- Yes. *Please indicate which spill prevention and response activities you believe are appropriate (you may mark more than one answer):*
  - Spill prevention and response technology.
  - Infrastructure
  - Prevention of chronic pollution
  - Other:

Comments:

**Monitoring and Research.** Some components of monitoring and research are included in all alternatives. We would like to know your views.

*Should the Trustee Council fund monitoring and research activities?*

- No
- Yes. *Please indicate which monitoring and research activities you believe are appropriate (you may mark more than one answer):*
  - Recovery monitoring
  - Restoration monitoring
  - Ecological monitoring
  - Restoration Research
  - Other:

Comments:

**Endowment.** Some alternatives assume that the settlement funds will be spent within ten years. Others propose placing 20% to 40% of the remaining settlement funds into a savings account to fund restoration, spill prevention, research, or monitoring after that time.

*Are you in favor of an endowment or savings account of some kind?*

- No, I believe the funds should be spent within 10 years.
- Yes. *Please indicate what the annual endowment earnings should be spent on (you may mark more than one answer):*
  - Research and Monitoring
  - General Restoration
  - Spill preparedness
  - Habitat Acquisition
  - Other:

Comments:

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*Your View*  
**QUESTIONS ABOUT SPENDING GUIDELINES**

The table below shows the spending guidelines in the five alternatives. If one of the alternatives reflects your view of how the funds should be allocated, please check that alternative. If not, please put write in your percentages in the space to the right. If needed, you may write in new suggestions for restoration you believe that an endowment is appropriate, please put in the appropriate percentage in the endowment line. (Make sure your percentages add up to 100%)

	Alternative #1 Natural Recovery	Alternative #2 Habitat Protection	Alternative #3 Limited Restoration	Alternative #4 Moderate Restoration	Alternative #5 Comprehensive Restoration	<b>YOUR ALTERNATIVE</b> If none of our alternatives reflect your views about allocating the funds, please write your percentages below.
Administration & Public Information	1%	4%	6%	7%	7%	Administration & Public Information
Monitoring & Research	5%	5%	7%	8%	10%	Monitoring & Research
General Restoration			12%	25%	33%	General Restoration
Spill Preparedness				10%	15%	Spill Preparedness
Endowment						Endowment
Habitat Protection		91%	75%	50%	35%	Habitat Protection
Balances	94%					Balances
<b>Total:</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100%</b>	<b>100% Total</b>

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### HABITAT PROTECTION: PRIVATE LANDS

Habitat Protection on private lands is a major element in all but the natural recovery alternative of the draft Restoration Plan. Habitat protection on private lands may include acquisition of full title or acquisition of partial rights such as conservation easements and timber rights. Partial rights may be less expensive than full title. Because land purchases are negotiated and are dependent both on price and on the will of the seller, final purchases will be dependent on landowner's preferences as well as those of the public and the trustees. (The habitat protection process was described in the Restoration Framework Supplement.)

In response to public support, the Trustee Council is proceeding in advance of the Restoration Plan by protecting several imminently threatened parcels. For example, the Trustee Council decided to go ahead with the purchase of inholdings in Kachemak Bay State Park.

We are requesting your views on several issues concerning Habitat Protection on private lands. Please answer the questions below.

1. When purchasing land we can purchase large areas that protect the overall landscape or integrity of the habitat, or purchase small but important parcels such as stream corridors and camping areas to stretch the funds. Would you prefer acquisitions to emphasize:

- a few large parcels of land
- many small parcels of land
- mix of large and small parcels
- no preference

2. Buying habitat may affect the economic condition or quality of life in your community. We'd like your views on this.

What positive impacts would you like habitat protection to have in your community?

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What negative impacts would you like habitat protection to avoid in your community?

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3. Acquired lands or interests will be managed to aid the recovery of injured resources and services. Should these lands or interests in these lands be retained forever?

- No
- Yes
- No Preference

4. All habitat protection will benefit resources and services injured by the spill. Should the decision to purchase lands also protect resources and services not injured by the spill?

- No
- Yes
- No Preference

5. Other comments?

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# COMMENTS

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Please use the space below to write comments. Any comment you write will be greatly appreciated. Thank you.

Stark

3/2/93  
10am

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# **Draft Exxon Valdez Oil Spill Restoration Plan Summary of Alternatives for Public Comment**

We need your help to determine how to restore the injuries from the *Exxon Valdez* Oil Spill. You can let us know your views by attending a public meeting in your community.

## **PUBLIC MEETINGS**

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**WHERE**

**WHEN**

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If you cannot attend the public meetings, please send us your comments by August \_\_, 1993 on the enclosed comment sheet. For additional copies of this brochure or for more information contact:

*Exxon Valdez* Oil Spill Restoration Office  
645 "G" Street  
Anchorage, Alaska 99501  
(907) 278-8012

Thank you, *Exxon Valdez* Oil Spill Trustee Council

**Charles E. Cole**  
Attorney General  
State of Alaska

**Carl L. Rosier**  
Commissioner  
Alaska Department of Fish and Game

**John A. Sandor**  
Commissioner  
Alaska Department of Environmental  
Conservation

**Michael A. Barton**  
Regional Forester  
Alaska Region - USDA Forest Service

**Paul Gates**  
Interim Trustee Council Representative  
U.S. Department of the Interior

**Steven Pennoyer**  
Director, Alaska Region  
National Marine Fisheries Service

## How Should the Trustees Spend to *Exxon Valdez* Civil Settlement?

### Your comments are Needed!

The purpose of this brochure is to give you the opportunity to express your opinion of the best use of the *Exxon Valdez* civil settlement funds. By going through this brochure and attending meetings you have a chance to tell us what you like and dislike about alternative ways to spend the money. You can also make recommendations about things we may have overlooked. If you cannot attend the meetings, please note your ideas on the enclosed response form and mail it back to us by August \_\_\_, 1993.

The U.S. National Environmental Policy Act requires that an Environmental Impact Statement be part of any significant federal action such as the program for restoring injuries caused by the oil spill. The Draft Environmental Impact Statement and the full text of the Draft Restoration Plan, however, will not be available until June. Because many people are unavailable during the summer, this summary is being released now to allow ~~the~~ public to give the Trustees their ideas. If you would like, you may wait to see the Draft Environmental Impact Statement and Draft Restoration Plan this June before you make your comments.

In addition to including information found here, the Draft Environmental Impact Statement will analyze the impacts of these alternatives on the physical, biological, social, and economic aspects of the environment. It will help the Trustees and the public understand the consequences of alternative methods of spending the civil settlement funds.

The information you provide will be used to prepare a final restoration plan that will be presented to the public this fall. The plan adopted by the Trustee Council may contain parts of several of the alternatives presented here plus new information provided by you.

as well as new information provided by you.  
options?

members of the



## What is the Restoration Plan?

The *Exxon Valdez* Restoration Plan will provide long-term guidance for the Trustee Council to use when allocating the civil settlement funds for restoring injuries caused by the oil spill. The Council will implement the plan through annual work plans. The annual work plan is a mix of restoration activities to be funded based on the policies and budget guidelines of the plan, future public comments and changing restoration needs. The plan may be changed by the Trustees in response to new information about the injuries and recovery, new technologies, or as social and economic conditions change.

The Trustee Council allocates funds from the civil settlement for activities to restore the oil spill injuries. The Trustee Council *does not* direct land uses on federal, state, or private lands and *does not* manage fish and wildlife resources. Land use and fish and game management decisions are made by the appropriate federal or state agencies. The Trustee Council may make recommendations to state and federal agencies, provide funds for state and federal management, or fund research to provide information to those agencies or other groups. The Trustee Council may also purchase private land or private property rights, but no purchases will be forced on an unwilling seller.

### BACKGROUND

Shortly after midnight on March 24, 1989 the T/V *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound spilling 11 million gallons of North Slope crude oil. This was the largest tanker oil spill in United States history. All through the Spring, the oil moved along the coastline of Alaska contaminating the shoreline of Prince William Sound, the Kenai Peninsula, lower Cook Inlet, the Kodiak Archipelago, and the Alaska Peninsula. Portions of 1,200 miles of coastline were oiled, including part of one National Forest, four National Wildlife Refuges, and three National Parks. Oil eventually reached shorelines nearly 600 miles from Bligh Reef.

On October 8, 1991, an agreement was approved by the U.S. District Court that settled the claims of the United States and the State of Alaska against Exxon Corporation and Exxon Shipping Company for various criminal violations and for recovery of civil damages resulting from the oil spill.

As part of the criminal plea agreement, the court fined Exxon and Exxon Shipping \$150 million -- the largest fine ever imposed for an environmental crime. Of this amount, \$125 million was forgiven due to their cooperation with the governments during the cleanup, timely payment of many private claims, and environmental precautions taken since the oil spill. The remaining \$25 million was paid into the North American Wetlands Conservation Fund, and into the Victims of Crime Act Account.

The Exxon companies also agreed to pay \$100 million as restitution. Fifty million dollars were paid to the United States and \$50 million to the State of Alaska. The state and federal governments separately manage the \$50 million payment that each has received. These funds are not under the authority of the Trustee Council and are not considered by this plan. However they must be used exclusively for restoration activities, within the State of Alaska,

relating to the *Exxon Valdez* oil spill.

## Civil Settlement and Restoration Fund

In the civil settlement, the Exxon companies agreed to pay the United State and the State of Alaska up to \$900 million over a period of 10 years. The use of the civil settlement funds are the subject of this plan.

*Who can spend the civil settlement money?* Decisions on spending the civil settlement funds are made by a council of six state and federal Trustees:

State of Alaska Trustees:

- Commissioner of the Department of Environmental Conservation;
- Commissioner of the Department of Fish and Game; and
- Alaska Attorney General.

Federal Trustees:

- Secretary of the U.S. Department of the Interior;
- Secretary of the U.S. Department of Agriculture; and
- Administrator of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

The Federal Trustees have appointed representatives to the Trustee Council from local federal agencies.

*What are the rules for spending the civil settlement money?*

- All decisions made by the Trustee Council (such as spending settlement funds) must be made by unanimous consent.
- The Trustees must use the settlement funds "...for the purposes of restoring, replacing, enhancing, or acquiring the equivalent of **natural resources** injured as a result of the Oil Spill and the reduced or lost **services** provided by such resources..." (except for the reimbursement of certain expenses to the governments).
- The settlement funds must be spent on restoration of natural resources in Alaska unless the Trustees unanimously agree that spending funds outside of the state is necessary for effective restoration.

The settlement defines **natural resources** as the land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to or managed by the state or federal governments. Examples of natural resources are birds, fish, mammals, subtidal plants and organisms, and archaeology.

In addition to restoring natural resources, the settlement requires restoration funds be used to restore reduced or lost **services** provided by injured natural resources. For example, subsistence, commercial fishing, and recreation including sport-fishing and sport-hunting, are services that were damaged by injuries to fish and wildlife. Other damaged services include commercial tourism, and the enjoyment that people receive from the undisturbed wild areas.

## Funding

The civil settlement requires Exxon to deposit funds each year beginning December 1991 and ending September 2001. Of the \$900 million in the settlement, approximately \$610 million remains for restoration.

The restoration fund has so far received \$240 million from Exxon in two deposits. Of that amount, \$107.3 million was withdrawn to reimburse the federal and state governments for cleanup; \$19.5 million was withdrawn for the 1992 work plan; \$13.3 million for the 1993 work plan; \$20 million for interim habitat purchases including \$7.5 million for the purchase of inholdings in Kachemak Bay State Park, and Exxon took a one-time \$39.9 millions deduction for allowable cleanup expenses after January 1, 1991. In addition, further reimbursements to the governments for cleanup and litigation expenses are allowed by the settlement. These are estimated to be \$90 million.

## What Was Injured By the Spill and Is It Recovering?

The *Exxon Valdez* oil spill injured resources and services throughout the spill area. The oil spill occurred just before the most biologically active season of the year in ~~Southcentral Alaska~~. During the four-month period after the oil spill, seaward migration of salmon fry, major migrations of birds, and the primary reproductive period for most species of bird, mammals, fish, and marine invertebrates took place. The organisms involved in these critical periods of their life cycle encountered the most concentrated, volatile and damaging forms of oil. The oil spill also directly impacted archaeological resources, subsistence, recreation, designated wilderness areas, and wilderness qualities, aesthetics, and other services. Oil affected each resource and service differently; these injuries are briefly described below.

The *Exxon Valdez* oil spill was only one factor that affected the health of several populations in the area. We do not know the cause of the long-term declines of marbled murrelets, pigeon guillemots or harbor seals.

*The* → IS NOT KNOWN.

For some biological resources, the oil spill caused a measurable decline in ~~their~~ population. For example, an estimated 8,000 to 12,000 marbled murrelets were killed during the oil spill. For other resources, the spill caused an injury to one life stage, but that injury did not measurably lower the overall population. An example of a sublethal effect is abnormal herring fry. This has not yet caused a measurable population decline.

→ This is known as a "sublethal effect."

### MAMMALS

**HARBOR SEALS:** The oil spill caused population declines and sublethal injuries to harbor seals. Many were directly oiled and an estimated 345 died. Oil residues found in seal bile were 5 to 6 times higher in oiled areas than unoiled areas in 1990. The population was declining prior to the oil spill which makes it difficult to know the continuing effects. There is no indication of recovery.

**KILLER WHALES:** The oil spill caused sublethal injuries to at least one of the killer whale pods

AS TO  
 in Prince William Sound. Debate continues ~~about~~ whether the oil spill caused a population decline. Thirteen whales out of 36 in the AB pod are missing and presumed dead. Circumstantial evidence links whale disappearance to the oil spill. Additionally, several adult males have collapsed dorsal fins. Social disruption of family units has been observed. In the AB pod, no new births were recorded in 1989 or 1990; one birth was recorded in 1991; and two births were recorded in 1992. These births show that the AB pod is beginning to recover.

RIVER OTTERS: The oil spill caused at least sublethal injuries to river otters. However, the population is difficult to census and it is unknown if there were population declines. Sublethal indicators of possible oil exposure remained in 1991. River otters feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment.

SEA OTTERS: The oil spill caused population declines and sublethal injuries to sea otters. It is estimated that 3,500 to 5,000 otters died. Surveys in 1989, 1990 and 1991 showed measurable differences in population ~~numbers~~ and survival between oiled and unoled areas. In 1992, lower juvenile survival rates and higher than normal numbers of dead ~~prime age~~ otters indicate that the populations in Prince William Sound continue to be stressed. Sea otters feed in the lower intertidal and subtidal areas and may still be exposed to oil persisting in the environment. Little or no evidence of recovery has been detected.

## BIRDS

BALD EAGLES: The oil spill caused sublethal injuries and possibly population declines in bald eagles. In 1989, 151 carcasses were recovered from beaches. Productivity in Prince William Sound was disrupted in 1989, but returned to normal in 1990. Exposure to oil and some sublethal injuries were found in 1989 and 1990, but no continuing effects were observed on populations. Bald eagles are recovering ~~and may have recovered, from effects due to the oil spill.~~

BLACK OYSTERCATCHERS: The oil spill caused population declines and sublethal injuries to black oystercatchers. In 1989, nine carcasses were recovered from beaches, but the actual number killed were many more. In 1989, smaller eggs were found in oiled areas. Black oystercatchers feed in the intertidal areas and may still be exposed to oil persisting in the environment. The population is recovering although evidence of sublethal injuries persisted in 1992.

COMMON MURRES: The oil spill caused population declines and sublethal injuries ~~at~~ <sup>to</sup> murre colonies within the oil spill area. In 1989, 10,428 carcasses were recovered from beaches representing between 175,000 to 300,000 murres killed. Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding was still inhibited in some colonies in the Gulf of Alaska in 1992. The degree of recovery varies between colonies, however some colonies show little evidence of recovery.

HARLEQUIN DUCKS: The oil spill caused population declines and sublethal injuries to harlequin ducks. In 1989, 213 carcasses were recovered from beaches which ~~probably~~ represents over 400 birds killed. Post-spill samples showed oil contamination and poor health in 1989 and 1990. In the three years since the oil spill, ~~it appears that~~ harlequin ducks still

STUNTED!  
flock of  
normal?  
all fish were  
smaller  
The water  
was smaller

are not successfully breeding in oiled areas. Harlequin ducks feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment. Although the population continues to show evidence of sublethal injuries and is not yet showing signs of recovering, it is possible that the decline has stabilized.

**MARbled MURRELETS:** The oil spill caused population declines, but it is unknown if there were sublethal injuries. In 1989, 612 carcasses were recovered from beaches. It is estimated that 8,000 to 12,000 birds died. Measurable population effects were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the oil spill. In 1989, oil contamination was found in livers of adult birds. Although the recovery status in 1992 was uncertain and no signs of an increasing population have been observed, it is possible that the decline has stabilized.

**PIGEON GUILLEMOTS:** The oil spill caused population declines to pigeon guillemots. In 1989, 614 carcasses were recovered from beaches representing from 1,500 to 3,000 birds killed. Pigeon guillemot populations were declining prior to the spill. In 1989, oil contamination was found in birds and, externally, on eggs. The recovery status in 1992 is uncertain with no evidence of an increase in the population.

**FISH**

**CUTTHROAT AND DOLLY VARDEN TROUT:** The oil spill caused sublethal injuries and possibly population declines for these two species. Differences in the survival and growth between anadromous adult populations in the oiled and unoled areas persisted from 1989 to 1991 despite less indications of oil exposure. This was possibly due to continuing injury to the food base, however, scientists disagree as to whether these differences in production existed before the spill. It is unknown whether these species are recovering.

**PACIFIC HERRING:** The oil spill caused sublethal injuries to Pacific herring. It is unknown whether this will result in a population decline. Measurable differences in egg counts between oiled and unoled areas were found in 1989 and 1990. Lethal and sublethal effects on eggs and larvae were evident in 1989 and, to a lesser extent, in 1990. In 1991 there were no differences between oiled and unoled areas. It is possible that the 1989 year class was injured which could result in reduced recruitment to the adult population. If so, an adult population decline will not become apparent until 1993. Overall recovery status is unknown.

**PINK SALMON:** The oil spill caused sublethal injuries to wild stock populations, and there is debate on whether the wild stock population has declined. Abnormal fry were observed in 1989 and egg mortality continued to be higher than expected in 1990 and 1991. The debate about population declines focuses on the whether the observed injuries necessarily result in reduced adult returns. Reduced growth of juveniles was found in 1989 and 1991, which correlates with reduced survival. In 1992, there was continued evidence of sublethal injuries. Overall recovery status is unknown.

**ROCKFISH:** The oil spill caused at least sublethal injuries, however, it is unknown whether or not population declines also occurred. Twenty dead fish were found in 1989, but only a few were in condition to be analyzed. These showed exposure to oil with some sublethal

the analyzed carcasses

IT SUGGEST YOU SAY  
"FALL" OF 1989  
"ALL OF A SUDDEN"  
TO MAKE IT CLEAR THE INJURY  
WAS CUMULATIVE, NOT

injuries. Closures <sup>of rockfish</sup> ~~in~~ salmon fisheries increased the fishing pressure on rockfish and the increasing catch may be impacting the population. It is unknown if the population has recovered from sublethal injuries, or the from any population decline.

**SOCKEYE SALMON:** Kenai River and Red Lake sockeye salmon stocks both suffered population declines as well as sublethal injuries. Smolt survival continues to be poor in both systems due to overescapements that occurred at Red Lake in 1989 and in the Kenai system in 1987, 1988, and 1989. As a result, adult returns are expected to be low in 1994 and successive years. Overall recovery status is unknown.

## COASTAL HABITAT

**COASTAL HABITAT - INTERTIDAL ZONE:** The oil spill caused population declines and sublethal injuries to the populations of plants and animals that live in the area between low and high tide. The lower intertidal and, to some extent, the mid intertidal zones are recovering. However, in the upper intertidal zone, some species have not recovered, and oil persists in and under mussel beds. Intertidal organisms were impacted by both oiling and clean-up, particularly the high pressure hot water washing. Recovery varies by species largely based on their position within the intertidal zone.

**COASTAL HABITAT - SUBTIDAL ZONE:** The oil spill caused population declines and sublethal injuries to the populations of plants and animals found below low tide. Eel grass and some species of algae appear to be recovering. Amphipods in eel grass beds recovered to pre-spill densities in 1991. Leather stars and helmet crabs showed little sign of recovery through 1991. Overall recovery is variable by species.

## ARCHAEOLOGY

**ARCHAEOLOGY:** Twenty-four archaeological sites are known to have been adversely affected by oiling, clean-up activities, or looting and vandalism linked to the oil spill. An additional 113 sites are estimated to have been similarly affected. Injuries attributed to increased looting and vandalism which have been linked to the oil spill are still occurring. Archaeological sites and artifacts cannot recover, they are finite, non-renewable resources.

**DESIGNATED WILDERNESS AREAS:** Hundreds of miles of wilderness coastlines were affected by oil. Some oil remains embedded in the sediments of these areas.

## SERVICES

**RECREATION AND COMMERCIAL TOURISM:** The nature and extent of injury varied by user group and by areas of use. About one quarter of survey respondents reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects and, in some, a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have achieved

pre-spill values.

RECREATION: SPORT FISHING AND HUNTING: Between 1989 and 1990, a decline in sport fishing effort (number of anglers, fishing trips and fishing days) was recorded for Prince William Sound, Cook Inlet and the Kenai Peninsula. In 1992, an emergency order restricting cutthroat trout fishing was issued for western Prince William Sound due to low adult returns. The closure is expected to continue at least through 1993. Sport hunting of harlequin ducks was reduced by restrictions imposed in 1991 and 1992 in response to damage assessment studies. It is likely that these restriction will continue until the species shows signs of recovery.

PASSIVE USE: In 1991, over 90% of those surveyed nation-wide were aware of the oil spill. Over 50% believed that the oil spill was the largest environmental accident caused by humans anywhere in the world. There was also a perception that the value of wild areas has diminished. Although some people's feelings of lost values are diminishing as they sense some recovery is occurring, others' feelings have not changed as they do not believe recovery is occurring. Until oil is completely removed or degrades naturally, injury to wilderness values will continue.

SUBSISTENCE: Subsistence harvests of fish and wildlife in 9 of 15 villages surveyed declined from 4 to 78 percent in 1989 when compared to pre-spill averages. Seven of the 15 villages show continued decline in use in 1990 and 1991. This decline was particularly noticeable in the Prince William Sound villages of Chenega and Tatitlek. In 1989, chemical analysis indicated that most resources tested, including fish, marine mammals, deer, and ducks, were safe to eat, but that shellfish from oiled beaches should not be eaten. However, villagers believe that contamination to subsistence food sources continued to be dangerous to their health, and some subsistence species continue to decline.

COMMERCIAL FISHING: During 1989, emergency commercial fishery closures were ordered throughout the spill area. This affected salmon, herring, crab shrimp, rockfish and sablefish. The 1989 closures resulted in sockeye over-escapement in the Kenai River and in the Red Lake system (Kodiak Island). In 1990, a portion of Prince William Sound was closed to shrimp fishing. Spill-related sockeye over-escapement is anticipated to result in low adult returns in 1994 and 1995. These over-escapements may result in closure or harvest restrictions during these and, perhaps, subsequent years. Injuries and recovery status of rockfish, pink salmon, shellfish and herring are uncertain.

Some respondents felt that wilderness values had been reduced in the oil spill area, they also felt that some recovery was occurring

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## What are the Alternatives?

Five alternatives have been developed for your review. Each alternative presents a different way of approaching restoration. Your comments on the alternatives will help us prepare a final plan.

The alternatives are: **Alternative 1** is to let the spill-affected area recover on its own, but monitor its recovery and continue normal agency management, **Alternative 2** is to protect injured resources and services by protecting their habitat so they can recover on their own without further disruption. **Alternatives 3 through 5** represent a progression of restoration activities, with each successive alternative increasing the scope of activities.

The planning process raised five significant issues. Table \_\_\_ presents these issues as questions. Different answers to these questions will influence how the settlement fund is allocated.



## ISSUES

ISSUE	POLICY QUESTION
<b>Injuries Addressed</b>	Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the spill?
<b>Status of Resource Recovery</b>	Should restoration actions cease when a resource has recovered?
<b>Effectiveness of Restoration Actions</b>	Should the plan include only those restoration actions that produce substantial improvement over unaided recovery or also those that produce just a slight improvement?
<b>Location</b>	Should restoration activities take place in the spill area only or anywhere in Alaska provided there is a link to injured resources or services?
<b>Strategies for Human Use</b>	To what extent should restoration actions be used to increase opportunities for human use?

**Injuries Addressed:** *Should restoration actions address ALL injured resources or only those which had a measurable population decline because of the oil spill?*

Resources and services injured by the oil spill are listed to the right. Injuries to biological resources produced either a decline in population or a sublethal effect. An example of population decline is the loss of 35-70% of the breeding adults of common murres in the Gulf of Alaska and resulting decline in future generations. An example of sublethal injuries include abnormalities in larvae. Sublethal injuries may not result in a lower population because they may not affect the productivity of the species or the species may be able to compensate for the injury. However, there also may be enough variability in the natural abundance of the species to mask effects of the injuries, or scientific measurement techniques may not be sensitive enough to measure a small effect on the population.

Alternative 3 reflects the view that if an injury was not severe enough to produce a detectable change in population, then settlement funds should not be spent to restore it. Rather, funds should be concentrated on the worst-injured resources. All other alternatives reflect the view that even sublethal injuries could become serious over time and, if something can be done to redress the injury, it should be done before more serious effects show themselves.

RESOURCES			SERVICES
Population Decline	Sublethal	Other	
Black oystercatcher Common murre Harbor seal Harlequin duck Intertidal organisms Marbled murrelet Pigeon guillemot Sea otter Sockeye salmon Subtidal organisms	Bald eagle * Cutthroat trout * Dolly Varden * Killer whale Pacific herring * Pink salmon River otter Rockfish	Archaeology Designated wilderness areas	Commercial fishing Passive use and wilderness Recreation and commercial tourism Recreation - sport fishing Recreation - sport hunting Subsistence

\* For these species, the Trustees' scientists have considerable disagreement over the conclusions to be drawn from the results of the damage assessment studies.

**Status of Resource Recovery:** *Should restoration actions cease when a resource has recovered?*

No resources have recovered from population decline. However, some sublethal injuries have recovered. As resources recover, this issue will become more important. Table \_\_\_\_ on page \_\_\_\_ shows current expectations about when many resources may recover. The table is based on the best available information from agency and peer reviewer scientists. These estimates will certainly change as recovery continues, monitoring uncovers more information, and scientists learn more about each species.

Alternatives 2 and 3 reflect the view that the goal of the settlement is to restore injured resources and services and that restoration activities should cease once the resource or

service has recovered. Alternatives 4 and 5 reflect the view that certain actions, especially protection and enhancement, should continue even after resources have recovered to offset other adverse effects and improve the condition of injured resources and services.

**Effectiveness of Restoration Actions:** *Should the plan include only those restoration actions that produce **substantial** improvement over unaided recovery or also include those that produce just a **slight** improvement?*

Many restoration actions were suggested by scientists, agencies, and the public. They were evaluated to determine how much of an improvement they would produce over unaided recovery.

Alternatives 3 and 4 reflect the view that unless a restoration action is likely to produce **substantial** improvement, it should not be funded. Alternatives 2 and 5 reflect the view that the Trustees should fund all restoration activities that offer at least **some** promise of helping injured resources and services; the cumulative effect of many such activities may result in a more meaningful and substantial improvement.

**Location:** *Should restoration activities take place in the oil spill area only or anywhere in Alaska provided there is a link to injured resources or services?*

The map of the oil spill area is on page \_\_\_\_\_. Alternatives 2 and 3 reflect the view that restoration activities should be limited to the spill area to focus them on the populations and services directly affected. Alternatives 4 and 5 include restoration activities within Alaska because some projects outside the spill area may be far more effective than those possible within the spill area. For example, increasing common murre populations in the Pribilof Islands, outside the spill area, may do more to increase the numbers of that species in Alaska than would comparable projects within the spill area.

**Strategies for Human Use:** *To what extent should restoration actions be used to increase opportunities for human use?*

Many of the restoration options for recreation or fishing would increase human use of the spill area. However, too much additional use could be detrimental to recovery of injured resources and services. Three different strategies for human use are reflected in alternatives 3, 4 and 5, only. Alternative 3 emphasizes restoration activities that would **protect existing uses** such as constructing outhouses in over-used areas, or improved trails where hiking is damaging wetlands, or providing information about the safety of subsistence foods. Alternative 4 emphasizes restoration activities that would **increase existing uses** such as increasing opportunities for fish harvest above prespill levels or constructing a new public-use cabin. Alternative 5 emphasizes restoration activities that would **encourage appropriate new uses** such as providing access to new fishing and recreation areas or attracting new commercial facilities on public land. Restoration activities would comply with existing land-use plans, and agency procedures such as those requiring public notice.

## What Are the Categories of the Restoration Plan?

The alternatives emphasize different categories of restoration activities. This section describes the activities that fall within each category. Not all components are included in every alternative.

### HABITAT PROTECTION AND ACQUISITION.

**Habitat protection and acquisition on private land.** Sometimes even careful resource development such as timber harvest or subdivisions can adversely affect resources or services injured by the spill. The Trustee Council may purchase private land or partial interests such as conservation easements, mineral, or timber rights as a method of restoration. The Council's recent action to allocate funds to purchase inholdings in Kachemak Bay State Park is an example of habitat protection and acquisition on private land.

Since there will not be enough money in any alternative to buy or protect all habitat important to recovery, it is necessary to prioritize available land through a ranking process. The criteria for this ranking are currently being developed. Some of the most important criteria are the degree of importance of the land to injured resources or services and the number of resources or services which rely on a given parcel. Land which is highly important to many species and services will generally receive top priority.

[HERE WE NEED ONE OR MORE PARAGRAPHS TO DESCRIBE WHAT HPWVG IS DOING; THAT WE CAN'T BUY EVERYTHING, AND POSSIBLY ABOUT THE CONSEQUENCES OF THE DIFFERENT BUDGET ALLOCATIONS. THIS LAST POINT MAY GO IN THE COMPARISON SECTION]

**Habitat protection on public land.** Federal and state agencies manage the public land and water. Protective changes in their management practices may benefit injured resources and services. Examples of these changes include amending agency management plans, changing regulations, and designating public land and water as special areas. Examples of special areas include scientific research reserves, recreation areas, parks, critical habitats, and marine sanctuaries. Any of these management changes would have to be approved and implemented by the appropriate state or federal agency, or in some cases by the Alaska State Legislature or the U.S. Congress. At this time the Trustees have no specific proposals for revising land-use management practices or creating special designations.

**GENERAL RESTORATION.** Since 1989, agencies and the public have proposed hundreds of ideas for restoration. Some ideas will restore injuries by directly manipulating resources. Examples are building fish passes or public-use cabins, testing subsistence foods for continuing oil contamination, or seeding the intertidal areas. Other ideas focus on managing human use to aid restoration. Examples are redirecting hunting and fishing harvest, or reducing human disturbance around sensitive bird colonies. General Restoration does not include habitat protection or oil spill preparedness activities.

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**SPILL PREVENTION AND RESPONSE.** Varying levels of spill prevention and response are also part of several alternatives. These activities would reduce stress on recovering resources and services by improving and protecting water quality. Components of prevention and response include:

**Research and development** ~~on developing~~ <sup>of</sup> technologies, such as in-situ burning and spill tracking systems, can assist in spill prevention and response.

**Equipment**, such as telecommunications and weather information systems, could be installed or updated in order to gather and transmit response and prevention information quickly.

Funding spill response depots and volunteer response corps would improve cleanup capabilities.

**Chronic marine pollution sources** can be reduced by building oily waste disposal sites in port communities to deter marine disposal of ~~city~~ <sup>these</sup> wastes by small boats, cruise ships and ferries.

**MONITORING AND RESEARCH PROGRAMS** ~~The monitoring and research program could~~ include one or more of the following, although the number of components will vary between alternatives.

**Recovery Monitoring** would assess the rate of recovery of injured resources and services, and determine when recovery has occurred.

**Restoration Monitoring** would evaluate the effectiveness of restoration activities, identify where additional restoration activities may be appropriate, and determine when delayed injury occurs.

**Ecosystem Monitoring** would follow long-term trends in the distribution and abundance of injured resources and the quality and quantity of services. Monitoring could also detect residual spill effects and provide ecological baseline information to assess the impacts of future oil spills and other disturbances.

**Restoration Research** would focus on the design, development and implementation of new technologies and approaches to restore resources not recovering or recovering at unacceptable rates.

**ENDOWMENTS** ~~An endowment is not a restoration activity.~~ <sup>CONTRIBUTIONS</sup> It is a method of funding restoration. The Exxon Corporation has been depositing funds into the restoration fund since 1991 and will continue to do so until 2001. The Trustees could spend the entire settlement during that time or they could save some for future use. An endowment is a savings program to fund restoration after Exxon deposits end. It would use part of the settlement funds to create a savings account. The savings account could fund a low but constant level of restoration activities indefinitely. An endowment could be used to fund some or all restoration activities. Habitat acquisition, however, does not lend itself to an endowment. Purchase of land or other private property rights are usually made all at once. annual earnings.

The size of an endowment determines the amount of interest it earns and the number of restoration activities it can fund. If approximately 20% of the remaining settlement funds were placed into an endowment and the principal inflation-proofed, the endowment could fund \$3 million worth of restoration activities indefinitely. This amount is enough to continue the

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Trustee's monitoring program at a minimum level. If twice that amount were placed into the endowment, the additional \$3 million could be used to fund general restoration, basic research, or spill prevention.

**ADMINISTRATION AND PUBLIC INFORMATION.** ~~Funding is required to manage the restoration program.~~ Providing the public with information about recovery and restoration will also consume a portion of the settlement monies. As the number of restoration projects increase and the complexity of management duties grow, the percentage of funds in each alternative that is proposed for these ~~expenses~~ also rises.

*activities*

## DESCRIPTION OF ALTERNATIVES

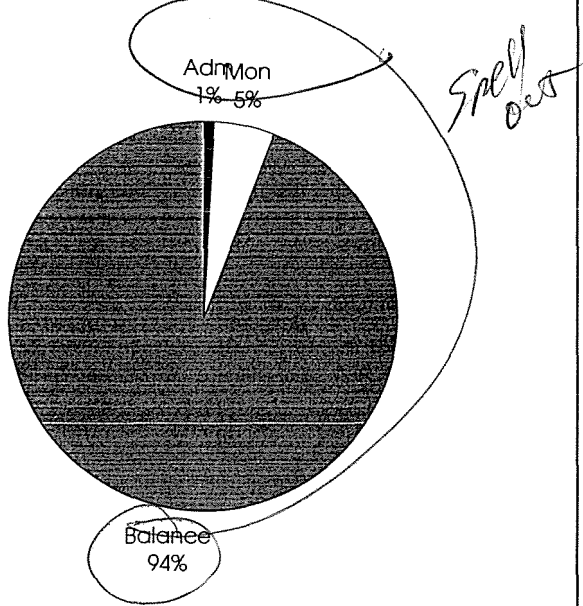
### ALTERNATIVE 1 - NATURAL RECOVERY

	No action other than monitoring and normal agency management.
<b>POLICY</b>	
<b>Injuries Addressed</b>	N/A
<b>Status of Resource Recovery</b>	N/A
<b>Effectiveness of Restoration Actions</b>	N/A
<b>Location</b>	N/A
<b>Strategies for Human Use</b>	N/A

What would happen to resources and services injured by the oil spill if no restoration actions were taken other than monitoring? Table \_\_\_ describes expected times for natural recovery of injured resources and services, if expected patterns of use continue. They range from a few years to 120 years and are unknown for five resources. Archaeological resources and wilderness are not expected to recover. This alternative is the no-action alternative in the draft Environmental Impact Statement that will be released in June.

Monitoring of natural recovery is the only restoration action included in this alternative. Normal agency management would continue.

### Alternative 1 - Allocation



Cost allocations are presented for illustration only .  
Allocations are expressed as percent of remainder of civil settlement.



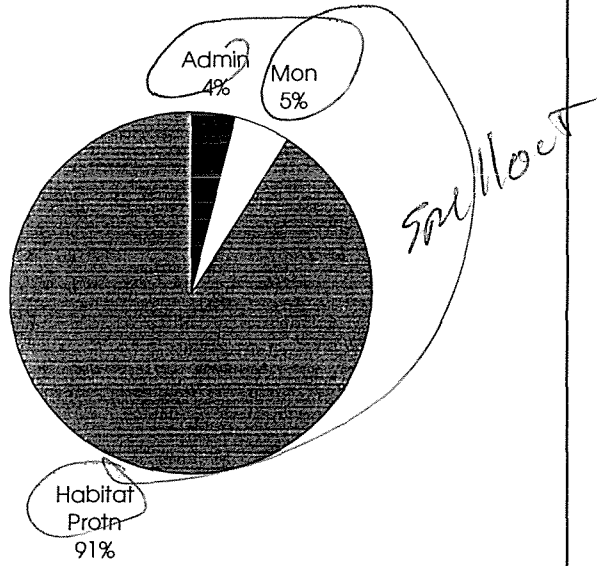
## ALTERNATIVE 2 - HABITAT PROTECTION

	Protect injured resources and services within the spill area from further degradation or disturbance.
<b>POLICY</b>	
<b>Injuries Addressed</b>	All injured resources and services
<b>Status of Resource Recovery</b>	Resources not recovered and resources recovered
<b>Effectiveness of Restoration Actions</b>	Provide some improvement over unaided recovery
<b>Location</b>	Activities within the spill area
<b>Strategies for Human Use</b>	Protect or increase existing use through habitat protection

*CRITICAL?*

The goal of this alternative is to protect strategic lands and habitats important to the long-term recovery of resources and services injured by the oil spill. Monitoring and Habitat Protection are the only restoration actions included in this alternative. Habitat Protection includes the acquisition of private land interests or changes in public land management. These activities would be limited to the spill area.

### Alternative 2 - Allocation



Cost allocations are presented for illustration only .

Allocations are expressed as percent of remainder of civil settlement.

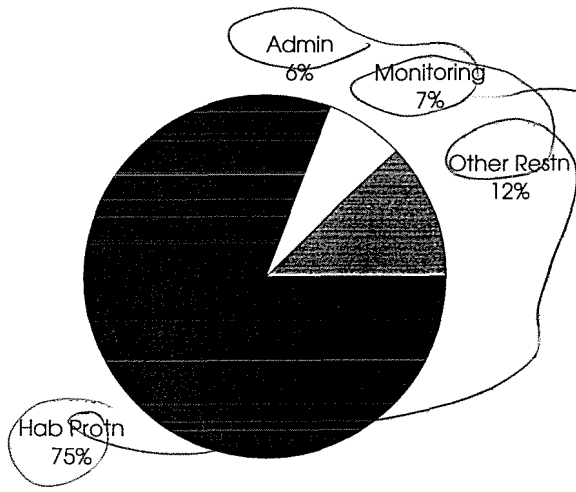
### ALTERNATIVE 3 - LIMITED RESTORATION

	Take the most effective actions within the spill area to protect and restore injured services and resources whose population has declined. Maintain the existing character of the affected area.
<b>POLICY</b>	
<b>Injuries Addressed</b>	Injured services and resources whose populations declined
<b>Status of Resource Recovery</b>	Resources not recovered
<b>Effectiveness of Restoration Actions</b>	Provide substantial improvement over unaided recovery
<b>Location</b>	Activities within the spill area
<b>Strategies for Human Use</b>	Protect existing use

The goal of this alternative is to help the worst-injured resources and services recover as efficiently as possible. As its ~~name~~<sup>title</sup> implies, this alternative is *limited* in that it addresses only the most severe injuries until the resource or service recovers, includes actions most likely to produce significant improvement over unaided recovery, is limited to the spill area, and does not fund activities that would substantially increase human use of the spill area. Only a few restoration options meet these standards.

In this alternative, a larger proportion of the fund would be allocated to Habitat Protection than in Alternatives 4 and 5. The monitoring program in this ~~alternative~~<sup>A</sup> would expand to include Restoration Monitoring. The result is likely to be a higher level of protection for the limited resources and services addressed in this alternative.

### Alternative 3 - Allocation



*Spell out*

Cost allocations are presented for illustration only .  
Allocations are expressed as percent of remainder of civil settlement.

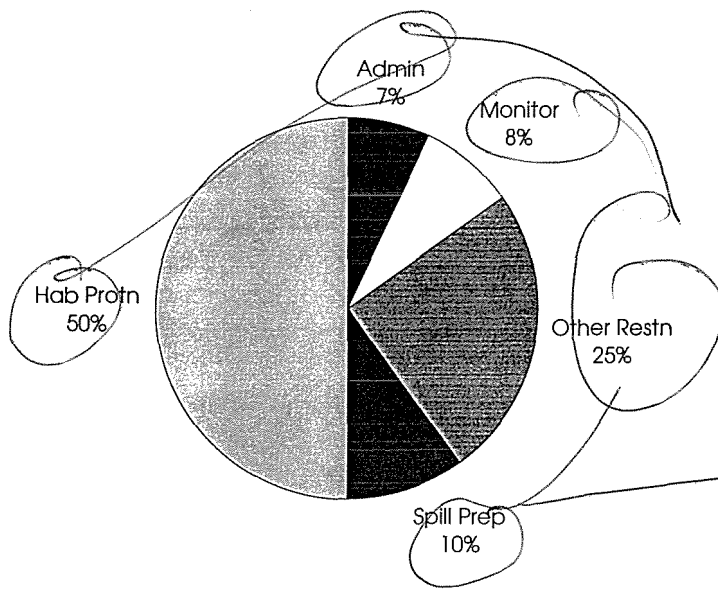
### ALTERNATIVE 4 - MODERATE RESTORATION

<b>THEME</b>	Take the most effective actions within Alaska to protect and restore all injured resources and services. Increase, to a limited extent, opportunities for human use in the affected area.
<b>VARIABLES</b>	
<b>Injuries Addressed</b>	All injured resources and services
<b>Status of Resource Recovery</b>	Resources not recovered
<b>Effectiveness of Restoration Actions</b>	Provide substantial improvement over unaided recovery
<b>Location</b>	Activities within Alaska
<b>Strategies for Human Use</b>	Protect or increase existing use

The goal of this alternative is to help all injured resources and services recover as efficiently as possible. It is similar to Alternative 3 in limiting restoration actions to resources not yet recovered and setting the same high standard of effectiveness. It differs from Alternative 3 in addressing eight more species of injured resources, including activities within Alaska but outside the spill area, and increasing opportunities for human use of the area to a limited extent.

Habitat Protection would be the same as in Alternative 3 except that its focus would be expanded to include two sublethally injured biological resources. Alternative 4 also includes a larger allocation to General Restoration, an allocation to Spill Preparedness to prepare for future large spills, and an endowment of 20% of the remaining settlement funds. The monitoring program in this alternative would expand to include Ecosystem Monitoring and Restoration Research. The endowment could generate \$3 million a year indefinitely for future monitoring and research.

### Alternative 4 - Allocation



*Spill out*

Cost allocations are presented for illustration only .  
Allocations are expressed as percent of remainder of civil settlement.

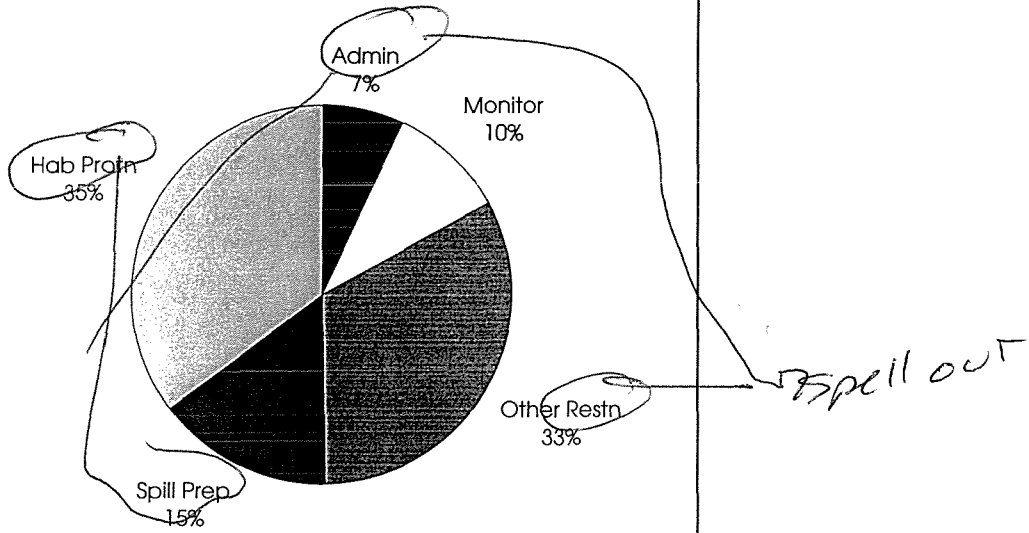
## ALTERNATIVE 5 - COMPREHENSIVE RESTORATION

<b>THEME</b>	Take all effective actions within Alaska to protect, restore, and enhance all injured resources and services. Increase opportunities for human use in the affected area.
<b>VARIABLES</b>	
<b>Injuries Addressed</b>	All injured resources and services
<b>Status of Resource Recovery</b>	Resources not recovered and resources recovered
<b>Effectiveness of Restoration Actions</b>	Provide at least some improvement over unaided recovery
<b>Location</b>	Activities within Alaska
<b>Strategies for Human Use</b>	Protect or increase existing use or encourage appropriate new use

The goal of this alternative is to ~~help~~ <sup>assist</sup> all injured resources and services return to or exceed levels that would have occurred in the absence of the oil spill. It is similar to Alternative 4 in addressing *all* injured resources and services and including activities within Alaska but outside the spill area. It is more expansive than Alternative 4 in including restoration actions for resources whether or not they have recovered, including any action likely to produce at least *some* improvement over unaided recovery, and encouraging appropriate new human uses.

In this alternative, Habitat Protection differs from Alternative 4 in expanding its focus to include additional resources. It also includes a larger allocation to General Restoration, and a larger allocation to Spill Preparedness to prepare for future large oil spills and address chronic sources of pollution. Monitoring is unchanged from <sup>A</sup> alternative 4. This alternative includes an endowment of 40% of the remaining settlement funds. The endowment could generate \$6 million a year indefinitely for monitoring, research, and restoration.

### Alternative 5 - Allocation



Cost allocations are presented for illustration only .  
Allocations are expressed as percent of remainder of civil settlement.





# Draft Exxon Valdez Oil Spill Restoration Plan Summary of Alternatives for Public Comment

**DRAFT**

We need your help to determine how to restore the injuries from the Exxon Valdez Oil Spill. You can let us know your views by attending a public meeting in your community.

## PUBLIC MEETINGS

WHERE	WHEN

If you cannot attend the public meetings, please send us your comments by August 6, 1993 on the enclosed comment sheet. For additional copies of this brochure or for more information contact:

Exxon Valdez Oil Spill Restoration Office  
645 "G" Street  
Anchorage, Alaska 99501  
(907) 278-8012

Thank you,  
Exxon Valdez Oil Spill Trustee Council

**Charles E. Cole**  
Attorney General  
State of Alaska

**Carl L. Rosier**  
Commissioner  
Alaska Department of Fish and Game

**John A. Sandor**  
Commissioner  
Alaska Department of Environmental Conservation

**Michael A. Barton**  
Regional Forester  
Alaska Region - USDA Forest Service

**Paul Gates**  
Interim Trustee Council Representative  
U.S. Department of the Interior

**Steven Pennoyer**  
Director, Alaska Region  
National Marine Fisheries Service

BOB:  
Comments, edits on  
latest edition of brochure.  
Ray

**DRAFT**

[Note to reviewers, Page 1 of the brochure begins here.]

## How Should the Trustees Spend the *Exxon Valdez* Civil Settlement?

### Your comments are Needed!

The purpose of this brochure is to give you the opportunity to express your opinion about the best use of the *Exxon Valdez* civil settlement funds. By going through this brochure and attending meetings you have a chance to tell us what you like and dislike about alternative ways to spend the money. You can also make recommendations about things we may have overlooked. If you cannot attend the meetings, please note your ideas on the enclosed response form and mail it back to us by August 6, 1993.

The U.S. National Environmental Policy Act requires that an Environmental Impact Statement be part of any significant federal action such as the program for restoring injuries caused by the oil spill. The Draft Environmental Impact Statement and the full text of the Draft Restoration Plan, however, will not be available until June. Because many people are unavailable during the summer, this summary is being released now to allow the public to give the Trustees their ideas. If you would like, you may wait to see the Draft Environmental Impact Statement and Draft Restoration Plan this June before you make your comments.

In addition to including information found here, the Draft Environmental Impact Statement will analyze the impacts of these alternatives on the physical, biological, social, and economic aspects of the environment. It will help the Trustees and the public understand the consequences of alternative methods of spending the civil settlement funds.

The information you provide will be used to prepare a final restoration plan that will be presented to the public this fall. The plan adopted by the Trustee Council may contain parts of several of the alternatives presented here plus new information provided by you.

DRAFT

## What is the Restoration Plan?

The *Exxon Valdez* Restoration Plan will provide long-term guidance for the Trustee Council to use when allocating the civil settlement funds for restoring injuries caused by the oil spill. The Council will implement the plan through annual work plans. The annual work plan is a mix of restoration activities to be funded based on the policies and budget guidelines of the plan, future public comments and changing restoration needs. The plan may be changed by the Trustees in response to new information about the injuries and recovery, new technologies, or as social and economic conditions change.

The Trustee Council allocates funds from the civil settlement for activities to restore the oil spill injuries. The Trustee Council *does not* direct land uses on federal, state, or private lands and *does not* manage fish and wildlife resources. Land use and fish and game management decisions are made by the appropriate federal or state agencies. The Trustee Council may make recommendations to state and federal agencies, provide funds for state and federal management, or fund research to provide information to those agencies or other groups. The Trustee Council may also purchase private land or private property rights, but no purchases will be forced on an unwilling seller.

### BACKGROUND

Shortly after midnight on March 24, 1989 the T/V *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound spilling 11 million gallons of North Slope crude oil. This was the largest tanker oil spill in United States history. All through the Spring, the oil moved along the coastline of Alaska contaminating the shoreline of Prince William Sound, the Kenai Peninsula, lower Cook Inlet, the Kodiak Archipelago, and the Alaska Peninsula. Portions of 1,200 miles of coastline were oiled, including part of one National Forest, four National Wildlife Refuges, and three National Parks.<sup>1</sup> Oil eventually reached shorelines nearly 600 miles from Bligh Reef.

On October 8, 1991, an agreement was approved by the U.S. District Court that settled the claims of the United States and the State of Alaska against Exxon Corporation and Exxon Shipping Company for various criminal violations and for recovery of civil damages resulting from the oil spill.

As part of the criminal plea agreement, the court fined Exxon and Exxon Shipping \$150 million -- the largest fine ever imposed for an environmental crime. Of this amount, \$125 million was forgiven due to their cooperation with the governments during the cleanup, timely payment of many private claims, and environmental precautions taken since the oil spill. The remaining \$25 million was paid into the North American Wetlands Conservation Fund, and into the Victims of Crime Act Account.

The Exxon companies also agreed to pay \$100 million as restitution. Fifty million dollars were paid to the United States and \$50 million to the State of Alaska. The state and federal governments separately manage the \$50 million payment that each has received. These funds are not under the authority of the Trustee Council and are not considered by this plan. However they must be used exclusively for restoration activities, within the State of Alaska, relating to the *Exxon Valdez* oil spill.

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<sup>1</sup>. Two turtle doves, and a partridge in a pear tree.



## Civil Settlement and Restoration Fund

In the civil settlement, the Exxon companies agreed to pay the United States and the State of Alaska up to \$900 million over a period of 10 years. The use of the civil settlement funds are the subject of this plan.

*Who can spend the civil settlement money?* Decisions on spending the civil settlement funds are made by a council of six state and federal Trustees:

State of Alaska Trustees:

- Commissioner of the Department of Environmental Conservation;
- Commissioner of the Department of Fish and Game; and
- Alaska Attorney General.

Federal Trustees:

- Secretary of the U.S. Department of the Interior;
- Secretary of the U.S. Department of Agriculture; and
- Administrator of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

The Federal Trustees have appointed representatives to the Trustee Council from local federal agencies.

*What are the rules for spending the civil settlement money?*

- All decisions made by the Trustee Council (such as spending settlement funds) must be made by unanimous consent.
- The Trustees must use the settlement funds "...for the purposes of restoring, replacing, enhancing, or acquiring the equivalent of **natural resources** injured as a result of the Oil Spill and the reduced or lost **services** provided by such resources..." (except for the reimbursement of certain expenses to the governments).
- The settlement funds must be spent on restoration of natural resources in Alaska unless the Trustees unanimously agree that spending funds outside of the state is necessary for effective restoration.

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The settlement defines **natural resources** as the land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to or managed by the state or federal governments. Examples of natural resources are birds, fish, mammals, subtidal plants and organisms, and archaeology.

In addition to restoring natural resources, the settlement requires restoration funds be used to restore reduced or lost **services** provided by injured natural resources. For example, subsistence, commercial fishing, and recreation including sport-fishing and sport-hunting, are services that were damaged by injuries to fish and wildlife. Other damaged services include commercial tourism, and the enjoyment that people receive from the undisturbed wild areas.

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*Addition  
doesn't work*

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[Note to reviewers, the brochure map (the spill-area map) will go on this page.

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Jim Issacs

# Draft Exxon Valdez Oil Spill Restoration Plan Summary of Alternatives for Public Comment

We need your help to determine how to restore the injuries from the Exxon Valdez Oil Spill. You can let us know your views by attending a public meeting in your community.

**DRAFT**

## PUBLIC MEETINGS

try to use more bullets

### WHERE

WHEN less text .....

summary chart from pg 12

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are there guidelines & parameters on how money can be spent; what findings must be made...?

very confusing topic to most people - need information on how this process came about & the rules of the game - also what everyone's been doing over the last 2 years

**DRAFT**

how have the alternatives been developed over time - was there earlier public input?



[Note to reviewers, Page 1 of the brochure begins here.]

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can they respond and attend the meetings?

meetings?

make this response form clear

?  
reason for release of EIS now

- This should be a summary of the process  
This will be the first thing most people will see -  
need background on process -  
- people question what has been done?

will comments be made.....

DRAFT

Restoration

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explain between also..

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the way on how study trustees were formed

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Exxon Valdez

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what is the civil settlement...

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Exxon Valdez

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explains between who...

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Exxon fine covered by government

for?

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what is the civil settlement...

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part of background

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*This explains what happened to the missing \$290 million*

*put this at end... this is restoration*

*more to Background*

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UNITED STATES DEPARTMENT OF COMMERCE  
National Oceanic and Atmospheric Administration

P. 1/29

*Mark B. Morgan Byron*

NATIONAL MARINE FISHERIES SERVICE  
OFFICE OF OIL SPILL DAMAGE ASSESSMENT AND RESTORATION

P.O. 210029  
11305 GLACIER HWY  
BUKE BAY, ALASKA 99821

TELEPHONE: (907) 789-6600  
FAX: (907) 789-6608

RAPIDFAX TRANSMISSION: 28 PAGES TO FOLLOW

DATE: 3/10/93

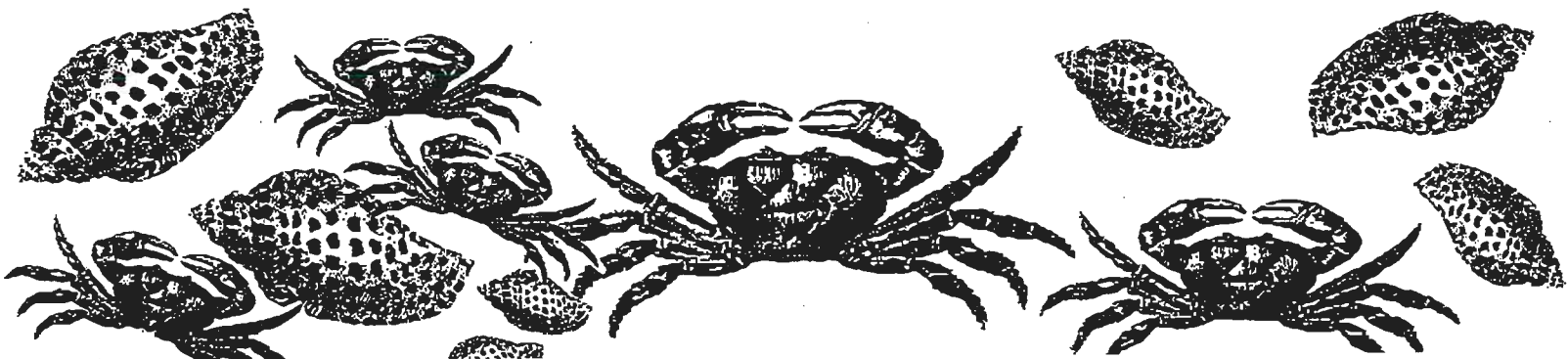
FROM: John Skand

TO: Bob Loeffler

FAX NUMBER: \_\_\_\_\_

SUBJECT: Byron's review of draft brochure

COMMENTS - Only those pages having comments are included.



[Note to reviewers, Page 1 of the brochure begins here.]

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**DRAFT**



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3/9/93 Judy  
- DOT comments

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**DRAFT**

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WHERE

WHEN

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1. Comment date some-debate

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We would appreciate early comments by (April 30), but no matter what May 10 perhaps May 10 other date

emphasize position  
note: not commitment just info on said

DRAFT

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Mark B 1

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**DRAFT**

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Ask MK about  
LMA

**DRAFT**

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## How Should the Trustees Spend the *Exxon Valdez* Civil Settlement?

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## What is the Restoration Plan?

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In the civil settlement, the Exxon companies agreed to pay the United States and the State of Alaska up to \$900 million over a period of 10 years. The use of the civil settlement funds are the subject of this plan.

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The settlement defines **natural resources** as the land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to or managed by the state or federal governments. Examples of natural resources are birds, fish, mammals, subtidal plants and organisms, and archaeology.

In addition to restoring natural resources, the settlement <sup>permits expenditure of</sup> requires restoration funds be used to restore reduced or lost **services** provided by injured natural resources. For example, subsistence, commercial fishing, and recreation including sport-fishing and sport-hunting, are services that were damaged by injuries to fish and wildlife. Other damaged services include commercial tourism, and the enjoyment that people receive from the undisturbed wild areas.

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The civil settlement requires Exxon to deposit funds each year beginning December 1991 and ending September 2001. Of the \$900 million in the settlement, approximately \$610 million remains for restoration.

The restoration fund has so far received \$240 million from Exxon in two deposits. Of that amount, \$107.3 million was withdrawn to reimburse the federal and state governments for cleanup; \$19.5 million was withdrawn for the 1992 work plan; \$13.3 million for the 1993 work plan; \$20 million for interim habitat purchases including \$7.5 million for the purchase

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[Note to reviewers, the brochure map (the spill-area map) will go on this page.]

Ken Reed

# Draft *Exxon Valdez* Oil Spill Restoration Plan Summary of Alternatives for Public Comment on 2

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Director, Alaska Region  
National Marine Fisheries Service

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[Note to reviewers, Page 1 of the brochure begins here.]

*What actions*  
**How Should the Trustees Spend the Exxon Valdez Civil Settlement?**

**Your comments are Needed!**

*when  
on how restore*

*actions to restore the Exxon Valdez area following the civil settlement*  
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? Criminal \$ can be used for actions other than restoration

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[Note to reviewers, the brochure map (the spill-area map) will go on this page.]

Bob  
Loeffler  
278-8012

Tue. 645 G St., 4th Floor 3:30

# Draft Exxon Valdez Oil Spill Restoration Plan Summary of Alternatives for Public Comment

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*Marty*

Under review  
- 1/2/93

[Note to reviewers, Page 1 of the brochure begins here.]

\$ 600 Million *Contract your attention*

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of inholdings in Kachemak Bay State Park, and Exxon took a one-time \$39.9 millions deduction for allowable cleanup expenses after January 1, 1991. In addition, further reimbursements to the governments for cleanup and litigation expenses are allowed by the settlement. These are estimated to be \$90 million.

[Note to reviewers, the brochure map (the spill-area map) will go on this page.]



Attachment 11  
**Restoration Planning Working Group**  
EXXON VALDEZ OIL SPILL RESTORATION OFFICE  
645 "G" Street  
Anchorage, Alaska 99501

HAM

TO: Restoration Team  
DATE: March 4, 1993

FROM: Restoration Planning Wk Group  
TELE: 278-8012  
FAX: 276-7178

SUBJECT: Draft Alternatives Information Package

Attached is the draft of the brochure (which is the Alternatives Information Package). We would like to discuss your comments in a meeting next week -- either before or after the Trustee Council meeting. We believe that there will be a substantive discussion of alternatives and perhaps other issues. In addition, there may be many editorial comments. Please divide your comments accordingly.

We believe that the text we have written will fit in the brochure leaving sufficient space for pictures, etc. When reviewing, please remember that we are severely limited by space, especially for the injury summary.

The brochure will be printed by the Anchorage Daily News on standard newspaper. It is ten pages long (i.e., four sheets front and back, plus a 1/2 sheet insert that people can send back with comments.). An example mock-up is available from RPWG. We recommend you look at it to get an understanding of how the layout affects the organization.

Change Oil Spill Prevention + Response  
to " " " + Preparedness

# Draft Exxon Valdez Oil Spill Restoration Plan Summary of Alternatives for Public Comment

**DRAFT**

We need your help to determine how to restore the injuries from the Exxon Valdez Oil Spill. You can let us know your views by attending a public meeting in your community.

## **PUBLIC MEETINGS**

---

**WHERE**

**WHEN**

---

If you cannot attend the public meetings, please send us your comments by August \_\_, 1993 on the enclosed comment sheet. For additional copies of this brochure or for more information contact:

Exxon Valdez Oil Spill Restoration Office  
645 "G" Street  
Anchorage, Alaska 99501  
(907) 278-8012

Fix

Thank you,  
Exxon Valdez Oil Spill Trustee Council

**Charles E. Cole**  
Attorney General  
State of Alaska

**Carl L. Rosier**  
Commissioner  
Alaska Department of Fish and Game

**John A. Sandor**  
Commissioner  
Alaska Department of Environmental Conservation

**Michael A. Barton**  
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Alaska Region - USDA Forest Service

**Paul Gates**  
Interim Trustee Council Representative  
U.S. Department of the Interior

**Steven Pennoyer**  
Director, Alaska Region  
National Marine Fisheries Service

**DRAFT**

[Note to reviewers, Page 1 of the brochure begins here.]

# How Should the Trustees Spend the Exxon Valdez Civil Settlement?

Monies of Funds

## Your comments are Needed!

The purpose of this brochure is to give you the opportunity to express your opinion about the best use of the Exxon Valdez civil settlement funds. By going through this brochure and attending meetings you have a chance to tell us what you like and dislike about alternative ways to spend the money. You can also make recommendations about things we may have overlooked. If you cannot attend the meetings, please note your ideas on the enclosed response form and mail it back to us by August \_\_, 1993.

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The U.S. National Environmental Policy Act requires that an Environmental Impact Statement be part of any significant federal action such as the program for restoring injuries caused by the oil spill. The Draft Environmental Impact Statement and the full text of the Draft Restoration Plan, however, will not be available until June 1993. Because many people are unavailable during the summer, this summary is being released now to allow the public to give the Trustees their ideas. If you would like, you may wait to see the Draft Environmental Impact Statement and Draft Restoration Plan this June before you make your comments.

In addition to including information found here, the Draft Environmental Impact Statement will analyze the impacts of these alternatives on the physical, biological, social, and economic aspects of the environment. It will help the Trustees and the public understand the consequences of alternative methods of spending the civil settlement funds.

The information you provide will be used to prepare a final restoration plan that will be presented to the public this fall. The plan adopted by the Trustee Council may contain parts of several of the alternatives presented here plus new information provided by you.

Provide ~~date~~ month/yr.

Delete.

?

DRAFT

# What is the Restoration Plan?

incl results of the initial implementation actions can be assessed

The *Exxon Valdez* Restoration Plan will provide long-term guidance for the Trustee Council to use when allocating the civil settlement funds for restoring injuries caused by the oil spill. The Council will implement the plan through annual work plans. The annual work plan is a mix of restoration activities to be funded based on the policies and budget guidelines of the plan, future public comments and changing restoration needs. The plan may be changed by the Trustees in response to new information about the injuries and recovery, new technologies, or as social and economic conditions change. ?

explain

The Trustee Council allocates funds from the civil settlement for activities to restore the oil spill injuries. The Trustee Council *does not* direct land uses on federal, state, or private lands and *does not* manage fish and wildlife resources. Land use and fish and game management decisions are made by the appropriate federal or state agencies. The Trustee Council may make recommendations to state and federal agencies, provide funds for state and federal management, or fund research to provide information to those agencies or other groups. The Trustee Council may also purchase private land or private property rights, but no purchases will be forced on an unwilling seller. ← C. Cole

## BACKGROUND

Shortly after midnight on March 24, 1989 the T/V *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound spilling 11 million gallons of North Slope crude oil. This was the largest tanker oil spill in United States history. All through the Spring, the oil moved along the coastline of Alaska contaminating the shoreline of Prince William Sound, the Kenai Peninsula, lower Cook Inlet, the Kodiak Archipelago, and the Alaska Peninsula. Portions of 1,200 miles of coastline were oiled, including part of one National Forest, four National Wildlife Refuges, and three National Parks.<sup>1</sup> Oil eventually reached shorelines nearly 600 miles from Bligh Reef.

On October 8, 1991, an agreement was approved by the U.S. District Court that settled the claims of the United States and the State of Alaska against Exxon Corporation and Exxon Shipping Company for various criminal violations and for recovery of civil damages resulting from the oil spill.

As part of the criminal plea agreement, the court fined Exxon and Exxon Shipping \$150 million -- the largest fine ever imposed for an environmental crime. Of this amount, \$125 million was forgiven due to their cooperation with the governments during the cleanup, timely payment of many private claims, and environmental precautions taken since the oil spill. The remaining \$25 million was paid into the North American Wetlands Conservation Fund, and into the Victims of Crime Act Account.

The Exxon companies also agreed to pay \$100 million as restitution. Fifty million dollars were paid to the United States and \$50 million to the State of Alaska. The state and federal governments separately manage the \$50 million payment that each has received. These funds are not under the authority of the Trustee Council and are not considered by this plan. However they must be used exclusively for restoration activities, within the State of Alaska, relating to the *Exxon Valdez* oil spill.

<sup>1</sup>. Two turtle doves, and a partridge in a pear tree.



## What is the Restoration Plan?

The *Exxon Valdez* Restoration Plan will provide long-term guidance for the Trustee Council to use when allocating the civil settlement funds for restoring injuries caused by the oil spill. The Council will implement the plan through annual work plans. The annual work plan is a mix of restoration activities to be funded based on the policies and budget guidelines of the plan, future public comments and changing restoration needs. The plan may be changed by the Trustees in response to new information about the injuries and recovery, new technologies,

~~or as social and economic conditions change~~ and the results of the initial implementation actions can be assessed.

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These funds may only be used

on the basis of a \$1 credit for every \$20 spent by Exxon ~~attending~~ in responding to the spill.

Two turtle doves, and a partridge in a pear tree

## Civil Settlement and Restoration Fund

In the civil settlement, the Exxon companies agreed to pay the United States and the State of Alaska up to \$900 million over a period of 10 years. The use of the civil settlement funds are the subject of this plan.

*to unanimous votes/decisions*

*Who can spend the civil settlement money?* Decisions on spending the civil settlement funds are made by a council of six state and federal Trustees:

State of Alaska Trustees:

- Commissioner of the Department of Environmental Conservation;
- Commissioner of the Department of Fish and Game; and
- Alaska Attorney General.

Federal Trustees:

- Secretary of the U.S. Department of the Interior;
- Secretary of the U.S. Department of Agriculture; and
- Administrator of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

The Federal Trustees have appointed representatives to the Trustee Council from local federal agencies.

*What are the rules for spending the civil settlement money?*

- All decisions made by the Trustee Council (such as spending settlement funds) must be made by unanimous consent.
- The Trustees must use the settlement funds "...for the purposes of restoring, replacing, enhancing, or acquiring the equivalent of **natural resources** injured as a result of the Oil Spill and the reduced or lost **services** provided by such resources..." (except for the reimbursement of certain expenses to the governments).
- The settlement funds must be spent on restoration of natural resources in Alaska unless the Trustees unanimously agree that spending funds outside of the state is necessary for effective restoration.

The settlement defines **natural resources** as the land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to or managed by the state or federal governments. Examples of natural resources are birds, fish, mammals, subtidal plants and organisms, and archaeology.

In addition to restoring natural resources, the settlement requires restoration funds be used to restore reduced or lost **services** provided by injured natural resources. For example, subsistence, commercial fishing, and recreation including sport-fishing and sport-hunting, are services that were damaged by injuries to fish and wildlife. Other damaged services include commercial tourism, and the enjoyment that people receive from the undisturbed wild areas.

## Funding

The civil settlement requires Exxon to deposit funds each year beginning December 1991 and ending September 2001. Of the \$900 million in the settlement, approximately \$610 million remains for restoration.

The restoration fund has so far received \$240 million from Exxon in two deposits. Of that amount, \$107.3 million was withdrawn to reimburse the federal and state governments for cleanup; \$19.5 million was withdrawn for the 1992 work plan; \$13.3 million for the 1993 work plan; \$20 million for interim habitat purchases including \$7.5 million for the purchase

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sentence*

*need more*

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- Commissioner of the Department of Fish and Game; and
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- Secretary of the U.S. Department of the Interior;
- Secretary of the U.S. Department of Agriculture; and
- Administrator of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

The Federal Trustees have appointed representatives to the Trustee Council from ~~local federal agencies~~ <sup>local Exxon Valdez Oil Spill</sup> to work with the state Trustee <sup>in determining how to</sup> ~~restore the~~ <sup>restore the</sup> resources and services injured by the spill.

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### Funding

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noh accounts written

major errors - must be...

Dec. 31, 1990.

of inholdings in Kachemak Bay State Park, and Exxon took a one-time \$39.9 millions deduction for allowable cleanup expenses after ~~January 1, 1991~~. In addition, further reimbursements to the governments for cleanup and litigation expenses are allowed by the settlement. These are estimated to be \$90 million.



[Note to reviewers, the brochure map (the spill-area map) will go on this page.]

*Maria*

*COMMENT  
3/11/93*

# Draft Exxon Valdez Oil Spill Restoration Plan Summary of Alternatives for Public Comment

**DRAFT**

We need your help to determine how to restore the injuries from the Exxon Valdez Oil Spill. You can let us know your views by attending a public meeting in your community.

## PUBLIC MEETINGS

---

WHERE

WHEN

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If you cannot attend the public meetings, please send us your comments by August \_\_, 1993 on the enclosed comment sheet. For additional copies of this brochure or for more information contact:

Exxon Valdez Oil Spill Restoration Office  
645 "G" Street  
Anchorage, Alaska 99501  
(907) 278-8012

Thank you,  
Exxon Valdez Oil Spill Trustees Council

Charles E. Cole  
Attorney General  
State of Alaska

Carl L. Rosier  
Commissioner  
Alaska Department of Fish and Game

*Update Council*  
John A. Sandor  
Commissioner  
Alaska Department of Environmental Conservation

Michael A. Barton  
Regional Forester  
Alaska Region - USDA Forest Service

Paul Gates  
Interim Trustee Council Representative  
U.S. Department of the Interior

Steven Pennoyer  
Director, Alaska Region  
National Marine Fisheries Service

**DRAFT**

[Note to reviewers, Page-1 of the brochure begins here.]

~~How Should the Trustees Spend the Exxon Valdez Civil Settlement?~~

*What Restoration Action  
Needs to be conducted*

Your comments are Needed!

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In addition to including information found here, the Draft Environmental Impact Statement will analyze the impacts of these alternatives on the physical, biological, social, and economic aspects of the environment. It will help the Trustees and the public understand the consequences of alternative methods of spending the civil settlement funds.

The information you provide will be used to prepare <sup>the</sup> Final Restoration Plan that will be presented to the public this fall. The plan adopted by the Trustee Council may contain parts of several of the alternatives presented here plus now information provided by you.

*Clarify that comments will not be incorporated in the draft*

DRAFT

### What is the Restoration Plan?

The *Exxon Valdez* Restoration Plan will provide long-term guidance for the Trustee Council to use when allocating the civil settlement funds for restoring injuries caused by the oil spill. The Council will implement the plan through annual work plans. The annual work plan is a mix of restoration activities to be funded based on the policies and budget guidelines of the Plan, <sup>Restoral Pla</sup> future public comments and ~~changing~~ restoration needs. The plan may be changed by the Trustees in response to new information about the injuries and recovery, new technologies, or as social and economic conditions change. <sup>referring to Annual or Restoration</sup>

*injuries caused by the spill*

The Trustee Council allocates funds from the civil settlement for activities to restore ~~the oil spill injuries~~ <sup>both</sup> The Trustee Council *does not* direct land uses on federal, state, or private lands and *does not* manage fish and wildlife resources. Land use and fish and game management decisions are made by the appropriate federal or state agencies. The Trustee Council may make recommendations to state and federal agencies, provide funds for state and federal management, or fund research to provide information to those agencies or other groups. The Trustee Council may also purchase private land or private property rights, <sup>condition Q by C</sup> ~~but no purchases will be forced on an unwilling seller.~~

### BACKGROUND

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Who can spend the civil settlement money? *Authority to make* Decisions on spending the civil settlement funds *res-*

~~are made by a council of six state and federal~~ Trustees: *natural resources*

State of Alaska Trustees:

- Commissioner of the Department of Environmental Conservation;
- Commissioner of the Department of Fish and Game; and
- Alaska Attorney General,

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- Administrator of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

*A memorandum of understanding among the Trustees provides for the establish of*  
~~The Federal Trustees have appointed representatives to the Trustee Council from local federal agencies. located in Alaska whose membership is comprised of the~~  
*three state trustees and designees of the three Federal Trustees*

What are the rules for spending the civil settlement money?

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- The settlement funds must be spent on restoration of natural resources in Alaska unless the Trustees unanimously agree that spending funds outside of the state is necessary for effective restoration.

The settlement defines natural resources *in part* as the land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to or managed by the state or federal governments. Examples of natural resources are birds, fish, mammals, subtidal plants and organisms, and archaeological ~~resources~~ *resources*.

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of inholdings in Kachemak Bay State Park, and Exxon took a one-time ~~\$30.0 million~~ deduction for allowable cleanup expenses after January 1, 1991. In addition, further reimbursements to the governments for cleanup and litigation expenses are allowed by the settlement. These are estimated to be \$90 million.

**Restoration Planning Working Group**  
EXXON VALDEZ OIL SPILL RESTORATION OFFICE  
645 "G" Street  
Anchorage, Alaska 99501

Dave G

TO: Restoration Team

DATE: March 4, 1993

FROM: Restoration Planning Wk Group

TELE: 278-8012

FAX: 276-7178

SUBJECT: Draft Alternatives Information Package

Attached is the draft of the brochure (which is the Alternatives Information Package). We would like to discuss your comments in a meeting next week -- either before or after the Trustee Council meeting. We believe that there will be a substantive discussion of alternatives and perhaps other issues. In addition, there may be many editorial comments. Please divide your comments accordingly.

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- Questionnaire Approval by OMB? - OK

TRANSCRIPT  
P. 202-214  
(Brochure)

Comments by  
3/11/93

# Draft Exxon Valdez Oil Spill Restoration Plan Summary of Alternatives for Public Comment

We need your help to determine how to restore the injuries from the Exxon Valdez Oil Spill. You can let us know your views by attending a public meeting in your community.

DRAFT

OR sending  
in your  
comments

## PUBLIC MEETINGS

WHERE

WHEN

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Director, Alaska Region  
National Marine Fisheries Service

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[Note to reviewers, Page 1 of the brochure begins here.]

# ~~How Should the Trustees Spend the Exxon Valdez Civil Settlement?~~

*What Restoration Activities need to be conducted*

## Your comments are Needed!

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*restore the original status*

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*write comments*

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*for restoring injured resources and humans*

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DRAFT

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Shortly after midnight on March 24, 1989, the T/V *Exxon Valdez* ran aground on Bligh Reef in Prince William Sound spilling 11 million gallons of North Slope crude oil. This was the largest tanker oil spill in United States history. All through the Spring, the oil moved along the coastline of Alaska contaminating the shoreline of Prince William Sound, the Kenai Peninsula, lower Cook Inlet, the Kodiak Archipelago, and the Alaska Peninsula. Portions of 1,200 miles of coastline were oiled, including part of one National Forest, four National Wildlife Refuges, and three National Parks. Oil eventually reached shorelines nearly 600 miles from Bligh Reef.

On October 8, 1991, an agreement was approved by the U.S. District Court that settled the claims of the United States and the State of Alaska against Exxon Corporation and Exxon Shipping Company for various criminal violations and for recovery of civil damages resulting from the oil spill.

As part of the criminal plea agreement, the court fined Exxon and Exxon Shipping \$<sup>2</sup>750 million -- the largest fine ever imposed for an environmental crime. Of this amount, \$125 million was forgiven due to their cooperation with the governments during the cleanup, timely payment of many private claims, and environmental precautions taken since the oil spill. ~~The remaining~~ <sup>125</sup> \$25 million was paid into the North American Wetlands Conservation Fund, and into the Victims of Crime Act Account.

~~The Exxon companies also agreed to pay \$100 million as restitution.~~ Fifty million dollars were paid to the United States and \$50 million to the State of Alaska. The state and federal governments separately manage the \$50 million payment that each has received. These funds are not under the authority of the Trustee Council and are not considered by this plan. However they must be used exclusively for restoration activities, ~~within the State of Alaska,~~ relating to the *Exxon Valdez* oil spill.

NOT  
SMART

<sup>1</sup> Two turtle doves, and a partridge in a pear tree.

## Civil Settlement and Restoration Fund

In the civil settlement, the Exxon companies agreed to pay the United States and the State of Alaska up to \$900 million over a period of 10 years. The use of the civil settlement funds are the subject of this plan.

*Who can spend the civil settlement money?* Decisions on spending the civil settlement funds are made by a council of six state and federal Trustees:

State of Alaska Trustees:

- Commissioner of the Department of Environmental Conservation;
- Commissioner of the Department of Fish and Game; and
- Alaska Attorney General.

Federal Trustees:

- Secretary of the U.S. Department of the Interior;
- Secretary of the U.S. Department of Agriculture; and
- Administrator of the National Oceanic and Atmospheric Administration, U.S. Department of Commerce.

The Federal Trustees have appointed representatives to the Trustee Council from local federal agencies.

*What are the rules for spending the civil settlement money?*

- All decisions made by the Trustee Council (such as spending settlement funds) must be made by unanimous consent.
- The Trustees must use the settlement funds "...for the purposes of restoring, replacing, enhancing, or acquiring the equivalent of **natural resources** injured as a result of the Oil Spill and the reduced or lost **services** provided by such resources..." (except for the reimbursement of certain expenses to the governments). *10 is Settlement for post cost*
- The settlement funds must be spent on restoration of natural resources in Alaska unless the Trustees unanimously agree that spending funds outside of the state is necessary for effective restoration. *93*

The settlement defines **natural resources** as the land, fish, wildlife, biota, air, water, ground water, drinking water supplies, and other such resources belonging to or managed by the state or federal governments. Examples of natural resources are birds, fish, mammals, subtidal plants and organisms, and archaeology.

In addition to restoring natural resources, the settlement requires restoration funds be used to restore reduced or lost **services** provided by injured natural resources. For example, subsistence, commercial fishing, and recreation including sport-fishing and sport-hunting, are services that were damaged by injuries to fish and wildlife. Other damaged services include commercial tourism, and the enjoyment that people receive from ~~the~~ undisturbed wild areas.

## Funding

The civil settlement requires Exxon to deposit funds each year beginning December 1991 and ending September 2001. Of the \$900 million in the settlement, approximately \$610 million remains for restoration.

*Here* ↓ The restoration fund has so far received \$240 million from Exxon in two deposits. Of that amount, \$107.3 million was withdrawn to reimburse the federal and state governments for cleanup; \$19.5 million was withdrawn for the 1992 work plan; \$13.3 million for the 1993 work plan; \$20 million for interim habitat purchases including \$7.5 million for the purchase *including 20.8*

of inholdings in Kachemak Bay State Park, and Exxon took a one-time \$39.9 millions deduction for allowable cleanup expenses after January 1, 1991. In addition, further reimbursements to the governments for cleanup and litigation expenses are allowed by the settlement. These are estimated to be \$90 million. *by*

*from  
p. 4*

*(where did you get this?)*

[Note to reviewers, the brochure map (the spill-area map) will go on this page.]



[Note to reviewers, Page 3 of the Brochure begins here]

### What Was Injured By the Spill and Is It Recovering?

The Exxon Valdez oil spill injured resources and services throughout the spill area. The oil spill occurred just before the most biologically active season of the year in Southcentral Alaska. During the four-month period after the oil spill, seaward migration of salmon fry, major migrations of birds, and the primary reproductive period for most species of bird, mammals, fish, and marine invertebrates took place. The organisms involved in these critical periods of their life cycle encountered the most concentrated, volatile and damaging forms of oil. The oil spill also directly impacted archaeological resources, subsistence, recreation, designated wilderness areas, and wilderness qualities, aesthetics, and other services. Oil affected each resource and service differently; these injuries are briefly described below.

List Services

The Exxon Valdez oil spill was only one factor that affected the health of several populations in the area. We do not know the cause of the long-term declines of marbled murrelets, pigeon guillemots or harbor seals.

For some resources, the oil spill caused a measurable decline in their population. For example, an estimated 8,000 to 12,000 marbled murrelets were killed during the oil spill. For other resources, the spill caused an injury to one life stage, but that injury did not measurably lower the overall population. An example of a sublethal effect is abnormal herring fry. This has not yet caused a measurable population decline.

#### MAMMALS

**HARBOR SEALS:** The oil spill caused sublethal injuries to harbor seals. Many were directly oiled. Residues found in seal bile were 5 to 6 times higher than background levels. The population was declining prior to the oil spill and continuing effects. There is no indication of recovery.

**KILLER WHALES:** The oil spill caused a population decline in Prince William Sound. Thirteen whales were oiled and presumed dead. Circumstantial evidence links the spill to the decline. Additionally, several adult males have collapsed dorsally. In the AB pod, no new births were recorded in 1991; and two births were recorded in 1992. It is estimated that the AB pod is beginning to recover.

RT of Peer reviewer comments to the brochure.  
(Incorporated into 3-16 version)

total pop. est.

**RIVER OTTERS:** The oil spill caused at least sublethal injuries to river otters. However, the population is difficult to census and it is unknown if there were population declines. Sublethal indicators of possible oil exposure remained in 1991. River otters feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment.

**SEA OTTERS:** The oil spill caused population declines and sublethal injuries to sea otters. It is estimated that 3,500 to 5,000 otters died. Surveys in 1989, 1990 and 1991 showed measurable differences in population numbers and survival between oiled and unoiled areas. In 1992, lower juvenile survival rates and higher than normal numbers of dead prime age otters indicate that the populations in Prince William Sound continue to be stressed. Sea otters feed in the lower intertidal and subtidal areas and may still be exposed to oil persisting in the environment. Little or no evidence of recovery has been detected.

Reviewed by Bob Spies?



[Note to reviewers, Page 3 of the Brochure begins here]

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Useful to relate to total pop. est.

#### MAMMALS

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**KILLER WHALES:** The oil spill caused sublethal injuries to at least one of the killer whale pods in Prince William Sound. Debate continues about whether the oil spill caused a population decline. Thirteen whales out of 36 in the AB pod are missing and presumed dead. Circumstantial evidence links whale disappearance to the oil spill. Additionally, several adult males have collapsed dorsal fins. Social disruption of family units has been observed. In the AB pod, no new births were recorded in 1989 or 1990; one birth was recorded in 1991; and two births were recorded in 1992. These births show that the AB pod is beginning to recover.

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Reviewed by Bob Spies?



## BIRDS

**BALD EAGLES:** The oil spill caused sublethal injuries and possibly population declines in bald eagles. In 1989, 151 carcasses were recovered from beaches. Productivity in Prince William Sound was disrupted in 1989, but returned to normal in 1990. Exposure to oil and some sublethal injuries were found in 1989 and 1990, but no continuing effects were observed on populations. Bald eagles are recovering and may have recovered, from effects due to the oil spill.

**BLACK OYSTERCATCHERS:** The oil spill caused population declines and sublethal injuries to black oystercatchers. In 1989, nine carcasses were recovered from beaches, but the actual number killed were many more. In 1989, smaller eggs were found in oiled areas. Black oystercatchers feed in the intertidal areas and may still be exposed to oil persisting in the environment. The population is recovering although evidence of sublethal injuries persisted in 1992.

**COMMON MURRES:** The oil spill caused population declines and sublethal injuries at murre colonies within the oil spill area. In 1989, 10,428 carcasses were recovered from beaches representing between 175,000 to 300,000 murres killed. Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding was still inhibited in some colonies in the Gulf of Alaska in 1992. The degree of recovery varies between colonies, however some colonies show little evidence of recovery.

**HARLEQUIN DUCKS:** The oil spill caused population declines and sublethal injuries to harlequin ducks. In 1989, 213 carcasses were recovered from beaches which probably represents over 400 birds killed. Post-spill samples showed oil contamination and poor health in 1989 and 1990. In the three years since the oil spill, it appears that harlequin ducks still are not successfully breeding in oiled areas. Harlequin ducks feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment. Although the population continues to show evidence of sublethal injuries and is not yet showing signs of recovering, it is possible that the decline has stabilized.

**MARBLED MURRELETS:** The oil spill caused population declines, but it is unknown if there were sublethal injuries. In 1989, 612 carcasses were recovered from beaches. It is estimated that 8,000 to 12,000 birds died. Measurable population effects were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the oil spill. In 1989, oil contamination was found in livers of adult birds. Although the recovery status in 1992 was uncertain and no signs of an increasing population have been observed, it is possible that the decline has stabilized.

**PIGEON GUILLEMOTS:** The oil spill caused population declines to pigeon guillemots. In 1989, 614 carcasses were recovered from beaches representing from 1,500 to 3,000 birds killed. Pigeon guillemot populations were declining prior to the spill. In 1989, oil contamination was found in birds and, externally, on eggs. The recovery status in 1992 is uncertain with no evidence of an increase in the population.

## FISH

**CUTTHROAT AND DOLLY VARDEN TROUT:** The oil spill caused sublethal injuries and possibly population declines for these two species. Differences in the survival and growth between anadromous adult populations in the oiled and unoiled areas persisted from 1989 to 1991 despite less indications of oil exposure. This was possibly due to continuing injury to the food base, however, scientists disagree as to whether these differences in survival and growth existed before the spill. It is unknown whether these species are recovering.

**PACIFIC HERRING:** The oil spill caused sublethal injuries to Pacific herring. It is unknown whether this will result in a population decline. Measurable differences in egg counts between oiled and unoled areas were found in 1989 and 1990. Lethal and sublethal effects on eggs and larvae were evident in 1989 and, to a lesser extent, in 1990. In 1991 there were no differences between oiled and unoled areas. It is possible that the 1989 year class was injured which could result in reduced recruitment to the adult population. If so, an adult population decline will not become apparent until 1993. Overall recovery status is unknown.

**PINK SALMON:** The oil spill caused sublethal injuries to wild stock populations, and there is debate on whether the wild stock population has declined. Abnormal fry were observed in 1989 and egg mortality continued to be higher than expected in 1990 and 1991. The debate about population declines focuses on whether the observed injuries necessarily result in reduced adult returns. Reduced growth of juveniles was found in 1989 and 1991, which correlates with reduced survival. In 1992, there was continued evidence of sublethal injuries. Overall recovery status is unknown.

**ROCKFISH:** The oil spill caused at least sublethal injuries, however, it is unknown whether or not population declines also occurred. Twenty dead fish were found in 1989, but only a few were in condition to be analyzed. Those showed exposure to oil with some sublethal injuries. Closures to salmon fisheries increased the fishing pressure on rockfish and the increasing catch may be impacting the population. It is unknown if the population has recovered from sublethal injuries, or the from any population decline.

**SOCKEYE SALMON:** Kenai River and Red Lake sockeye salmon stocks both suffered population declines as well as sublethal injuries. Smolt survival continues to be poor in both systems due to overescapements that occurred at Red Lake in 1989 and in the Kenai system in 1987, 1988, and 1989. As a result, adult returns are expected to be low in 1994 and successive years. Overall recovery status is unknown.

## COASTAL HABITAT

**COASTAL HABITAT - INTERTIDAL ZONE:** The oil spill caused population declines and sublethal injuries to the populations of plants and animals that live in the area between low and high tide. The lower intertidal and, to some extent, the mid intertidal zones are recovering. However, in the upper intertidal zone, some species have not recovered, and oil persists in and under mussel beds. Intertidal organisms were impacted by both oiling and clean-up, particularly the high pressure hot water washing. Recovery varies by species largely based on their position within the intertidal zone.

**COASTAL HABITAT - SUBTIDAL ZONE:** The oil spill caused population declines and sublethal injuries to the populations of plants and animals found below low tide. Eel grass and some species of algae appear to be recovering. Amphipods in eel grass beds recovered to pre-spill densities in 1991. Leather stars and helmet crabs showed little sign of recovery through 1991. Overall recovery is variable by species.

## ARCHAEOLOGY

**ARCHAEOLOGY:** Twenty-four archaeological sites are known to have been adversely affected by oiling, clean-up activities, or looting and vandalism linked to the oil spill. An additional 113 sites are estimated to have been similarly affected. Injuries attributed to increased looting and vandalism which have been linked to the oil spill are still occurring. Archaeological sites and artifacts cannot recover, they are finite non-renewable resources.

**DESIGNATED WILDERNESS AREAS:** Hundreds of miles of wilderness coastlines were affected by oil. Some oil remains embedded in the sediments of these areas.

*misleading; more specificity*

## SERVICES

**RECREATION AND COMMERCIAL TOURISM:** The nature and extent of injury varied by user group and by areas of use. About one quarter of survey respondents reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects and, in some, a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have achieved pre-spill values.

**RECREATION: SPORT FISHING AND HUNTING:** Between 1989 and 1990, a decline in sport fishing effort (number of anglers, fishing trips and fishing days) was recorded for Prince William Sound, Cook Inlet and the Kenai Peninsula. In 1992, an emergency order restricting cutthroat trout fishing was issued for western Prince William Sound due to low adult returns. The closure is expected to continue at least through 1993. Sport hunting of harlequin ducks was reduced by restrictions imposed in 1991 and 1992 in response to damage assessment studies. It is likely that these restrictions will continue until the species shows signs of recovery.

**PASSIVE USE:** In 1991, over 90% of those surveyed nation-wide were aware of the oil spill. Over 50% believed that the oil spill was the largest environmental accident caused by humans anywhere in the world. There was also a perception that the values of wild areas has diminished. Although some people's feelings of lost values are diminishing as they sense some recovery is occurring, others' feelings have not changed as they do not believe recovery is occurring. Until oil is completely removed or degrades naturally, injury to wilderness values will continue.

**SUBSISTENCE:** Subsistence harvests of fish and wildlife in 9 of 15 villages surveyed declined from 4 to 78 percent in 1989 when compared to pre-spill averages. Seven of the 15 villages show continued decline in use in 1990 and 1991. This decline was particularly noticeable in the Prince William Sound villages of Chenega and Tatitlek. In 1989, chemical analysis indicated that most resources tested, including fish, marine mammals, deer, and ducks, were safe to eat, but that shellfish from oiled beaches should not be eaten. However, villagers believe that contamination to subsistence food sources continue to be dangerous to their health and some subsistence species continue to decline.

**COMMERCIAL FISHING:** During 1989, emergency commercial fishery closures were ordered throughout the spill area. This affected salmon, herring, crab shrimp, rockfish and sablefish. The 1989 closures resulted in sockeye over-escapement in the Kenai River and in the Red Lake system (Kodiak Island). In 1990, a portion of Prince William Sound was closed to shrimp fishing. Spill-related sockeye over-escapement is anticipated to result in low adult returns in 1994 and 1995. These over-escapements may result in closure or harvest restrictions during these and, perhaps, subsequent years. Injuries and recovery status of rockfish, pink salmon, shellfish and herring are uncertain.

Spill

When?

out of context

Subsistence

Maria

[Note to reviewers, Page 3 of the Brochure begins here]

- I suggest  
Spies OK  
this sect.

## What Was Injured By the Spill and Is It Recovering?

The *Exxon Valdez* oil spill injured resources and services throughout the spill area. The oil spill occurred just before the most biologically active season of the year in Southcentral Alaska. During the four-month period after the oil spill, seaward migration of salmon fry, major migrations of birds, and the primary reproductive period for most species of bird, mammals, fish, and marine invertebrates took place. The organisms involved in these critical periods of their life cycle encountered the most concentrated, volatile and damaging forms of oil. The oil spill also directly impacted archaeological resources, subsistence, recreation, designated wilderness areas, and wilderness qualities, aesthetics, and other services. Oil affected each resource and service differently; these injuries are briefly described below.

The *Exxon Valdez* oil spill was only one factor that affected the health of several populations in the area. We do not know the cause of the long-term declines of marbled murrelets, pigeon guillemots or harbor seals.

For some resources, the oil spill caused a measurable decline in their population. For example, an estimated 8,000 to 12,000 marbled murrelets were killed during the oil spill. For other resources, the spill caused an injury to one life stage, but that injury did not measurably lower the overall population. An example of a sublethal effect is abnormal herring fry. This has not yet caused a measurable population decline.

### MAMMALS

**HARBOR SEALS:** The oil spill caused population declines and sublethal injuries to harbor seals. Many were directly oiled and an estimated 345 died. Oil residues found in seal bile were 5 to 6 times higher in oiled areas than unoiled areas in 1990. The population was declining prior to the oil spill which makes it difficult to know the continuing effects. There is no indication of recovery.

**KILLER WHALES:** The oil spill caused sublethal injuries to at least one of the killer whale pods in Prince William Sound. Debate continues about whether the oil spill caused a population decline. Thirteen whales out of 36 in the AB pod are missing and presumed dead. Circumstantial evidence links whale disappearance to the oil spill. Additionally, several adult males have collapsed dorsal fins. Social disruption of family units has been observed. In the AB pod, no new births were recorded in 1989 or 1990; one birth was recorded in 1991; and two births were recorded in 1992. These births show that the AB pod is beginning to recover.

**RIVER OTTERS:** The oil spill caused at least sublethal injuries to river otters. However, the population is difficult to census and it is unknown if there were population declines. Sublethal indicators of possible oil exposure remained in 1991. River otters feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment.

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*Natty*

*Move chart from p.12*

[Note to reviewers, Page 3 of the Brochure begins here]

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*how long? sea lions?*

*if not listed, is it unknown or not affected (e.g. sea lions, deer, bear, whale, other birds)*

*? if this is OK - use it throughout this section*

## BIRDS

**BALD EAGLES:** The oil spill caused ~~sublethal~~ injuries and possibly population declines in bald eagles. In 1989, 151 carcasses were recovered from beaches. Productivity in Prince William Sound was disrupted in 1989, but returned to normal in 1990. Exposure to oil and some ~~sublethal~~ injuries were found in 1989 and 1990, but no continuing effects were observed on populations. Bald eagles are recovering and may have recovered, from effects due to the oil spill.

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**MARBLED MURRELETS:** The oil spill caused population declines, but it is unknown if there were ~~sublethal~~ injuries. In 1989, 612 carcasses were recovered from beaches. It is estimated that 8,000 to 12,000 birds died. Measurable population effects were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the oil spill. In 1989, oil contamination was found in livers of adult birds. ~~Although the recovery status in 1992 was~~ <sup>recovery</sup> uncertain and no signs of an increasing population have been observed, ~~it is possible~~ <sup>but</sup> that the decline <sup>may have</sup> has stabilized.

**PIGEON GUILLEMOTS:** The oil spill caused population declines to pigeon guillemots. In 1989, 614 carcasses were recovered from beaches representing from 1,500 to 3,000 birds killed. Pigeon guillemot populations were declining prior to the spill. In 1989, oil contamination was found in birds and, ~~externally~~, on eggs. The recovery status in 1992 is uncertain with no evidence of an increase in the population.

## FISH

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it says there was oil in the livers - is it that an injury?

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PINK SALMON: The oil spill caused ~~sublethal injuries~~<sup>ed</sup> to wild stock populations, and there is debate on whether the wild stock population has declined. Abnormal fry were observed in 1989 and egg mortality continued to be higher than expected in 1990 and 1991. The debate about population declines focuses on ~~the~~<sup>whether</sup> the observed injuries ~~necessarily result in reduced adult returns.~~<sup>will</sup> Reduced growth of juveniles was found in 1989 and 1991, which correlates with reduced survival. In 1992, there was continued evidence of ~~sublethal injuries~~. Overall recovery status is unknown.

ROCKFISH: The oil spill caused ~~at least sublethal~~ injuries, however, it is unknown whether or not population declines also occurred. Twenty dead fish were found in 1989, but only a few were in condition to be analyzed. Those showed exposure to oil with some ~~sublethal~~ injuries. Closures to salmon fisheries increased the fishing pressure on rockfish and the increasing catch may be impacting the population. It is unknown if the population has recovered from ~~sublethal~~ injuries, or the from any population decline.

SOCKEYE SALMON: Kenai River and Red Lake sockeye salmon stocks both suffered population declines ~~as well as sublethal injuries~~<sup>and</sup>. Smolt survival continues to be poor in both systems due to overescapements that occurred at Red Lake in 1989 and in the Kenai system in 1987, 1988, and 1989. As a result, adult returns are expected to be low in 1994 and successive years. Overall recovery status is unknown.

## COASTAL HABITAT

COASTAL HABITAT - INTERTIDAL ZONE: The oil spill caused population declines and ~~sublethal injuries to the populations of~~<sup>ed</sup> plants and animals that live in the area between low and high tide. The lower intertidal and, to some extent, the mid ~~intertidal~~ zones are recovering. However, in the upper intertidal zone, some species have not recovered, and oil persists in and under mussel beds. Intertidal organisms were impacted by ~~both~~ oiling and clean-up, particularly the high pressure hot water washing. Recovery varies by species largely based on their position within the intertidal zone.

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## ARCHAEOLOGY

ARCHAEOLOGY: Twenty-four archaeological sites are ~~known to have been adversely affected~~<sup>were harmed</sup> by oiling, clean-up activities, or looting and vandalism linked to the oil spill. ~~An additional 113~~<sup>more</sup> sites are estimated to have been similarly affected. ~~Injuries attributed to increased looting and vandalism which have been linked to the oil spill are still occurring.~~<sup>harm from</sup> Archaeological sites and artifacts cannot recover, they are finite, non-renewable resources.

DESIGNATED WILDERNESS AREAS: Hundreds of miles of wilderness coastlines were affected by oil. Some oil remains embedded in the sediments of these areas.

## SERVICES

**RECREATION AND COMMERCIAL TOURISM:** The nature and extent of injury varied by user group and by areas of use. About one quarter of survey respondents reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects and, in some, a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have achieved pre-spill values.

**RECREATION: SPORT FISHING AND HUNTING:** Between 1989 and 1990, a decline in sport fishing effort (number of anglers, fishing trips and fishing days) was recorded for Prince William Sound, Cook Inlet and the Kenai Peninsula. In 1992, an emergency order restricting cutthroat trout fishing was issued for western Prince William Sound due to low adult returns. The closure is expected to continue at least through 1993. Sport hunting of harlequin ducks was reduced by restrictions imposed in 1991 and 1992 in response to damage assessment studies. It is likely that these restrictions will continue until the species shows signs of recovery.

**PASSIVE USE:** In 1991, over 90% of those surveyed nation-wide were aware of the oil spill. Over 50% believed that the oil spill was the largest environmental accident caused by humans anywhere in the world. There was also a perception that the values of wild areas has diminished. Although some people's feelings of lost values are diminishing as they sense some recovery is occurring, others' feelings have not changed as they do not believe recovery is occurring. Until oil is completely removed or degrades naturally, injury to wilderness values will continue.

**SUBSISTENCE:** Subsistence harvests of fish and wildlife in 9 of 15 villages surveyed declined from 4 to 78 percent in 1989 when compared to pre-spill averages. Seven of the 15 villages show continued decline in use in 1990 and 1991. This decline was particularly noticeable in the Prince William Sound villages of Chenega and Tatitlek. In 1989, chemical analysis indicated that most resources tested, including fish, marine mammals, deer, and ducks, were safe to eat, but that shellfish from oiled beaches should not be eaten. However, villagers believe that contamination to subsistence food sources continue to be dangerous to their health and some subsistence species continue to decline.

**COMMERCIAL FISHING:** During 1989, emergency commercial fishery closures were ordered throughout the spill area. This affected salmon, herring, crab, shrimp, rockfish and sablefish. The 1989 closures resulted in sockeye over-escapement in the Kenai River and in the Red Lake system (Kodiak Island). In 1990, a portion of Prince William Sound was closed to shrimp fishing. Spill-related sockeye over-escapement is anticipated to result in low adult returns in 1994 and 1995. These over-escapements may result in closure or harvest restrictions during these and, perhaps, subsequent years. Injuries and recovery status of rockfish, pink salmon, shellfish and herring are uncertain.



Jack Kruse

[Note to reviewers, Page 3 of the Brochure begins here]

Chart  
P12 upfront?

## What Was Injured By the Spill and Is It Recovering?

The *Exxon Valdez* oil spill injured resources and services throughout the spill area. The oil spill occurred just before the most biologically active season of the year in Southcentral Alaska. During the four-month period after the oil spill, seaward migration of salmon fry, major migrations of birds, and the primary reproductive period for most species of bird, mammals, fish, and marine invertebrates took place. The organisms involved in these critical periods of their life cycle encountered the most concentrated, volatile and damaging forms of oil. The oil spill also directly impacted archaeological resources, subsistence, recreation, designated wilderness areas, and wilderness qualities, aesthetics, and other services. Oil affected each resource and service differently; these injuries are briefly described below.

The *Exxon Valdez* oil spill was only one factor that affected the health of several populations in the area. We do not know the cause of the long-term declines of marbled murrelets, pigeon guillemots or harbor seals.

For some resources, the oil spill caused a measurable decline in their population. For example, an estimated 8,000 to 12,000 marbled murrelets were killed during the oil spill. For other resources, the spill caused an injury to one life stage, but that injury did not measurably lower the overall population. An example of a sublethal effect is abnormal herring fry. This has not yet caused a measurable population decline.

### MAMMALS

**HARBOR SEALS:** The oil spill caused population declines and sublethal injuries to harbor seals. Many were directly oiled and an estimated 345 died. Oil residues found in seal bile were 5 to 6 times higher in oiled areas than unoiled areas in 1990. The population was declining prior to the oil spill which makes it difficult to know the continuing effects. There is no indication of recovery.

**KILLER WHALES:** The oil spill caused sublethal injuries to at least one of the killer whale pods in Prince William Sound. Debate continues about whether the oil spill caused a population decline. Thirteen whales out of 36 in the AB pod are missing and presumed dead. Circumstantial evidence links whale disappearance to the oil spill. Additionally, several adult males have collapsed dorsal fins. Social disruption of family units has been observed. In the AB pod, no new births were recorded in 1989 or 1990; one birth was recorded in 1991; and two births were recorded in 1992. These births show that the AB pod is beginning to recover.

**RIVER OTTERS:** The oil spill caused at least sublethal injuries to river otters. However, the population is difficult to census and it is unknown if there were population declines. Sublethal indicators of possible oil exposure remained in 1991. River otters feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment.

**SEA OTTERS:** The oil spill caused population declines and sublethal injuries to sea otters. It is estimated that 3,500 to 5,000 otters died. Surveys in 1989, 1990 and 1991 showed measurable differences in population numbers and survival between oiled and unoiled areas. In 1992, lower juvenile survival rates and higher than normal numbers of dead prime age otters indicate that the populations in Prince William Sound continue to be stressed. Sea otters feed in the lower intertidal and subtidal areas and may still be exposed to oil persisting in the environment. Little or no evidence of recovery has been detected.

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## BIRDS

**BALD EAGLES:** The oil spill caused sublethal injuries and possibly population declines in bald eagles. In 1989, 151 carcasses were recovered from beaches. Productivity in Prince William Sound was disrupted in 1989, but returned to normal in 1990. Exposure to oil and some sublethal injuries were found in 1989 and 1990, but no continuing effects were observed on populations. Bald eagles are recovering and may have recovered, from effects due to the oil spill.

**BLACK OYSTERCATCHERS:** The oil spill caused population declines and sublethal injuries to black oystercatchers. In 1989, nine carcasses were recovered from beaches, but the actual number killed were many more. In 1989, smaller eggs were found in oiled areas. Black oystercatchers feed in the intertidal areas and may still be exposed to oil persisting in the environment. The population is recovering although evidence of sublethal injuries persisted in 1992.

**COMMON MURRES:** The oil spill caused population declines and sublethal injuries at murre colonies within the oil spill area. In 1989, 10,428 carcasses were recovered from beaches representing between 175,000 to 300,000 murres killed. Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding was still inhibited in some colonies in the Gulf of Alaska in 1992. The degree of recovery varies between colonies, however some colonies show little evidence of recovery.

**HARLEQUIN DUCKS:** The oil spill caused population declines and sublethal injuries to harlequin ducks. In 1989, 213 carcasses were recovered from beaches which probably represents over 400 birds killed. Post-spill samples showed oil contamination and poor health in 1989 and 1990. In the three years since the oil spill, it appears that harlequin ducks still are not successfully breeding in oiled areas. Harlequin ducks feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment. Although the population continues to show evidence of sublethal injuries and is not yet showing signs of recovering, it is possible that the decline has stabilized.

**MARBLED MURRELETS:** The oil spill caused population declines, but it is unknown if there were sublethal injuries. In 1989, 612 carcasses were recovered from beaches. It is estimated that 8,000 to 12,000 birds died. Measurable population effects were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the oil spill. In 1989, oil contamination was found in livers of adult birds. Although the recovery status in 1992 was uncertain and no signs of an increasing population have been observed, it is possible that the decline has stabilized.

**PIGEON GUILLEMOTS:** The oil spill caused population declines to pigeon guillemots. In 1989, 614 carcasses were recovered from beaches representing from 1,500 to 3,000 birds killed. Pigeon guillemot populations were declining prior to the spill. In 1989, oil contamination was found in birds and, externally, on eggs. The recovery status in 1992 is uncertain with no evidence of an increase in the population.

## FISH

**CUTTHROAT AND DOLLY VARDEN TROUT:** The oil spill caused sublethal injuries and possibly population declines for these two species. Differences in the survival and growth between anadromous adult populations in the oiled and unoiled areas persisted from 1989 to 1991 despite less indications of oil exposure. This was possibly due to continuing injury to the food base, however, scientists disagree as to whether these differences in survival and growth existed before the spill. It is unknown whether these species are recovering.

**PACIFIC HERRING:** The oil spill caused sublethal injuries to Pacific herring. It is unknown whether this will result in a population decline. Measurable differences in egg counts between oiled and unoled areas were found in 1989 and 1990. Lethal and sublethal effects on eggs and larvae were evident in 1989 and, to a lesser extent, in 1990. In 1991 there were no differences between oiled and unoled areas. It is possible that the 1989 year class was injured which could result in reduced recruitment to the adult population. If so, an adult population decline will not become apparent until 1993. Overall recovery status is unknown.

**PINK SALMON:** The oil spill caused sublethal injuries to wild stock populations, and there is debate on whether the wild stock population has declined. Abnormal fry were observed in 1989 and egg mortality continued to be higher than expected in 1990 and 1991. The debate about population declines focuses on the whether the observed injuries necessarily result in reduced adult returns. Reduced growth of juveniles was found in 1989 and 1991, which correlates with reduced survival. In 1992, there was continued evidence of sublethal injuries. Overall recovery status is unknown.

**ROCKFISH:** The oil spill caused at least sublethal injuries, however, it is unknown whether or not population declines also occurred. Twenty dead fish were found in 1989, but only a few were in condition to be analyzed. Those showed exposure to oil with some sublethal injuries. Closures to salmon fisheries increased the fishing pressure on rockfish and the increasing catch may be impacting the population. It is unknown if the population has recovered from sublethal injuries, or the from any population decline.

**SOCKEYE SALMON:** Kenai River and Red Lake sockeye salmon stocks both suffered population declines as well as sublethal injuries. Smolt survival continues to be poor in both systems due to overescapements that occurred at Red Lake in 1989 and in the Kenai system in 1987, 1988, and 1989. As a result, adult returns are expected to be low in 1994 and successive years. Overall recovery status is unknown.

## **COASTAL HABITAT**

**COASTAL HABITAT - INTERTIDAL ZONE:** The oil spill caused population declines and sublethal injuries to the populations of plants and animals that live in the area between low and high tide. The lower intertidal and, to some extent, the mid intertidal zones are recovering. However, in the upper intertidal zone, some species have not recovered, and oil persists in and under mussel beds. Intertidal organisms were impacted by both oiling and clean-up, particularly the high pressure hot water washing. Recovery varies by species largely based on their position within the intertidal zone.

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## **ARCHAEOLOGY**

**ARCHAEOLOGY:** Twenty-four archaeological sites are known to have been adversely affected by oiling, clean-up activities, or looting and vandalism linked to the oil spill. An additional 113 sites are estimated to have been similarly affected. Injuries attributed to increased looting and vandalism which have been linked to the oil spill are still occurring. Archaeological sites and artifacts cannot recover, they are finite non-renewable resources.

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**RECREATION AND COMMERCIAL TOURISM:** The nature and extent of injury varied by user group and by areas of use. About one quarter of survey respondents reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects and, in some, a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have achieved pre-spill values.

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**SUBSISTENCE:** Subsistence harvests of fish and wildlife in 9 of 15 villages surveyed declined from 4 to 78 percent in 1989 when compared to pre-spill averages. Seven of the 15 villages show continued decline in use in 1990 and 1991. This decline was particularly noticeable in the Prince William Sound villages of Chenega and Tatitlek. In 1989, chemical analysis indicated that most resources tested, including fish, marine mammals, deer, and ducks, were safe to eat, but that shellfish from oiled beaches should not be eaten. However, villagers believe that contamination to subsistence food sources continue to be dangerous to their health and some subsistence species continue to decline.

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Mark B

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The *Exxon Valdez* oil spill was only one factor that affected the health of several populations in the area. We do not know the cause of the long-term declines of marbled murrelets, pigeon guillemots or harbor seals.

For some resources, the oil spill caused a measurable decline in their population. For example, an estimated 8,000 to 12,000 marbled murrelets were killed during the oil spill. For other resources, the spill caused an injury to one life stage, but that injury did not measurably lower the overall population. An example of a sublethal effect is abnormal herring fry. This has not yet caused a measurable population decline.

#### MAMMALS

**HARBOR SEALS:** The oil spill caused population declines and sublethal injuries to harbor seals. Many were directly oiled and an estimated 345 died. Oil residues found in seal bile were 5 to 6 times higher in oiled areas than unoiled areas in 1990. The population was declining prior to the oil spill which makes it difficult to know the continuing effects. There is no indication of recovery.

**KILLER WHALES:** The oil spill caused sublethal injuries to at least one of the killer whale pods in Prince William Sound. Debate continues about whether the oil spill caused a population decline. Thirteen whales out of 36 in the AB pod are missing and presumed dead. Circumstantial evidence links whale disappearance to the oil spill. Additionally, several adult males have collapsed dorsal fins. Social disruption of family units has been observed. In the AB pod, no new births were recorded in 1989 or 1990; one birth was recorded in 1991; and two births were recorded in 1992. These births show that the AB pod is beginning to recover.

**RIVER OTTERS:** The oil spill caused at least sublethal injuries to river otters. However, the population is difficult to census and it is unknown if there were population declines. Sublethal indicators of possible oil exposure remained in 1991. River otters feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment.

**SEA OTTERS:** The oil spill caused population declines and sublethal injuries to sea otters. It is estimated that 3,500 to 5,000 otters died. Surveys in 1989, 1990 and 1991 showed measurable differences in population numbers and survival between oiled and unoiled areas. In 1992, lower juvenile survival rates and higher than normal numbers of dead prime age otters indicate that the populations in Prince William Sound continue to be stressed. Sea otters feed in the lower intertidal and subtidal areas and may still be exposed to oil persisting in the environment. Little or no evidence of recovery has been detected.

## BIRDS

**BALD EAGLES:** The oil spill caused sublethal injuries and possibly population declines in bald eagles. In 1989, 151 carcasses were recovered from beaches. Productivity in Prince William Sound was disrupted in 1989, but returned to normal in 1990. Exposure to oil and some sublethal injuries were found in 1989 and 1990, but no continuing effects were observed on populations. Bald eagles are recovering and may have recovered, from effects due to the oil spill.

**BLACK OYSTERCATCHERS:** The oil spill caused population declines and sublethal injuries to black oystercatchers. In 1989, nine carcasses were recovered from beaches, but the actual number killed were many more. In 1989, smaller eggs were found in oiled areas. Black oystercatchers feed in the intertidal areas and may still be exposed to oil persisting in the environment. The population is recovering although evidence of sublethal injuries persisted in 1992.

**COMMON MURRES:** The oil spill caused population declines and sublethal injuries at murre colonies within the oil spill area. In 1989, 10,428 carcasses were recovered from beaches representing between 175,000 to 300,000 murres killed. Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding was still inhibited in some colonies in the Gulf of Alaska in 1992. The degree of recovery varies between colonies, however some colonies show little evidence of recovery.

**HARLEQUIN DUCKS:** The oil spill caused population declines and sublethal injuries to harlequin ducks. In 1989, 213 carcasses were recovered from beaches which probably represents over 400 birds killed. Post-spill samples showed oil contamination and poor health in 1989 and 1990. In the three years since the oil spill, it appears that harlequin ducks still are not successfully breeding in oiled areas. Harlequin ducks feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment. Although the population continues to show evidence of sublethal injuries and is not yet showing signs of recovering, it is possible that the decline has stabilized.

**MARBLED MURRELETS:** The oil spill caused population declines, but it is unknown if there were sublethal injuries. In 1989, 612 carcasses were recovered from beaches. It is estimated that 8,000 to 12,000 birds died. Measurable population effects were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the oil spill. In 1989, oil contamination was found in livers of adult birds. Although the recovery status in 1992 was uncertain and no signs of an increasing population have been observed, it is possible that the decline has stabilized.

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**CUTTHROAT AND DOLLY VARDEN TROUT:** The oil spill caused sublethal injuries and possibly population declines for these two species. Differences in the survival and growth between anadromous adult populations in the oiled and unoiled areas persisted from 1989 to 1991 despite less indications of oil exposure. This was possibly due to continuing injury to the food base, however, scientists disagree as to whether these differences in survival and growth existed before the spill. It is unknown whether these species are recovering.

**PACIFIC HERRING:** The oil spill caused sublethal injuries to Pacific herring. It is unknown whether this will result in a population decline. Measurable differences in egg counts between oiled and unoled areas were found in 1989 and 1990. Lethal and sublethal effects on eggs and larvae were evident in 1989 and, to a lesser extent, in 1990. In 1991 there were no differences between oiled and unoled areas. It is possible that the 1989 year class was injured which could result in reduced recruitment to the adult population. If so, an adult population decline will not become apparent until 1993. Overall recovery status is unknown.

**PINK SALMON:** The oil spill caused sublethal injuries to wild stock populations, and there is debate on whether the wild stock population has declined. Abnormal fry were observed in 1989 and egg mortality continued to be higher than expected in 1990 and 1991. The debate about population declines focuses on whether the observed injuries necessarily result in reduced adult returns. Reduced growth of juveniles was found in 1989 and 1991, which correlates with reduced survival. In 1992, there was continued evidence of sublethal injuries. Overall recovery status is unknown.

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**SOCKEYE SALMON:** Kenai River and Red Lake sockeye salmon stocks both suffered population declines as well as sublethal injuries. Smolt survival continues to be poor in both systems due to overescapements that occurred at Red Lake in 1989 and in the Kenai system in 1987, 1988, and 1989. As a result, adult returns are expected to be low in 1994 and successive years. Overall recovery status is unknown.

## **COASTAL HABITAT**

**COASTAL HABITAT - INTERTIDAL ZONE:** The oil spill caused population declines and sublethal injuries to the populations of plants and animals that live in the area between low and high tide. The lower intertidal and, to some extent, the mid intertidal zones are recovering. However, in the upper intertidal zone, some species have not recovered, and oil persists in and under mussel beds. Intertidal organisms were impacted by both oiling and clean-up, particularly the high pressure hot water washing. Recovery varies by species largely based on their position within the intertidal zone.

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**ARCHAEOLOGY:** Twenty-four archaeological sites are known to have been adversely affected by oiling, clean-up activities, or looting and vandalism linked to the oil spill. An additional 113 sites are estimated to have been similarly affected. Injuries attributed to increased looting and vandalism which have been linked to the oil spill are still occurring. Archaeological sites and artifacts cannot recover, they are finite non-renewable resources.

**DESIGNATED WILDERNESS AREAS:** Hundreds of miles of wilderness coastlines were affected by oil. Some oil remains embedded in the sediments of these areas.

## SERVICES

**RECREATION AND COMMERCIAL TOURISM:** The nature and extent of injury varied by user group and by areas of use. About one quarter of survey respondents reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects and, in some, a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have achieved pre-spill values.

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Byron

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## ARCHAEOLOGY

**ARCHAEOLOGY:** Twenty-four archaeological sites are known to have been adversely affected by oiling, clean-up activities, or looting and vandalism linked to the oil spill. An additional 113 sites are estimated to have been similarly affected. Injuries attributed to increased looting and vandalism which have been linked to the oil spill are still occurring. Archaeological sites and artifacts cannot recover, they are finite non-renewable resources.

**DESIGNATED WILDERNESS AREAS:** Hundreds of miles of wilderness coastlines were affected by oil. Some oil remains embedded in the sediments of these areas.

SERVICES

**RECREATION AND COMMERCIAL TOURISM:** The nature and extent of injury varied by user group and by areas of use. About one quarter of survey respondents reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects and, in some, a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have achieved pre-spill values.

*need statement*

**RECREATION: SPORT FISHING AND HUNTING:** Between 1989 and 1990, a decline in sport fishing effort (number of anglers, fishing trips and fishing days) was recorded for Prince William Sound, Cook Inlet and the Kenai Peninsula. In 1992, an emergency order restricting cutthroat trout fishing was issued for western Prince William Sound due to low adult returns. The closure is expected to continue at least through 1993. Sport hunting of harlequin ducks was reduced by restrictions imposed in 1991 and 1992 in response to damage assessment studies. It is likely that these restrictions will continue until the species shows signs of recovery.

**PASSIVE USE:** In 1991, over 90% of those surveyed nation-wide were aware of the oil spill. Over 50% believed that the oil spill was the largest environmental accident caused by humans anywhere in the world. There was also a perception that the values of wild areas has diminished. Although some people's feelings of lost values are diminishing as they sense some recovery is occurring, others' feelings have not changed as they do not believe recovery is occurring. Until oil is completely removed or degrades naturally, injury to wilderness values will continue.

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*halibut*

*low adult returns*

[Note to reviewers, Page 3 of the Brochure begins here]

### What Was Injured By the Spill and Is It Recovering?

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The *Exxon Valdez* oil spill was only one factor that affected the health of several populations in the area. We do not know the cause of the long-term declines of marbled murrelets, pigeon guillemots or harbor seals. *other species missing....*

For some resources, the oil spill caused a measurable decline in their population. For example, an estimated 8,000 to 12,000 marbled murrelets were killed during the oil spill. For other resources, the spill caused an injury to one life stage, but that injury did not measurably lower the overall population. An example of a sublethal effect is abnormal herring fry. This has not yet caused a measurable population decline.

#### MAMMALS

**HARBOR SEALS:** The oil spill caused population declines and sublethal injuries to harbor seals. Many were directly oiled and an estimated 345 died. Oil residues found in seal bile were 5 to 6 times higher in oiled areas than unoiled areas in 1990. The population was declining prior to the oil spill which makes it difficult to know the continuing effects. There is no indication of recovery.

**KILLER WHALES:** The oil spill caused sublethal injuries to at least one of the killer whale pods in Prince William Sound. Debate continues about whether the oil spill caused a population decline. Thirteen whales out of 36 in the AB pod are missing and presumed dead. Circumstantial evidence links whale disappearance to the oil spill. Additionally, several adult males have collapsed dorsal fins. Social disruption of family units has been observed. In the AB pod, no new births were recorded in 1989 or 1990; one birth was recorded in 1991; and two births were recorded in 1992. These births show that the AB pod is beginning to recover.

**RIVER OTTERS:** The oil spill caused at least sublethal injuries to river otters. However, the population is difficult to census and it is unknown if there were population declines. Sublethal indicators of possible oil exposure remained in 1991. River otters feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment.

**SEA OTTERS:** The oil spill caused population declines and sublethal injuries to sea otters. It is estimated that 3,500 to 5,000 otters died. Surveys in 1989, 1990 and 1991 showed measurable differences in population numbers and survival between oiled and unoiled areas. In 1992, lower juvenile survival rates and higher than normal numbers of dead prime age otters indicate that the populations in Prince William Sound continue to be stressed. Sea otters feed in the lower intertidal and subtidal areas and may still be exposed to oil persisting in the environment. Little or no evidence of recovery has been detected.

*sublethal  
substitute  
w/  
injured w/out  
population  
decline*

*not sure why  
this  
in?  
here?*

*Letter definition needed  
jargon jargon....*

*move  
towards  
the  
back...*

|



## BIRDS

**BALD EAGLES:** The oil spill caused sublethal injuries and possibly population declines in bald eagles. In 1989, 151 carcasses were recovered from beaches. Productivity in Prince William Sound was disrupted in 1989, but returned to normal in 1990. Exposure to oil and some sublethal injuries were found in 1989 and 1990, but no continuing effects were observed on populations. Bald eagles are recovering and may have recovered, from effects due to the oil spill.

**BLACK OYSTERCATCHERS:** The oil spill caused population declines and sublethal injuries to black oystercatchers. In 1989, nine carcasses were recovered from beaches, but the actual number killed were many more. In 1989, smaller eggs were found in oiled areas. Black oystercatchers feed in the intertidal areas and may still be exposed to oil persisting in the environment. The population is recovering although evidence of sublethal injuries persisted in 1992.

**COMMON MURRES:** The oil spill caused population declines and sublethal injuries at murre colonies within the oil spill area. In 1989, 10,428 carcasses were recovered from beaches representing between 175,000 to 300,000 murres killed. Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding was still inhibited in some colonies in the Gulf of Alaska in 1992. The degree of recovery varies between colonies, however some colonies show little evidence of recovery.

**HARLEQUIN DUCKS:** The oil spill caused population declines and sublethal injuries to harlequin ducks. In 1989, 213 carcasses were recovered from beaches which probably represents over 400 birds killed. Post-spill samples showed oil contamination and poor health in 1989 and 1990. In the three years since the oil spill, it appears that harlequin ducks still are not successfully breeding in oiled areas. Harlequin ducks feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment. Although the population continues to show evidence of sublethal injuries and is not yet showing signs of recovering, it is possible that the decline has stabilized.

**MARBLED MURRELETS:** The oil spill caused population declines, but it is unknown if there were sublethal injuries. In 1989, 612 carcasses were recovered from beaches. It is estimated that 8,000 to 12,000 birds died. Measurable population effects were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the oil spill. In 1989, oil contamination was found in livers of adult birds. Although the recovery status in 1992 was uncertain and no signs of an increasing population have been observed, it is possible that the decline has stabilized.

**PIGEON GUILLEMOTS:** The oil spill caused population declines to pigeon guillemots. In 1989, 614 carcasses were recovered from beaches representing from 1,500 to 3,000 birds killed. Pigeon guillemot populations were declining prior to the spill. In 1989, oil contamination was found in birds and, externally, on eggs. The recovery status in 1992 is uncertain with no evidence of an increase in the population.

## FISH

**CUTTHROAT AND DOLLY VARDEN TROUT:** The oil spill caused sublethal injuries and possibly population declines for these two species. Differences in the survival and growth between anadromous adult populations in the oiled and unoled areas persisted from 1989 to 1991 despite less indications of oil exposure. This was possibly due to continuing injury to the food base, however, scientists disagree as to whether these differences in survival and growth existed before the spill. It is unknown whether these species are recovering.

**PACIFIC HERRING:** The oil spill caused sublethal injuries to Pacific herring. It is unknown whether this will result in a population decline. Measurable differences in egg counts between oiled and unoled areas were found in 1989 and 1990. Lethal and sublethal effects on eggs and larvae were evident in 1989 and, to a lesser extent, in 1990. In 1991 there were no differences between oiled and unoled areas. It is possible that the 1989 year class was injured which could result in reduced recruitment to the adult population. If so, an adult population decline will not become apparent until 1993. Overall recovery status is unknown.

**PINK SALMON:** The oil spill caused sublethal injuries to wild stock populations, and there is debate on whether the wild stock population has declined. Abnormal fry were observed in 1989 and egg mortality continued to be higher than expected in 1990 and 1991. The debate about population declines focuses on the whether the observed injuries necessarily result in reduced adult returns. Reduced growth of juveniles was found in 1989 and 1991, which correlates with reduced survival. In 1992, there was continued evidence of sublethal injuries. Overall recovery status is unknown.

**ROCKFISH:** The oil spill caused at least sublethal injuries, however, it is unknown whether or not population declines also occurred. Twenty dead fish were found in 1989, but only a few were in condition to be analyzed. Those showed exposure to oil with some sublethal injuries. Closures to salmon fisheries increased the fishing pressure on rockfish and the increasing catch may be impacting the population. It is unknown if the population has recovered from sublethal injuries, or the from any population decline.

**SOCKEYE SALMON:** Kenai River and Red Lake sockeye salmon stocks both suffered population declines as well as sublethal injuries. Smolt survival continues to be poor in both systems due to overescapements that occurred at Red Lake in 1989 and in the Kenai system in 1987, 1988, and 1989. As a result, adult returns are expected to be low in 1994 and successive years. Overall recovery status is unknown.

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*pre-spill effects; raises questions about what can be blamed on the spill*

*in designated wilderness areas*

*need more information on impact*

The point here is to show or discuss impacts...

SERVICES

RECREATION AND COMMERCIAL TOURISM: The nature and extent of injury varied by user group and by areas of use. About one quarter of survey respondents reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects and, in some, a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have achieved pre-spill values.

begin?

it is unclear

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What about steelhead, salmon, & other species?

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perceived

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Ray

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possible  
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Dave G

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and  
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from  
the spill  
population  
3  
1M, SS,  
+S, etc

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#### MAMMALS

some  
evidence  
and the  
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**SEA OTTERS:** The oil spill caused population declines and sublethal injuries to sea otters. It is estimated that 3,500 to 5,000 otters died. Surveys in 1989, 1990 and 1991 showed measurable differences in population numbers and survival between oiled and unoiled areas. In 1992, lower juvenile survival rates and higher than normal numbers of dead prime age otters indicate that the populations in Prince William Sound continue to be stressed. Sea otters feed in the lower intertidal and subtidal areas and may still be exposed to oil persisting in the environment. Little or no evidence of recovery has been detected. <sup>of various families, foraging etc.</sup>

## BIRDS

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BLACK OYSTERCATCHERS: The oil spill caused population declines and sublethal injuries to black oystercatchers. In 1989, nine carcasses were recovered from beaches, but the actual number killed were many more. In 1989, smaller eggs were found in oiled areas. Black oystercatchers feed in the intertidal areas and may still be exposed to oil persisting in the environment. The population is recovering although evidence of sublethal injuries persisted in 1992.

COMMON MURRES: The oil spill caused population declines and sublethal injuries at murre colonies within the oil spill area. In 1989, 10,428 carcasses were recovered from beaches, representing between 175,000 to 300,000 murre<sup>s</sup> killed. Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding was still inhibited in some colonies in the Gulf of Alaska in 1992. The degree of recovery varies between colonies, however some colonies show little evidence of recovery.

HARLEQUIN DUCKS: The oil spill caused population declines and sublethal injuries to harlequin ducks. In 1989, 213 carcasses were recovered from beaches which probably represents over 400 birds killed. Post-spill samples showed oil contamination and poor health in 1989 and 1990. In the three years since the oil spill, it appears that harlequin ducks still are not successfully breeding in oiled areas. Harlequin ducks feed in the intertidal and shallow subtidal areas and may still be exposed to oil persisting in the environment. Although the population continues to show evidence of sublethal injuries and is not yet showing signs of recovering, it is possible that the decline has stabilized.

MARBLED MURRELETS: The oil spill caused population declines, but it is unknown if there were sublethal injuries. In 1989, 612 carcasses were recovered from beaches. It is estimated that 8,000 to 12,000 birds died. Measurable population effects were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the oil spill. In 1989, oil contamination was found in livers of adult birds. Although the recovery status in 1992 was uncertain and no signs of an increasing population have been observed, it is possible that the decline has stabilized.

PIGEON GUILLEMOTS: The oil spill caused population declines to pigeon guillemots. In 1989, 614 carcasses were recovered from beaches, representing from 1,500 to 3,000 birds killed. Pigeon guillemot populations were declining prior to the spill. In 1989, oil contamination was found in birds and, externally, on eggs. The recovery status in 1992 is uncertain with no evidence of an increase in the population.

## FISH

CUTTHROAT AND DOLLY VARDEN (TROUT): The oil spill caused sublethal injuries and possibly population declines for these two species. Differences in the survival and growth between anadromous adult populations in the oiled and unoiled areas persisted from 1989 to 1991 despite less indications of oil exposure. This was possibly due to continuing injury to the food base, however, scientists disagree as to whether these differences in survival and growth existed before the spill. It is unknown whether these species are recovering.

9

PACIFIC HERRING: The oil spill caused sublethal injuries to Pacific herring. It is unknown whether this will result in a population decline. Measurable differences in egg-counts between oiled and unoled areas were found in 1989 and 1990. Lethal and sublethal effects on eggs and larvae were evident in 1989 and, to a lesser extent, in 1990. In 1991 there were no differences between oiled and unoled areas. It is possible that the 1989 year class was injured which could result in reduced recruitment to the adult population. If so, an adult population decline will not become apparent until 1993. Overall recovery status is unknown.

PINK SALMON: The oil spill caused sublethal injuries to wild stock populations, and there is debate on whether the wild stock population has declined. Abnormal fry were observed in 1989 and egg mortality continued to be higher than expected in 1990 and 1991. The debate about population declines focuses on whether the observed injuries necessarily result in reduced adult returns. Reduced growth of juveniles was found in 1989 and 1991, which correlates with reduced survival. In 1992, there was continued evidence of sublethal injuries. Overall recovery status is unknown.

ROCKFISH: The oil spill caused at least sublethal injuries, however, it is unknown whether or not population declines also occurred. Twenty dead fish were found in 1989, but only a few were in condition to be analyzed. Those showed exposure to oil with some sublethal injuries. Closures to salmon fisheries increased the fishing pressure on rockfish and the increasing catch may be impacting the population. It is unknown if the population has recovered from sublethal injuries, or the from any population decline.

SOCKEYE SALMON: Kenai River and Red Lake sockeye salmon stocks both suffered population declines as well as sublethal injuries. Smolt survival continues to be poor in both systems due to overescapements that occurred at Red Lake in 1989 and in the Kenai system in 1987, 1988, and 1989. As a result, adult returns are expected to be low in 1994 and successive years. Overall recovery status is unknown.

## COASTAL HABITAT

COASTAL HABITAT - INTERTIDAL ZONE: The oil spill caused population declines and sublethal injuries to the populations of plants and animals that live in the area between low and high tide. The lower intertidal and, to some extent, the mid intertidal zones are recovering. However, in the upper intertidal zone, some species have not recovered, and oil persists in and under mussel beds. Intertidal organisms were impacted by both oiling and clean-up, particularly the high pressure hot water washing. Recovery varies by species largely based on their position within the intertidal zone.

COASTAL HABITAT - SUBTIDAL ZONE: The oil spill caused population declines and sublethal injuries to the populations of plants and animals found below low tide. Eel grass and some species of algae appear to be recovering. Amphipods in eel grass beds recovered to pre-spill densities in 1991. Leather stars and helmet crabs showed little sign of recovery through 1991. Overall recovery is variable by species.

## ARCHAEOLOGY

ARCHAEOLOGY: Twenty-four archaeological sites are known to have been adversely affected by oiling, clean-up activities, or looting and vandalism linked to the oil spill. An additional 113 sites are estimated to have been similarly affected. Injuries attributed to increased looting and vandalism which have been linked to the oil spill are still occurring. Archaeological sites and artifacts cannot recover, they are finite non-renewable resources.

DESIGNATED WILDERNESS AREAS: Hundreds of miles of wilderness coastlines were affected by oil. Some oil remains embedded in the sediments of these areas.

## SERVICES

RECREATION AND COMMERCIAL TOURISM: The nature and extent of injury varied by user group and by areas of use. About one quarter of survey respondents reported no change in their recreation experience, but others reported avoiding the spill area, reduced wildlife sightings, residual oil and more people. They also reported changes in their perception of recreation opportunities in terms of increased vulnerability to future oil spills, erosion of wilderness, a sense of permanent change, concern about long-term ecological effects and, in some, a sense of optimism. There are indications that declines in recreation activities reported in 1989 appear to have reversed in 1990, but there is no evidence that they have achieved pre-spill values. ~~levels~~ levels.

RECREATION: SPORT FISHING AND HUNTING: Between 1989 and 1990, a decline in sport fishing effort (number of anglers, fishing trips and fishing days) was recorded for Prince William Sound, Cook Inlet and the Kenai Peninsula. In 1992, an emergency order restricting cutthroat trout fishing was issued for western Prince William Sound due to low adult returns. The closure is expected to continue at least through 1993. Sport hunting of harlequin ducks was reduced by restrictions imposed in 1991 and 1992 in response to damage assessment studies. It is likely that these restrictions will continue until the species shows signs of recovery. *to pre-spill levels?*

PASSIVE USE: In 1991, over 90% of those surveyed nation-wide were aware of the oil spill. Over 50% believed that the oil spill was the largest environmental accident caused by humans anywhere in the world. There was also a perception that the values of wild areas has diminished. Although some people's feelings of lost values are diminishing as they sense some recovery is occurring, others' feelings have not changed as they do not believe recovery is occurring. Until oil is completely removed or degrades naturally, injury to wilderness values will continue.

SUBSISTENCE: Subsistence harvests of fish and wildlife in 9 of 15 villages surveyed declined from 4 to 78 percent in 1989 when compared to pre-spill averages. Seven of the 15 villages show continued decline in use in 1990 and 1991. This decline was particularly noticeable in the Prince William Sound villages of Chenega and Tatitlek. In 1989, chemical analysis indicated that most resources tested, including fish, marine mammals, deer, and ducks, were safe to eat, but that shellfish from oiled beaches should not be eaten. However, villagers believe that contamination to subsistence food sources continue to be dangerous to their health and some subsistence species continue to decline.

COMMERCIAL FISHING: During 1989, emergency commercial fishery closures were ordered throughout the spill area. This affected salmon, herring, crab, shrimp, rockfish and sablefish. The 1989 closures resulted in sockeye over-escapement in the Kenai River and in the Red Lake system (Kodiak Island). In 1990, a portion of Prince William Sound was closed to shrimp fishing. Spill-related sockeye over-escapement is anticipated to result in low adult returns in 1994 and 1995. These over-escapements may result in closure or harvest restrictions during these and, perhaps, subsequent years. Injuries and recovery status of rockfish, pink salmon, shellfish and herring are uncertain.



Dave G

[Note to reviewers, Page 3 of the Brochure begins here]

### What Was Injured By the Spill and Is It Recovering?

The Exxon Valdez oil spill injured resources and services throughout the spill area. The oil spill occurred just before the most biologically active season of the year in Southcentral Alaska. During the four-month period after the oil spill, seaward migration of salmon fry, major migrations of birds, and the primary reproductive period for most species of bird, mammals, fish, and marine invertebrates took place. The organisms involved in these critical periods of their life cycle encountered the most concentrated, volatile and damaging forms of oil. The oil spill also directly impacted archaeological resources, subsistence, recreation, designated wilderness areas, and wilderness qualities, aesthetics, and other services. Oil affected each resource and service differently; these injuries are briefly described below.

and  
wilderness  
Study

The Exxon Valdez oil spill was only one factor that affected the health of several <sup>species</sup> populations in the area. ~~We do not know the cause of the long-term declines of marbled murrelets, pigeon guillemots or harbor seals.~~

for  
the spill  
population  
3  
14, SS,  
+S, etc

For some resources, the oil spill caused a measurable decline in their population. For example, an estimated 8,000 to 12,000 marbled murrelets were killed during the oil spill. For other resources, the spill caused an injury to one life stage, but that injury did not measurably lower the overall population. An example of a sublethal effect is ~~abnormal herring fry~~. This has not yet caused a measurable population decline.

River otters sublethal injury

#### MAMMALS

some  
eaten  
and the  
oil spill  
with  
affected  
etc.

**HARBOR SEALS:** The oil spill caused population declines and sublethal injuries to harbor seals. Many were directly oiled and an estimated 345 died. Oil residues found in seal bile were 5 to 6 times higher in oiled areas than unoiled areas in 1990. The population was declining prior to the oil spill which makes it difficult to know the continuing effects. There is no indication of recovery.

**KILLER WHALES:** The oil spill caused sublethal injuries to at least one of the killer whale pods in Prince William Sound. Debate continues about whether the oil spill caused a population decline. Thirteen whales out of 36 in the AB pod are missing and presumed dead. Circumstantial evidence links whale disappearance to the oil spill. Additionally, several adult males have collapsed dorsal fins. Social disruption of family units has been observed. In the AB pod, no new births were recorded in 1989 or 1990; one birth was recorded in 1991; and two births were recorded in 1992. These births <sup>may</sup> show that the AB pod is beginning to recover.

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Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
Population level Injures	Black oystercatcher					Less than 30 years	Recovering.
	Common murre					Less than 120 years	Recovery varies by colony.
	Harbor seals					Unknown	In decline before spill. Population may have stabilized.
	Harlequin ducks					Less than 50 years (maybe)	Still no reproduction within spill area. oiled areas of FWS?
	Intertidal organisms					Less than 25 years	Recovering in most places. lower & mod. intertidal
	Marbled murrelet					Less than 50 years to stabilize the population	In decline before spill. May be still declining; or may be stable.
	Pigeon guillemots					Less than 50 years to stabilize the population	In decline before spill. Probably still declining.
	Sea otters					Less than 50 years	Population stable, but not recovering.
	Sockeye salmon					Less than 50 years	Not yet recovering in Kenai River. & Red Lake
Subtidal organisms					Less than 10 years (most places)	Recovering in most places.	
Less than pop. level. Inj	Bald eagles					Less than 6 years	Back to pre-spill population by 1993-1995.
	Cutthroat trout					Less than 20 years	
	Dolly Varden					Less than 20 years	
	Killer whales					Less than 20 years	Recovering.
	Pacific herring					Unknown	Population decline may be documented after 1993.
	Pink salmon					Unknown	
	River otters					Unknown	
	Rockfish					Unknown	
* Archaeology						Will not recover	
Services	Commercial Fishing					Recovery differs by species.	Currently no closures, although some may be implemented to help populations recover.
	Recreation					Recovering slowly <i>varies by user group</i>	
	Recreation - Sport Fishing					Recovery differs by species.	Closures may continue until populations recover.

Deleted this

Reorder to match p. 12

Subsistence						Recovering	Harvest continues to be below pre-spill levels.
Designated Wilderness Areas						Dependant on rate that persistent oil is degrading.	

*Commercial Tourism*

*Recovering*







Tone of the brochure indicates that we can do more for the injured resources than is, in fact, possible. We need to be clearer on the role of man versus the natural processes. We can help where we hunt and fish, or where we can protect from other disturbances, or in limited cases through other means. But this message does not come through. Instead, the brochure -- by its tone -- indicates that there are many projects that can significantly accelerate natural recovery. That is not true.

BS Priority  
 No-use the specific  
 specific examples. Maybe  
 don't be overly optimistic

Location Comment

Author Priority

**Background Section**

- p1 Reorder Trustees to be in alphabetical order. [redacted] DG
- p1 The brochure was written when we were going to mail it out to the mailing list only. It may need an additional paragraph of introduction on the masthead (wherever that is in the layout) to introduce it to those who receive it in a newspaper or as an unexpected mailing. DEC *Do this*
- p2 Break out in a separate ¶ a section that explains who the Trustee Council is and what they do. PR
- Add an annotated table of contents, or list of what's in the brochure, or something similar so readers can quickly go to what they are interested in. (From Group Reviewers and Larsen) PR
- Essentially need planning process information: Why just starting plan/NEPA process now. How the alternatives have been developed, previous public involvement, etc. PR
- p2-3 Delete all references to funding. Make the question, "How to restore the injuries", not "~~How to spend the civil settlement fund.~~" (Similar comment from USFS) *yes Keep this!* DG Priority
- P1. To attract attention and get interest, get the \$600 million up front: perhaps in the title, don't wait until the "Civil Settlement, Restoration Fund" *Don't like this because emphasis needs to be on Restoration not spending* PR
- p1, ¶2 Eliminate entire paragraph about what the plan will not do. [redacted] NOAA
- p2, ¶1 Add to when are comments due sentence, "We would appreciate early comments by \_\_\_\_\_ (April 30th, May 10th?), but..." *If you are unable to come to the public comments meetings but would like to make immediate comment* DOI Priority
- p3, ¶1 Add to ¶1: "Although there were various other restitution payments, the civil settlement funds are the subject of this plan." [redacted] DL
- p3, ¶2 Delete last phrase about, "~~but no purchase will be forced on an unwilling seller.~~" *Drop it.* DG Priority  
 DEC



*please try to mail your comments in by April 30th.*

- p3 ¶2 Add Fish and Game Boards, or boards and commissions to the sentence about not managing fish and wildlife resources. [redacted] DNR
- p3 ¶3 Add state special areas (state parks, marine parks, etc) to the list of oiled stuff. [redacted] PR
- p3 ¶4 Break out criminal settlement under a separate heading, and make it clear that the criminal monies are not part of this plan. By mixing it all together, that information is partially lost. [redacted] DL
- p3 ¶5 Criminal \$ can be used for actions other than restoration. *(see notes to [redacted])* USFS Priority
- p4, ¶5 Last Sentence: "Examples of natural resources are birds, fish, mammals, subtidal plants and organisms, and archaeology." *ical sites and artifacts.* Archaeology PR  
is a field of study. Why not cultural resources, historical artifacts, archaeological sites...
- p4, next to last ¶ \$740 million remains for restoration, not \$610 NOAA Priority
- p4, Funding Some differences in the amounts listed in last paragraph. How did we get the estimate of \$90 million remains to be reimbursed to governments? DG
- p4, last ¶, p5 Delete funding from here. Include how much is left, but leave the detail for the endowment section which should be remained "Funding" and have the detailed funding info. In addition, it isn't obvious to the casual observer that the funding adds up. Make it clear; perhaps in tabular form. DL Priority

**Injury Summary**

- Review group: Sublethal injury is both jargon and misleading with respect to a population. One reviewer: sublethal refers to an individual animal, not a population. Larson: how can you have 400 killed being a sublethal injury. Review group recommended changing sublethal injury to "injury", or for changing the injuries from population decline and sublethal to population decline and injuries that did not cause a population decline. PR Priority
- You have a definition of sublethal as being no population decline. However, in some cases you say 400 are killed. This doesn't make sense. DL Priority
- Change categories of injury to "Population-level and Less than population-level injury." Define population-level injury "Measurable reduction in population that shows up in more than one generation." *Injured, but no population decline - Check w/Spies* DF&G Priority

*discuss together*

*Define the term "population"*

	What happened to other species: bears, deer, etc. Needs a sentence or small paragraph saying they were studied but not injured, or whatever.	PR	
Various locations	Bob Spies has a number of comments that he has not give to us yet.	BS	Priority
p7, title	Change title to "Current Situation" <i>Mixed.</i>	DL	
p7, ¶2	"Only one factor" Implications is that oil spill may not be the cause. Say what the other factors are. <i>Other factors such as El Niño, habitat loss and competition for food also influence</i>	DL	
p7, ¶3	Use sea otters rather than marbled murrelets as an example of decline in population (2nd line). <i>lets use murrets, or others.</i> <i>the health of resources within the spill area.</i>	NOAA	
p7, ¶3	Use a different example, rather than herring. <i>reduced growth of DV or collapsed Fms (KW's) or smaller fledging weights (BLYs)</i>	DEC	
p8, various	The relationship between carcasses to estimated kill varies. Its confusing. Why is it two times in some cases, and ten times in others. <i>(take carcasses = out)</i>	PR	Priority
p7, Killer Whales	What is the "AB" Pod?	DL	
p7, Killer Whales	Last sentence. "These births <del>show</del> <del>suggest</del> that the AB pod..." <i>Yes</i>	NOAA DG	
p7 Killer Whales	There is problem with killer whale sublethal conclusions. <i>RPWG</i>	DEC USFS	
p9 Sockeye	The fact that overescapement was in 1987 and 1988 raises questions about what can be blamed for the spill.	PR	
p9 Sockeye	Language should better reflect the severity to Sockeye salmon by quantifying the amount of smolt reduction.	DF&G	
p10 Rec & Comm Tour	Split out Commercial Tourism from recreation. Include a separate description. <i>Okay.</i> <i>Add Sport Fishing &amp; hunting back into Recreation</i>	NOAA	Priority

p10 Sport & Comm Fish

In Commercial fish section, and in Recreation-Sport Fishing, mention potential impacts of Kenai River Sockeye closures.

DF&G

*Add in estimated total population in EVOs when possible*

**What are the Alternatives Section (i.e., policy questions, and restoration plan categories)**

The policy questions table is self-explanatory. If need to can shorten the section by putting a little more in the table and eliminating most of the text. The parts of the paragraphs that compare alternatives, however, are useful. Perhaps they could be moved to the comparison of alternatives.

PR

Priority

p11 Title

Change title to "Planning Process" or something similar. This title made me take a while to figure out that both the issues and categories are in the alternatives.

DL

p11, General

Retitle section to "Issues, Policy Questions, and Categories: the "Building Blocks" of Alternative (or something similar). Move 1st two paragraphs to Section describing alternatives, and move similar paragraphs that contrast alternatives to the Comparison of alternatives section. In other words, make this section shorter and purer.

DOI

p11 table

In the table, the question about Status of Resource Recovery needs an "OR". That is, if you just say, "Should restoration actions cease when a resource has recovered? It is not clear what the alternative is. Without providing an "or" Should we continue... you'll get false "yes" answers because people won't know the other side.

PR

p11 table

The words that describe the Issue (the left side of the table) don't give a sense of the issue. Recommend "Extent of Resource Recovery Efforts"

PR

p11 table

Words under Issue column are not user-friendly. Perhaps need to expand introduction to the table.

DEC

p11 table

Location. Shouldn't we add another clause about anywhere in Lower 48? (If so, similar changes throughout.)

*Inside or Outside spill area*

DG

*Handwritten signature*

p12 table

*Already done elsewhere*

Add title to table: "What was injured by the spill?" Change labels under resources to: Population decline, Injuries without population decline, and Other. Change services to Human Uses.

PR

Priority

p12 table

Change order of services to: 1) Recreation; 2) Passive Use; 3) Subsistence, 4) Commercial Tourism, 5) Commercial Fishing. Eliminate the Recreation-sport fishing and Recreation-sport hunting categories. Make similar order throughout document wherever services are listed.

DOI

Priority

p12 ¶4

The 1st ¶ under Status of Resource Recovery. Haven't bald eagles recovered?

NOAA

p12 ¶5	2nd ¶ under Status of Recovery. Using Alt 2 as an example of "Ceasing once the resource has recovered" is a poor description because the habitat protection will probably go on forever.	DEC	
p13 ¶4	Paragraph under location. Are there any activities outside the spill area that would affect the populations in the area? For example, like protecting winter murre habitat in Mexico. <i>Done.</i>	PR	Priority
p13 last¶	Don't understand the paragraph about Strategies for Human Use	DEC	
<b>Categories of the Restoration Plan</b>			
p14, title	Change title from "What are the Categories of the Restoration Plan", to "Possible Restoration Activities"	PR	
p14 ¶2	Habitat protection - private land. Explain in the first sentence that the rules for purchase of habitat, that it must be used to protect or promote recovery of an injured resource or service. Explain link to recovery.		
p14	Habitat Protection. Purchase of land does not necessarily imply protection. The state, for example, could always sell it. Say that management policies would need to be crafted on a case-by-case basis, but that you presume that the land would be managed to protect the purposes for which it was acquired.	PR	Priority
p14 ¶5	Delete 1st sentence that "There is not enough money in the entire civil settlement to purchase...."	NOAA	Priority
p14, ¶6	Habitat protection on <u>public land</u> . Are funds going to be required? If so, is money going to be required for management? Is funds required under this going to be a large amount?	PR	Priority
p14 ¶6	Delete last sentence, that the Trustee Council has no proposals.	DG	Priority
p15, ¶1	General Restoration is a content-free name. Can you change it to something more descriptive. <i>RPWG</i>	PR	Priority
p15, ¶1	Eliminate example about testing subsistence foods for continuing oil contamination.	DOI	
p15 ¶1	Delete last two sentences about "Enough money allocated for General restoration to fund all activities ID'd thus far. <i>Identified enough #</i>	USFS	Priority
p15 ¶2	Spill Prevention and Response. What is potential funding requirement, who would be eligible for funds (is this going to private companies)?	PR	
p15 ¶6	Monitoring and Research Program. Needs a purposes statement, why this category is needed.	PR	

p15 & 16	Make endowment a new section called funding. (Parallel to the Categories Section). Put the detailed money info from the introduction, then describe the endowment.	DL	
p15 & 16	Make endowment a separate section called Funding Mechanism	DOI	
p16, ¶1, last 2 sentences	Delete two sentences about "Habitat acquisition, however, does not lend itself to an endowment...."	NOAA DEC	Priority
p16 ¶2	Real rate of return should be 4%-6%, therefore amount generated should be \$4 million t \$6 million for every \$100 million put into endowment.	DNR	Priority
p16, ¶2	Change so first \$3 million of endowment can be used for any purpose. Don't restrict to monitoring first.	DEC	Priority
<b>Description of Alternatives.</b>			
p17, new¶	Make an introduction before the alternatives. (It could be ¶2 from p11).	DL	
Alt #1, p17	Text says "wilderness...not expected to recover". Shouldn't it be designated wilderness area to be consistent. Also, shouldn't natural recovery chart say, "not expected to recover" to be consistent.	PR	
Alt #1, p17	Disagree with assessment that wilderness is not expected to recover.	P R (Othrs)	Priority
Alt #1,	Alternative #1 should be identified as the no action alternative in the title. We should specifically say what happens to the 94% balance (i.e., nothing happens). Otherwise, its confusing as to why its there.	PR	Priority
Alt #2, p21	Under "injuries addressed" change to Resources whose populations declined and injured services" That way its clear that "whose populations declined doesn't modify services." Similar changes throughout.	PR	
Alt #2, p19	2nd sentence. In this and similar sentences in other alternatives, the alternative doesn't dedicate nor set aside a percentage. It sets as aside "as much as", or "up to 75%" or whatever. <i>Make changes throughout.</i>	NOAA	Priority
Alt #5, p25	In the Issues & Policies table, the "Provide some improvement..." Is "some" greater than "substantial." The confusion, is that the statement looks like it describes the overall effect of the alternative (some improvement), not the projects that would be funded (those that produce some or substantial improvement.)	DL	

## Comparison of Alternatives

Nat Recovery Tbl; p27	The columns under five alternatives is confusing. It seems to indicate that there is no difference between alternatives 2 through 5 for most resources. What is meant is that alternatives 2 through 5 all address all services and population-level injuries, and alt #3 doesn't address sublethal injuries, but that is not what is communicated. Drop the five columns, and present that information another way.	PR	
Nat Recovery Tb; p27	This and following table need titles.	PR	
Nat Recovery Tbl; p27	Designated Wilderness Areas is with Archaeology, not Services. (Also reorder services per previous comment.)	DOI	
Nat Recovery Tbl; p27	Harlequin Ducks, comment should be "Still no reproduction within PWS"; add Red lake to comment under Sockeye.	DG	
Nat Recovery Tbl; p27	Recreation. Recovering Slowly?	DG	
Nat Recovery Tbl; p27	The time frames are listed under the heading " <i>Expected</i> time to natural recovery". In fact, what you listed is the outer bound of experts expectations. That is not the expected time. You should list the entire range, and caveat it appropriately. (That is, don't say < 50 years, say 10-50 years.)	BS	Priority
Table p 29	What does shading mean?	PR	
p30, ¶4 & 5	Eliminate reference to funds allocated to habitat protection.	DG	
p30, last ¶ Endowment	A 20% endowment wouldn't fund recovery monitoring first. Change next to last sentence to "but the annual interest from the account could fund <del>recovery monitoring and possibly a few other</del> a variety restoration activities indefinitely."	NOAA	

RPWG do this.





Somewhere Need to give range of acreage that habitat protection will purchase. Otherwise public has no feeling for consequences of budget decisions. DF&G  
WE do not want the discussion to focus exclusively on money.

**General Options.**

p31, ¶2 DG: Why is this paragraph here. (USFS: this is red-flag statement.) *Delete sentence* DG USFS Priority

p32, Sea Otter LTS DG

p32 Fish Shouldn't Improve access to salmon streams under Sockeye and Pinks be in Alt #4. Same with Improve survival rates of salmon eggs under Pinks. USFS

p32, Fish 3rd Optn Not "Fertilize Coghill Lake in PWS to improve", but "Fertilize lakes to improve..." NOAA

p32 Fish Fertilize coghill should have local benefits only. So should improve survival rates of salmon eggs. Is Relocating hatchery runs feasible? What about Chum Salmon? Why isn't Anadromous Stream catalogue option listed under Dolly Varden? DG

p33 Birds Shouldn't Black Oystercatcher have "Local benefits only"? DG

p34, Svcs Make separate section for Commercial Tourism. NOAA DOI

p 3 4 , Subsistence Shouldn't Provide new access to traditional foods should be "Local benefits only"? DG

**Questions**

p35, titles Change "How should these issues be resolved" to "Resolving the Issues" Change "Questions about Issues and Policies" to "Your views of the Issues and Policies." (Similar change on p37 & 38). DL

p35, Text under Intro "Spending guidelines" should be "Potential spending guidelines." DG



p 3 5 - 3 6 , General	Where it says, "Fund activities"; change to "Conduct activities."	USFS
Injuries p35	Injuries addressed. Make clear question doesn't apply to services.	PR
Status of Resc Recovery, p35	Change 1st box to "Continue appropriate activities <del>to enhance a resource</del> even after resources recover."	NOAA Priority
Effectiveness; p36	Test is from old draft; change to discuss substantial versus some improvement. Eliminate highly effective language.	PR
Strategies for Human use; p36	First three categories are not mutually exclusive and in fact are duplicative. Eliminate "Do not fund activities that..."	PR
<b>Categories</b>	For all questions on this page, where you can provide a short definition that (i.e., a phrase) that defines the categories -- like Ecological monitoring, Restoration Research), then include it in the question. That way, people won't have to look back in the brochure to remember what the subcategories mean. This may not be possible for all subcategories. Also, don't substitute an example for a definition.	PR
Monitor & Resc; p 37	Recovery monitoring is in all alternatives. Restoration monitoring occurs in any alternative involving projects. If any monitoring is appropriate, they are. What we really want to know is ecological monitoring and research. So eliminate the first two subcategories in the question. (or put them in the introductory sentence.)	PR
S p i l l Prevent'n, p37	Make titles consistent. "Infrastructure" is "Equipment" earlier in the document. Go over this throughout document.	
Endowment p37	Let people know the next chart is the place for spending guidelines for endowment. That solves the problem of people wanting to say in this question the actual amount they want to allocate to endowment. You tell them that info is for the next question.	PR
S p e n d i n g Guidelines, p38	Its unclear that the blank lines under "balance" are for people to write in their new choices for restoration categories. Put "Other _____" or some similar message to clue people in that is what those lines are for.	PR

p38, table	Tied to Act, cannot have 1% in Alt 5 (?)	DG	
H a b i t a t Protect'n p39	Question #1. Delete or dramatically reword. What is being asked does not come through. Parcel size does not seem important. The type of land may be more important, but parcel size is a poor substitute. What is being asked is not communicated in this question.	PR	Priority
Hab Prot; p39	Question #2. Probably recommend deleting question. It will be a large hassle to code and analyze the data from this question. Review group did not think we would get a distribution that is useable.	PR	Priority
Hab Prot; p39	Question #2. Drop	DNR	Priority
Hab Prot; p40	Question #3. Wording doesn't reflect intent of question. What we are really seem to be interested in is management questions, "how the land will be managed once purchased." This question doesn't do it as phrased. Some reviewers were unsure whether this could be answered in general. They thought it might have to be answered case by case (or at least type by type).	PR	Priority
Hab Prot; p40	Question #4. Question doesn't make sense. When RPWG explained what the question meant, it wasn't what the Peer Reviewers thought it meant. They asked, "if the first sentence is true, the second sentence can't be." When we explained it further, they said that we could not usefully get that information without a much more detailed set of questions.	PR	Priority

Mosley's table .....

need title & purpose of this chart... Jan I.

Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
Black oystercatcher						Less than 30 years	Recovering.
Common murre						Less than 120 years	Recovery varies by colony.
Harbor seals						Unknown	In decline before spill. Population may have stabilized.
Harlequin ducks						Less than 50 years (maybe)	Still no reproduction within spill area.
Intertidal organisms						Less than 25 years	Recovering in most places.
Marbled murrelet						Less than 50 years to stabilize the population	In decline before spill. May be still declining; may be stable.
Pigeon guillemots						Less than 50 years to stabilize the population	In decline before spill. Probably still declining.
Sea otters						Less than 50 years	Population stable, but not recovering.
Sockeye salmon						Less than 50 years	Not yet recovering in Kenai River.
Subtidal organisms						Less than 10 years (most places)	Recovering in most places.
Bald eagles						Less than 6 years	Back to pre-spill population by 1993-1995.
Cutthroat trout						Less than 20 years	
Dolly Varden						Less than 20 years	
Killer whales						Less than 20 years	Recovering.
Pacific herring						Unknown	Population decline may be documented after 1993.
Pink salmon						Unknown	
River otters						Unknown	
Rockfish						Unknown	
Archaeology						Will not recover	
Commercial Fishing						Recovery differs by species.	Currently no closures, although some may be implemented to help populations recover.
Recreation						Recovering slowly	
Recreation - Sport Fishing						Recovery differs by species.	Closures may continue until populations recover.

Subsistence						Recovering	Harvest continues to be below pre-spill levels.
Designated Wilderness Areas						Dependant on rate that persistent oil is degrading.	



Meaning: Shaded → No Shaded!

Done

Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
Black oystercatcher	✓					Less than 30 years	Recovering.
Common murre						Less than 120 years	Recovery varies by colony.
Harbor seals						Unknown	In decline before spill. Population may have stabilized.
Harlequin ducks						Less than 50 years (maybe)	Still no reproduction within spill-area. PWS — ?
Intertidal organisms						Less than 25 years	Recovering in most places. mid followed restoration
Marbled murrelet						Less than 50 years to stabilize the population	In decline before spill. May be still declining; may be stable.
Pigeon guillemots						Less than 50 years to stabilize the population	In decline before spill. Probably still declining.
Sea otters						Less than 50 years	Population stable, but not recovering.
Sockeye salmon						Less than 50 years	Not yet recovering in Kenai River. Red LACC
Subtidal organisms						Less than 10 years (most places)	Recovering in most places.
Bald eagles						Less than 6 years	Back to pre-spill population by 1993-1995.
Cutthroat trout						Less than 20 years	
Dolly Varden						Less than 20 years	
Killer whales						Less than 20 years	Recovering.
Pacific herring						Unknown	Population decline may be documented after 1993.
Pink salmon						Unknown	
River otters						Unknown	
Rockfish						Unknown	
Archaeology						Will not recover	
Commercial Fishing						Recovery differs by species?	Currently no closures, although some may be implemented to help populations recover.
Recreation						Recovering slowly	
Recreation - Sport Fishing						Recovery differs by species.	Closures may continue until populations recover.

Subsistence						Recovering	Harvest continues to be below pre-spill levels.
Designated Wilderness Areas						Dependant on rate that persistent oil is degrading.	

*oil  
wilderness  
study*

I don't understand shading Byron

Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
					Less than 30 years	Recovering.
					Less than 120 years	Recovery varies by colony.
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					Less than 50 years (maybe)	Still no reproduction within spill area.
					Less than 25 years	Recovering in most places.
					Less than 50 years to stabilize the population	In decline before spill. May be still declining; may be stable.
					Less than 50 years to stabilize the population	In decline before spill. Probably still declining.
					Less than 50 years	Population stable, but not recovering.
					Less than 50 years	Not yet recovering in Kenai River.
					Less than 10 years (most places)	Recovering in most places.
					Less than 6 years	Back to pre-spill population by 1993-1995.
					Less than 20 years	
					Less than 20 years	
					Less than 20 years	Recovering.
					Unknown	Population decline may be documented after 1993.
					Unknown	
					Unknown	
					Unknown	
					Will not recover	
					Recovery differs by species.	Currently no closures, although some may be implemented to help populations recover.
					Recovering slowly	
					Recovery differs by species.	Closures may continue until populations recover.

	Resource/Service
	Black oystercatcher
	Common murre
	Harbor seals
	Harlequin ducks
	Intertidal organisms
	Marbled murrelet
	Pigeon guillemots
	Sea otters
	Sockeye salmon
	Subtidal organisms
	Bald eagles
	Cutthroat trout
	Dolly Varden
	Killer whales
	Pacific herring
	Pink salmon
	River otters
	Rockfish
	Archaeology
	Commercial Fishing
	Recreation
	Recreation - Sport Fishing



*Confusing use (X) or black but make different*

*Sand p*

Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
Black oystercatcher						Less than 30 years	Recovering.
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Pink salmon						Unknown	
River otters						Unknown	
Rockfish						Unknown	
Archaeology						Will not recover	
Commercial Fishing						Recovery differs by species.	Currently no closures, although some may be implemented to help populations recover.
Recreation						Recovering slowly	
Recreation - Sport Fishing						Recovery differs by species.	Closures may continue until populations recover.

*signature  
Jill*

*match order on p. 12*

Subsistence						Recovering	Harvest continues to be below pre-spill levels.
Designated Wilderness Areas						Dependant on rate that persistent oil is degrading.	



Map B

Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
Black oystercatcher						Less than 30 years	Recovering.
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Dolly Varden						Less than 20 years	
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River otters						Unknown	
Rockfish						Unknown	
Archaeology						Will not recover	
Commercial Fishing						Recovery differs by species.	Currently no closures, although some may be implemented to help populations recover.
Recreation						Recovering slowly	
Recreation - Sport Fishing						Recovery differs by species.	Closures may continue until populations recover.

Subsistence						Recovering	Harvest continues to be below pre-spill levels.
Designated Wilderness Areas						Dependant on rate that persistent oil is degrading.	



Ken R

Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
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Recreation						Recovering slowly	
Recreation - Sport Fishing						Recovery differs by species.	Closures may continue until populations recover.

Subsistence						Recovering	Harvest continues to be below pre-spill levels.
Designated Wilderness Areas						Dependant on rate that persistent oil is degrading.	



Marty

Need a key -  
 what does it mean  
 if a box is shaded?  
 Table shows no diff.  
 between 2, 4, + 5

	Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
POPULATION	Black oystercatcher						Less than <sup>up +</sup> 30 years	Recovering.
	Common murre						Less than 120 years	Recovery varies by colony.
	Harbor seals						Unknown	In decline before spill. Population may have stabilized.
	Harlequin ducks						Less than 50 years (maybe)	Still no reproduction within spill area.
	Intertidal organisms						Less than 25 years	Recovering in most places.
	Marbled murrelet						Less than 50 years to stabilize the population	In decline before spill. May be still declining; may be stable.
	Pigeon guillemots						Less than 50 years to stabilize the population	In decline before spill. Probably still declining.
	Sea otters						Less than 50 years	Population stable, but not recovering.
	Sockeye salmon						Less than 50 years	Not yet recovering in Kenai River.
	Subtidal organisms						Less than 10 years (most places)	Recovering in most places.
SUBCUTANEOUS	Bald eagles						Less than 6 years	Back to pre-spill population by 1993-1995.
	Cutthroat trout						Less than 20 years	
	Dolly Varden						Less than 20 years	
	Killer whales						Less than 20 years	Recovering. - if not yet recovered, will address in 3? what is spill best?
	Pacific herring						Unknown	Population decline may be documented after 1993.
	Pink salmon						Unknown	
	River otters						Unknown	
	Rockfish						Unknown	
OTHER	Archaeology						Will not recover	
HUMAN USES	Commercial Fishing						Recovery differs by species.	Currently no closures, although some may be implemented to help populations recover.
	Recreation						Recovering slowly	
	Recreation - Sport Fishing						Recovery differs by species.	Closures may continue until populations recover.

OTC recovery  
 spp. address  
 in 3? what is spill best?

USES	Subsistence					Recovering	Harvest continues to be below pre-spill levels.
	Designated Wilderness Areas					Dependant on rate that persistent oil is degrading.	



Jack Kruse

Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
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Recreation						Recovering slowly	
Recreation - Sport Fishing						Recovery differs by species.	Closures may continue until populations recover.

← only info. in chart??



Jack Kruse

Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
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Subsistence						Recovering	Harvest continues to be below pre-spill levels.
Designated Wilderness Areas						Dependant on rate that persistent oil is degrading.	



*Handwritten signature in red ink at the top of the page.*

Resource/Service	Alt 1	Alt 2	Alt 3	Alt 4	Alt 5	Expected Natural Recovery (Yrs. from 1989)	Comments
Black oystercatcher						Less than 30 years	Recovering.
Common murre						Less than 120 years	Recovery varies by colony.
Harbor seals						Unknown	In decline before spill. Population may have stabilized.
Harlequin ducks						Less than 50 years (maybe)	Still no reproduction within spill area.
Intertidal organisms						Less than 25 years	Recovering in most places.
Marbled murrelet						Less than 50 years to stabilize the population	In decline before spill. May be still declining; may be stable.
Pigeon guillemots						Less than 50 years to stabilize the population	In decline before spill. Probably still declining.
Sea otters						Less than 50 years	Population stable, but not recovering.
Sockeye salmon						Less than 50 years	Not yet recovering in Kenai River.
Subtidal organisms						Less than 10 years (most places)	Recovering in most places.
Bald eagles						Less than 6 years	Back to pre-spill population by 1993-1995.
Cutthroat trout						Less than 20 years	
Dolly Varden						Less than 20 years	
Killer whales						Less than 20 years	Recovering.
Pacific herring						Unknown	Population decline may be documented after 1993.
Pink salmon						Unknown	
River otters						Unknown	
Rockfish						Unknown	
Archaeology						Will not recover	
Commercial Fishing						Recovery differs by species.	Currently no closures, although some may be implemented to help populations recover.
Recreation						Recovering slowly	
Recreation - Sport Fishing						Recovery differs by species.	Closures may continue until populations recover.

*Handwritten note in red ink: "Make consistent"*

*Handwritten signature in red ink on the right side of the page.*

Make consistent +  
W

Subsistence					Recovering	Harvest continues to be below pre-spill levels.
Designated Wilderness Areas					Dependant on rate that persistent oil is degrading.	

## What Are the Categories of the Restoration Plan?

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Immersion vs process  
Threat  
Long-term

Link between Jon I. spill damaged resources & protecting them from further damage may not be clear

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Acquisition has habitat benefit  
can both injured species & provide the opportunities for services

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purpose? why is this needed

However it is a funding choice?

purpose of an endowment is to generate interest (\$) to fund future projects

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Dave G

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Byron

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The size of an endowment determines the amount of interest it earns and the number of restoration activities it can fund. If approximately 20% of the remaining settlement funds were placed into an endowment and the principal inflation-proofed, the endowment could fund at least \$3 million worth of restoration activities indefinitely, and possibly somewhat more depending on assumptions about future interest rates. This amount is enough to continue the Trustee Council's monitoring program at a minimum level, and provide some funds for other monitoring components. If twice that amount were placed into the endowment, the additional funds could be used for fund general restoration, basic research, or spill prevention.

*Contracting  
don't for  
any*

*substantive result*  
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Ken

## What Are the Categories of the Restoration Plan?

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Jack Kruse

## ~~for~~ possible Restoration Activities

14

### What Are the Categories of the Restoration Plan?

*Activities fall into different categories.*

The alternatives emphasize different categories of restoration activities. This section describes the activities that fall within each category. Not all categories are included in every alternative.

*↳ habitat protection, ...*

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*Purchased land would be managed to protect damaged resources.*

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*These wouldn't require funds for creation, but might need mgmt \$*

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Decisions + Comments  
Kachemak Bay State Park

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No x Clear acquisition

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Include statement linking these categories to pie charts

Re-word, so title is parallel with other categories

Maria

~~Alternative 3~~

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**SPILL PREVENTION AND RESPONSE.** Varying levels of spill prevention and response are also part of several alternatives. These activities would reduce stress on recovering resources and services by improving and protecting water quality. Components of prevention and response include:

Research and development on developing technologies, such as in-situ burning and spill tracking systems, can assist in spill prevention and response.

Equipment, such as telecommunications and weather information systems, could be installed or updated in order to gather and transmit response and prevention information quickly. Funding spill response depots and volunteer response corps would improve cleanup capabilities.

Chronic marine pollution sources can be reduced by building oily waste disposal sites in port communities to deter marine disposal of oily wastes by small boats, cruise ships and ferries.

**MONITORING AND RESEARCH PROGRAM.** The monitoring and research program could include one or more of the following, although the number of components will vary ~~between~~ among alternatives.

**Recovery Monitoring** would assess the rate of recovery of injured resources and services, and determine when recovery has occurred.

**Restoration Monitoring** would evaluate the effectiveness of specific restoration activities, identify where additional restoration activities may be appropriate, and determine when delayed injury occurs.

**Ecosystem Monitoring** would follow long-term trends in the distribution and abundance of injured resources and the quality and quantity of services. Monitoring could also detect residual spill effects and provide ecological baseline information to assess the impacts of future oil spills and other disturbances.

**Restoration Research** would focus on the design, development and implementation of new technologies and approaches to restore resources not recovering or recovering at unacceptable rates.

**ENDOWMENTS.** An endowment ~~is not a restoration activity.~~ It is a method of funding restoration. The Exxon Corporation has been depositing funds into the restoration fund since

*cut*

*omit*

*among*

*end* *in*

1991 and will continue to do so until 2001. The Trustees could spend the entire settlement during that time or they could save some for future use. An endowment is a savings program *that* ~~to~~ fund restoration after Exxon deposits end. It ~~would~~ *may* use part of the settlement funds to create a savings account, ~~The savings account~~ *which* could fund a low but constant level of restoration activities indefinitely. ~~An endowment could be used to fund some or all restoration activities.~~ Habitat acquisition, however, ~~does~~ *may* not lend itself to an endowment. Purchase of land or other private property rights are usually made all at once.

The size of an endowment determines the amount of ~~interest~~ *income* it earns and the number of restoration activities it can fund. If approximately 20% of the remaining settlement funds were placed into an endowment and the principal inflation-proofed, the endowment could fund at least \$3 million worth of restoration activities indefinitely, and possibly, somewhat more depending on assumptions about future interest rates. This amount ~~is enough~~ *may be sufficient* to continue the ~~Trustee Council's~~ monitoring program at a minimum level, and provide some funds for other monitoring components. If twice that amount were placed into the endowment, the additional funds could be used for fund ~~general restoration, basic research, or spill prevention.~~ *other restoration activities.*

ADMINISTRATION AND PUBLIC INFORMATION. Funding is required to manage the restoration program. Providing the public with information about recovery and restoration will also consume a portion of the settlement monies. As the number of restoration projects increase and the complexity of management duties grow, the percentage of funds in each alternative that is proposed for these expenses also rises.

*Ray*

[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The option evaluation considered: how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that passed the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

The amount of funding allocated to general restoration in all alternatives includes substantially more than the amount needed to fund all the options identified in this list.

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area.

This is especially true of the activities that protect marine, coastal and upland habitats. In addition, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

\* The asterisk in the table denotes those options which may produce **substantial** improvement in the recovery of a biological resource. Those without an "\*" may produce at least **some** improvement in recovery. *Shading alternate resources is for separation clarity only.*

*double line needed for mammals*

MAMMALS	Alternatives		
	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.			x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x



* <b>SEA OTTER:</b> Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	x	x	x
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
<b>RIVER OTTER:</b> Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			x

FISH	Alternatives		
	3	4	5
* <b>SOCKEYE SALMON:</b> Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.	x	x	x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
Fertilize Coghill Lake in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS.		x	x
* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing.	x	x	x
* <b>PINK SALMON:</b> Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.		x	x
Construct salmon spawning channels and other instream improvements to increase spawning production and provide long-term enhancement. This would have benefits in local areas only.			x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.		x	x
Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.			x
Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.			x
* <b>CUTTHROAT TROUT:</b> Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.		x	x
Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area.			x
* <b>DOLLY VARDEN:</b> Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.		x	x

* <b>PACIFIC HERRING:</b> Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.	x	x
* <b>ROCKFISH:</b> Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.	x	x

**BIRDS** Alternatives 3 4 5

<b>BLACK OYSTERCATCHER:</b> Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas.			X
* Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.	X	X	
<b>COMMON MURRE:</b> Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.			X
* Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X
* Remove predators at injured colonies or remove predators from islands that previously supported murre.	X	X	X
<b>HARLEQUIN DUCK:</b> Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.			X
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X
* <b>MARBLED MURRELET:</b> Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X
* <b>PIGEON GUILLEMOT:</b> Control predator access or remove predators from islands that previously supported birds.	X	X	X
<b>BALD EAGLE:</b> No options other than habitat protection have been identified.			

*Xs are larger than others*

**COASTAL HABITAT** Alternatives 3 4 5

* <b>INTERTIDAL ORGANISMS:</b> Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	x	x	x
<b>SUBTIDAL ORGANISMS:</b> No restoration options have been identified.			

**DESIGNATED WILDERNESS AREAS** 3 4 5

No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.

**ARCHAEOLOGY** Alternatives 3 4 5



Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

**SERVICES**

Alternatives

3	4	5
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Resource options shown above also benefit many services.

**RECREATION AND COMMERCIAL TOURISM:** Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.

x	x	x
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Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.

x
---

Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.

x
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**RECREATION - SPORT FISHING:** Replace lost harvest opportunities by creating new fisheries for salmon or trout.

x	x	x
---	---	---

**SUBSISTENCE:** Replace lost harvest opportunities by creating new salmon runs.

x
---

Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.

x	x	x
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Provide new access to traditional foods in areas outside the spill area to restore lost use.

x	x	x
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Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

x
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Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

x
---

**COMMERCIAL FISHING:** Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.

x	x	x
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**PASSIVE USE:** No options other than habitat protection have been identified for this resource.

*map the following*

*Kenai River*

*Red Lake*

*Coghill Lake*

*PWS*

Jon.

by whom?

[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The option evaluation considered: how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that passed the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

The amount of funding allocated to general restoration in all alternatives includes substantially more than the amount needed to fund all the options identified in this list, *in order to accommodate other suggestions?*

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area.

This is especially true of the activities that protect marine, coastal and upland habitats. In additions, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

\* The asterisk in the table denotes those options which may produce **substantial** improvement in the recovery of a biological resource. Those without an "\*" may produce at least some improvement in recovery.

MAMMALS	Alternatives		
	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.			x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x

study

action

action



* <b>SEA OTTER:</b> Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	x	x	x
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
<b>RIVER OTTER:</b> Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			x

FISH	Alternatives		
	3	4	5
* <b>SOCKEYE SALMON:</b> Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.	x	x	x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
Fertilize Coghill Lake in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS.		x	x
* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing.	x	x	x
* <b>PINK SALMON:</b> Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.		x	x
Construct salmon spawning channels and other instream improvements to increase spawning production and provide long-term enhancement. This would have benefits in local areas only.			x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.		x	x
Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.			x
Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.			x
* <b>CUTTHROAT TROUT:</b> Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.		x	x
Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area.			x
* <b>DOLLY VARDEN:</b> Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.		x	x

question the legitimacy of this one...

* <b>PACIFIC HERRING:</b> Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.	x	x
* <b>ROCKFISH:</b> Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.	x	x

<b>BIRDS</b>	Alternatives	3	4	5
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<b>BLACK OYSTERCATCHER:</b> Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas.				X
* Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.	X	X		
<b>COMMON MURRE:</b> Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.				X
* Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X	
* Remove predators at injured colonies or remove predators from islands that previously supported murre.	X	X	X	
<b>HARLEQUIN DUCK:</b> Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.				X
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X	
* <b>MARbled MURRELET:</b> Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X	
* <b>PIGEON GUILLEMOT:</b> Control predator access or remove predators from islands that previously supported birds.	X	X	X	
<b>BALD EAGLE:</b> No options other than habitat protection have been identified.				

<b>COASTAL HABITAT</b>	Alternatives	3	4	5
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* <b>INTERTIDAL ORGANISMS:</b> Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	x	x	x
<b>SUBTIDAL ORGANISMS:</b> No restoration options have been identified.			

<b>DESIGNATED WILDERNESS AREAS</b>	3	4	5
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No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.

<b>ARCHAEOLOGY</b>	Alternatives	3	4	5
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Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

SERVICES	Alternatives	3	4	5
Resource options shown above also benefit many services.				
<b>RECREATION AND COMMERCIAL TOURISM:</b> Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.		x	x	x
Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.				x
Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.				x
<b>RECREATION - SPORT FISHING:</b> Replace lost harvest opportunities by creating new fisheries for salmon or trout.		x	x	x
<b>SUBSISTENCE:</b> Replace lost harvest opportunities by creating new salmon runs.				x
Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.		x	x	x
Provide new access to traditional foods in areas outside the spill area to restore lost use.		x	x	x
Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.				x
Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.				x
<b>COMMERCIAL FISHING:</b> Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.		x	x	x
<b>PASSIVE USE:</b> No options other than habitat protection have been identified for this resource.				



Dave G

[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The option evaluation considered: how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that passed the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

on Wild. Study  
developed and

The amount of funding allocated to general restoration in all alternatives includes substantially more than the amount needed to fund all the options identified in this list. *why? to better # view*

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area.

This is especially true of the activities that protect marine, coastal and upland habitats. In additions, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

\* The asterisk in the table denotes those options which may produce **substantial** improvement in the recovery of a biological resource. Those without an ~~asterisk~~ may produce at least **some** improvement in recovery. *\**

Shading

MAMMALS	Alternatives		
	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.			x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x

LTS?

Shaded

Rele to Shading?

* SEA OTTER: Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	x	x	x
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
RIVER OTTER: Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			x

FISH	Alternatives		
	3	4	5

* SOCKEYE SALMON: Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.	x	x	x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
Fertilize Coghill Lake in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS. <i>Local Benefits only</i>	x	x	
* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing. <i>Local?</i>	x	x	x
* PINK SALMON: Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.		x	x
Construct salmon spawning channels and <u>other instream improvements</u> to increase spawning production and provide long-term enhancement. This would have benefits in local areas only.			x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.	x	x	
Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.			x
Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.			x
* CUTTHROAT TROUT: Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.	x	x	
Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area.			x
* DOLLY VARDEN: Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.	x	x	

Chin Salmon?

feasible?

Not clear?

* PACIFIC HERRING: Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.	x	x
* ROCKFISH: Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.	x	x

<b>BIRDS</b>	Alternatives	3	4	5
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BLACK OYSTERCATCHER: Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas. <i>local only (see intertidal)</i>				X
* Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.	X	X		
COMMON MURRE: Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.				X
* Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X	
* Remove predators at injured colonies or remove predators from islands that previously supported murre.	X	X	X	
HARLEQUIN DUCK: Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.				X
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X	
* MARBLED MURRELET: Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X	
* PIGEON GUILLEMOT: Control predator access or remove predators from islands that previously supported birds.	X	X	X	
BALD EAGLE: No options other than habitat protection have been identified.				

<b>COASTAL HABITAT</b>	Alternatives	3	4	5
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* INTERTIDAL ORGANISMS: Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	x	x	x
SUBTIDAL ORGANISMS: No restoration options have been identified. <i>None</i>			

<b>DESIGNATED WILDERNESS AREAS</b>	3	4	5
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No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.

<b>ARCHAEOLOGY</b>	Alternatives	3	4	5
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Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

<b>SERVICES</b>	Alternatives	3	4	5
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Resource options shown above also benefit many services.

<b>RECREATION AND COMMERCIAL TOURISM:</b> Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.	x	x	x
Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.			x
Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.			x
<b>RECREATION - SPORT FISHING:</b> Replace lost harvest opportunities by creating new fisheries for salmon or trout.	x	x	x
<b>SUBSISTENCE:</b> Replace lost harvest opportunities by creating new salmon runs.			x
Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.	x	x	x
Provide new access to traditional foods in areas outside the spill area to restore lost use.	x	x	x
Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			x
Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			x
<b>COMMERCIAL FISHING:</b> Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.	x	x	x
<b>PASSIVE USE:</b> No options other than habitat protection have been identified for this resource.			

*Legal?*

Byron

[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The ~~option~~ <sup>of options</sup> evaluation considered: how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that ~~passed~~ <sup>passed</sup> the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

*favorable*

*passed review*

The amount of funding ~~allocated~~ <sup>allocated</sup> to general restoration in all alternatives includes substantially more ~~than the amount needed to fund all the options identified in this list.~~

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area.

This is especially true of the activities that protect marine, coastal and upland habitats. In additions, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

\* The asterisk in the table denotes those options which may produce substantial improvement in the recovery of a biological resource. Those without an "\*" may produce at least some improvement in recovery.

MAMMALS	Alternatives		
	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.			x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x



- \* **SEA OTTER:** Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only. x x x
- \* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only. x x x
- \* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest. x x x

**RIVER OTTER:** Develop sport and trapping harvest guidelines to aid in the recovery of injured populations. x

<b>FISH</b>	Alternatives	3	4	5
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- \* **SOCKEYE SALMON:** Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement. x x x
  - Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only. x
  - Fertilize <sup>Lakes</sup> ~~Coghill Lake~~ in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS. x x
- \* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing. x x x
- \* **PINK SALMON:** Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock. x x
  - Construct salmon spawning channels and other instream improvements to increase spawning production and provide long-term enhancement. This would have benefits in local areas only. x
  - Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only. x
- \* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon. x x
  - Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only. x
  - Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area. x
- \* **CUTTHROAT TROUT:** Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity. x x
  - Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area. x
- \* **DOLLY VARDEN:** Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity. x x

Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

**SERVICES**

Alternatives

3	4	5
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Resource options shown above also benefit many services.

~~RECREATION AND COMMERCIAL TOURISM:~~ Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.

Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.

Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.

~~RECREATION - SPORT FISHING:~~ Replace lost harvest opportunities by creating new fisheries for salmon or trout.

~~SUBSISTENCE:~~ Replace lost harvest opportunities by creating new salmon runs.

Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.

Provide new access to traditional foods in areas outside the spill area to restore lost use.

Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

~~COMMERCIAL FISHING:~~ Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.

**PASSIVE USE:** No options other than habitat protection have been identified for this resource.



Sandy

[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The option evaluation considered: how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that passed the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

The amount of funding allocated to general restoration in all alternatives includes substantially more than the amount needed to fund all the options identified in this list.

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area.

This is especially true of the activities that protect marine, coastal and upland habitats. In additions, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

\* The asterisk in the table denotes those options which may produce substantial improvement in the recovery of a biological resource. Those without an "\*" may produce at least some improvement in recovery.

MAMMALS	Alternatives		
	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.			x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x

* SEA OTTER: Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	x	x	x
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
RIVER OTTER: Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			x

FISH	Alternatives	3	4	5
* SOCKEYE SALMON: Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.		x	x	x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.				x
Fertilize Coghill Lake in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS.			x	x
* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing.		x	x	x
* PINK SALMON: Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.			x	x
Construct salmon spawning channels and other instream improvements to increase spawning production and provide long-term enhancement. This would have benefits in local areas only.				x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.				x
* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.			x	x
Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.				x
Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.				x
* CUTTHROAT TROUT: Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.		x	x	
Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area.				x
* DOLLY VARDEN: Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.		x	x	

* PACIFIC HERRING: Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.	x	x
* ROCKFISH: Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.	x	x

<b>BIRDS</b>	Alternatives	3	4	5
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BLACK OYSTERCATCHER: Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas.				X
* Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.	X	X		
COMMON MURRE: Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.				X
* Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X	
* Remove predators at injured colonies or remove predators from islands that previously supported murre.	X	X	X	
HARLEQUIN DUCK: Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.				X
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X	
* MARBLED MURRELET: Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X	
* PIGEON GUILLEMOT: Control predator access or remove predators from islands that previously supported birds.	X	X	X	
BALD EAGLE: No options other than habitat protection have been identified.				

<b>COASTAL HABITAT</b>	Alternatives	3	4	5
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* INTERTIDAL ORGANISMS: Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	x	x	x
SUBTIDAL ORGANISMS: No restoration options have been identified.			

<b>DESIGNATED WILDERNESS AREAS</b>	3	4	5
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No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.

<b>ARCHAEOLOGY</b>	Alternatives	3	4	5
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*Keep on the same*

Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

**SERVICES**

Alternatives

3	4	5
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Resource options shown above also benefit many services.

~~RECREATION AND COMMERCIAL TOURISM:~~ Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.

Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.

Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.

~~RECREATION - SPORT FISHING:~~ Replace lost harvest opportunities by creating new fisheries for salmon or trout.

SUBSISTENCE: Replace lost harvest opportunities by creating new salmon runs.

Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.

Provide new access to traditional foods in areas outside the spill area to restore lost use.

Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

COMMERCIAL FISHING: Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.

PASSIVE USE: No options other than habitat protection have been identified for this resource.

*separate*

*split out as Comm. Tourism?*

*re-order same as other lists.*

*subset*

*sport fishing*

Mark B

[Note to reviewers, Page 8 of the brochure begins here.]

**General Restoration**

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The option evaluation considered: how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that passed the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

The amount of funding allocated to general restoration in all alternatives includes substantially more than the amount needed to fund all the options identified in this list.

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area.

This is especially true of the activities that protect marine, coastal and upland habitats. In additions, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

\* The asterisk in the table denotes those options which may produce **substantial** improvement in the recovery of a biological resource. Those without an "\*" may produce at least **some** improvement in recovery.

MAMMALS	Alternatives	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.				x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x	
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x	
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x	

* SEA OTTER: Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	x	x	x
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
RIVER OTTER: Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			x

FISH	Alternatives		
	3	4	5
* SOCKEYE SALMON: Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.	x	x	x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
Fertilize Coghill Lake in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS.		x	x
* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing.	x	x	x
* PINK SALMON: Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.		x	x
Construct salmon spawning channels and other instream improvements to increase spawning production and provide long-term enhancement. This would have benefits in local areas only.			x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.		x	x
Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.			x
Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.			x
* CUTTHROAT TROUT: Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.	x	x	
Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area.			x
* DOLLY VARDEN: Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.	x	x	

* PACIFIC HERRING: Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.	x	x
* ROCKFISH: Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.	x	x

BIRDS	Alternatives		
	3	4	5
BLACK OYSTERCATCHER: Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas.			X
* Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.	X	X	
COMMON MURRE: Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.			X
* Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X
* Remove predators at injured colonies or remove predators from islands that previously supported murre.	X	X	X
HARLEQUIN DUCK: Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.			X
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X
* MARBLED MURRELET: Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X
* PIGEON GUILLEMOT: Control predator access or remove predators from islands that previously supported birds.	X	X	X
BALD EAGLE: No options other than habitat protection have been identified.			

COASTAL HABITAT	Alternatives		
	3	4	5

* INTERTIDAL ORGANISMS: Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	x	x	x
SUBTIDAL ORGANISMS: No restoration options have been identified.			

DESIGNATED WILDERNESS AREAS	Alternatives		
	3	4	5

No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.

ARCHAEOLOGY	Alternatives		
	3	4	5



Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

**SERVICES**

Alternatives

3	4	5
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Resource options shown above also benefit many services.

<b>RECREATION AND COMMERCIAL TOURISM:</b> Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.	x	x	x
Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.			x
Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.			x
<b>RECREATION - SPORT FISHING:</b> Replace lost harvest opportunities by creating new fisheries for salmon or trout.	x	x	x
<b>SUBSISTENCE:</b> Replace lost harvest opportunities by creating new salmon runs.			x
Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.	x	x	x
Provide new access to traditional foods in areas outside the spill area to restore lost use.	x	x	x
Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			x
Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			x
<b>COMMERCIAL FISHING:</b> Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.	x	x	x
<b>PASSIVE USE:</b> No options other than habitat protection have been identified for this resource.			

Ken

[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The option evaluation considered: how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that passed the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

*This is a red flag statement.*

The amount of funding allocated to general restoration in all alternatives includes substantially more than the amount needed to fund all the options identified in this list.

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area.

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\* The asterisk in the table denotes those options which may produce **substantial** improvement in the recovery of a biological resource. Those without an "\*" may produce at least **some** improvement in recovery.

MAMMALS	Alternatives		
	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.			x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x

* SEA OTTER: Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	x	x	x
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
RIVER OTTER: Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			x

<b>FISH</b>	Alternatives	3	4	5
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* SOCKEYE SALMON: Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.	x	x	x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.	(x)	x	?
Fertilize Coghill Lake in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS.		x	x
* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing.	x	x	x
* PINK SALMON: Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.		x	x
Construct salmon spawning channels and other instream improvements to increase spawning production and provide long-term enhancement. This would have benefits in local areas only.	?		x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.	?		x
* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.		x	x
Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.	?		x
Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.			x
* CUTTHROAT TROUT: Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.	x	x	
Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area.			x
* DOLLY VARDEN: Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.	x	x	

* PACIFIC HERRING: Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.	x	x
* ROCKFISH: Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.	x	x

<b>BIRDS</b>	Alternatives	3	4	5
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BLACK OYSTERCATCHER: Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas.				X
* Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.	X	X		
COMMON MURRE: Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.				X
* Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X	
* Remove predators at injured colonies or remove predators from islands that previously supported murre.	X	X	X	
HARLEQUIN DUCK: Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.				X
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X	
* MARBLED MURRELET: Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X	
* PIGEON GUILLEMOT: Control predator access or remove predators from islands that previously supported birds.	X	X	X	
BALD EAGLE: No options other than habitat protection have been identified.				

<b>COASTAL HABITAT</b>	Alternatives	3	4	5
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* INTERTIDAL ORGANISMS: Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	x	x	x
SUBTIDAL ORGANISMS: No restoration options have been identified.			

<b>DESIGNATED WILDERNESS AREAS</b>	3	4	5
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No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.

<b>ARCHAEOLOGY</b>	Alternatives	3	4	5
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Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

SERVICES	Alternatives		
	3	4	5
Resource options shown above also benefit many services.			
<b>RECREATION AND COMMERCIAL TOURISM:</b> Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.	x	x	x
Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.			x
Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.			x
<b>RECREATION - SPORT FISHING:</b> Replace lost harvest opportunities by creating new fisheries for salmon or trout.	x	x	x
<b>SUBSISTENCE:</b> Replace lost harvest opportunities by creating new salmon runs.			x
Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.	x	x	x
Provide new access to traditional foods in areas outside the spill area to restore lost use.	x	x	x
Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			x
Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			x
<b>COMMERCIAL FISHING:</b> Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.	x	x	x
<b>PASSIVE USE:</b> No options other than habitat protection have been identified for this resource.			

Marty

[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The option evaluation considered how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that passed the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

The amount of funding allocated to general restoration in all alternatives includes substantially more than the amount needed to fund all the options identified in this list.

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area.

This is especially true of the activities that protect marine, coastal and upland habitats. In additions, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

\* The asterisk in the table denotes those options which may produce **substantial** improvement in the recovery of a biological resource. Those without an "\*" may produce at least some improvement in recovery.

MAMMALS	Alternatives	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.				x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x	
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x	
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x	

* <b>SEA OTTER:</b> Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	x	x	x
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
<b>RIVER OTTER:</b> Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			x

FISH	Alternatives		
	3	4	5
* <b>SOCKEYE SALMON:</b> Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.	x	x	x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
Fertilize Coghill Lake in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS.		x	x
* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing.	x	x	x
* <b>PINK SALMON:</b> Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.		x	x
Construct salmon spawning channels and other instream improvements to increase spawning production and provide long-term enhancement. This would have benefits in local areas only.			x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.		x	x
Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.			x
Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.			x
* <b>CUTTHROAT TROUT:</b> Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.		x	x
Update the Alaska Anadromous Streams Catalog to ensure necessary protection and regulation for all listed anadromous streams in the spill area.			x
* <b>DOLLY VARDEN:</b> Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.		x	x



* <b>PACIFIC HERRING:</b> Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.	x	x
* <b>ROCKFISH:</b> Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.	x	x

<b>BIRDS</b>	Alternatives	3	4	5
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*type size*

<b>BLACK OYSTERCATCHER:</b> Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas.				X
* Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.	X	X		
<b>COMMON MURRE:</b> Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.				X
* Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X	
* Remove predators at injured colonies or remove predators from islands that previously supported murre.	X	X	X	
<b>HARLEQUIN DUCK:</b> Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.				X
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X	
* <b>MARBLED MURRELET:</b> Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X	
* <b>PIGEON GUILLEMOT:</b> Control predator access or remove predators from islands that previously supported birds.	X	X	X	
<b>BALD EAGLE:</b> No options other than habitat protection have been identified.				

*This makes me nervous if these are natural predators*

<b>COASTAL HABITAT</b>	Alternatives	3	4	5
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* <b>INTERTIDAL ORGANISMS:</b> Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	x	x	x
<b>SUBTIDAL ORGANISMS:</b> No restoration options have been identified.			

<b>DESIGNATED WILDERNESS AREAS</b>	3	4	5
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No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.

<b>ARCHAEOLOGY</b>	Alternatives	3	4	5
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Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

what?  
is this?

SERVICES	Alternatives	3	4	5

Resource options shown above also benefit many services.

**RECREATION AND COMMERCIAL TOURISM:** Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.

x x x

Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.

x

Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.

x

**RECREATION - SPORT FISHING:** Replace lost harvest opportunities by creating new fisheries for salmon or trout.

x x x

**SUBSISTENCE:** Replace lost harvest opportunities by creating new salmon runs.

x

Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.

x x x

Provide new access to traditional foods in areas outside the spill area to restore lost use.

x x x

Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

x

Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

x

**COMMERCIAL FISHING:** Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.

x x x

**PASSIVE USE:** No options other than habitat protection have been identified for this resource.

not explained elsewhere?

Jack

[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The option evaluation considered: how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that passed the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

The amount of funding allocated to general restoration in all alternatives includes substantially more than the amount needed to fund all the options identified in this list.

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area.

This is especially true of the activities that protect marine, coastal and upland habitats. In additions, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

\* The asterisk in the table denotes those options which may produce **substantial** improvement in the recovery of a biological resource. Those without an "\*" may produce at least **some** improvement in recovery.

MAMMALS	Alternatives	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.				x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x	
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x	
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x	

* <b>SEA OTTER:</b> Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	x	x	x
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
<b>RIVER OTTER:</b> Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			x

<b>FISH</b>	Alternatives		
	3	4	5
* <b>SOCKEYE SALMON:</b> Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.	x	x	x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
Fertilize Coghill Lake in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS.		x	x
* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing.	x	x	x
* <b>PINK SALMON:</b> Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.		x	x
Construct salmon spawning channels and other instream improvements to increase spawning production and provide long-term enhancement. This would have benefits in local areas only.			x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.		x	x
Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.			x
Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.			x
* <b>CUTTHROAT TROUT:</b> Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.		x	x
Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area.			x
* <b>DOLLY VARDEN:</b> Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.		x	x

* <b>PACIFIC HERRING:</b> Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.	x	x
* <b>ROCKFISH:</b> Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.	x	x

<b>BIRDS</b>	Alternatives		
	3	4	5
<b>BLACK OYSTERCATCHER:</b> Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas.			X
* Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.	X	X	
<b>COMMON MURRE:</b> Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.			X
* Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X
* Remove predators at injured colonies or remove predators from islands that previously supported murre.	X	X	X
<b>HARLEQUIN DUCK:</b> Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.			X
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X
* <b>MARBLED MURRELET:</b> Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X
* <b>PIGEON GUILLEMOT:</b> Control predator access or remove predators from islands that previously supported birds.	X	X	X
<b>BALD EAGLE:</b> No options other than habitat protection have been identified.			

<b>COASTAL HABITAT</b>	Alternatives		
	3	4	5
* <b>INTERTIDAL ORGANISMS:</b> Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	x	x	x
<b>SUBTIDAL ORGANISMS:</b> No restoration options have been identified.			

<b>DESIGNATED WILDERNESS AREAS</b>	3	4	5
No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.			

<b>ARCHAEOLOGY</b>	Alternatives		
	3	4	5

Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

## SERVICES

Alternatives

3

4

5

Resource options shown above also benefit many services.

<b>RECREATION AND COMMERCIAL TOURISM:</b> Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.	x	x	x
Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.			x
Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.			x
<b>RECREATION - SPORT FISHING:</b> Replace lost harvest opportunities by creating new fisheries for salmon or trout.	x	x	x
<b>SUBSISTENCE:</b> Replace lost harvest opportunities by creating new salmon runs.			x
Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.	x	x	x
Provide new access to traditional foods in areas outside the spill area to restore lost use.	x	x	x
Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			x
Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.			x
<b>COMMERCIAL FISHING:</b> Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.	x	x	x
<b>PASSIVE USE:</b> No options other than habitat protection have been identified for this resource.			



[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

The General Restoration category of alternatives 3 through 5 includes various restoration actions which have been suggested throughout the planning process. The suggestions were evaluated by scientists and peer reviewers. Those that were determined to be effective have been combined into general options and are listed below. Those general options may include a number of specific projects. The option evaluation considered: how recovery was aided and whether further potential injury could be prevented. Other considerations included negative effects, how many species benefit, human health and safety, and cost effectiveness. No options were identified for restoring subtidal resources, air, water, sediment or designated wilderness areas. The list on this page provides examples of restoration options that passed the evaluation process. New options will continue to be evaluated as the restoration plan is implemented.

Potential ↑  
Further removal?

By what?

The amount of funding allocated to general restoration in all alternatives includes substantially more than the amount needed to fund all the options identified in this list.

Many options would have wide-ranging impacts throughout the spill area. Most options that help resources also help the services that are dependent upon them. An option targeted to improve the recovery of a single resource may greatly benefit other resources that occur in the same area. e.g.

This is especially true of the activities that protect marine, coastal and upland habitats. In additions, options that benefit the foundation of a food web, such as marine invertebrates, would ultimately benefit top predators such as whales and eagles.

\* The asterisk in the table denotes those options which may produce **substantial** improvement in the recovery of a biological resource. Those without an "\*" may produce at least **some** improvement in recovery.

MAMMALS	Alternatives		
	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.			x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x



* <b>SEA OTTER:</b> Determine the effects of disturbance of upland activities on sea otters and implement actions to reduce adverse effects. This would have benefits in local areas only.	x	x	x
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination to sea otter food and take appropriate action. This would have benefits in local areas only.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
<b>RIVER OTTER:</b> Develop sport and trapping harvest guidelines to aid in the recovery of injured populations.			x

<b>FISH</b>	Alternatives		
	3	4	5
* <b>SOCKEYE SALMON:</b> Intensify management of sockeye salmon on the Kenai River and Red Lake to reduce the risk of overescapement.	x	x	x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
Fertilize Coghill Lake in PWS to improve sockeye rearing success within the lake and increase sockeye population in PWS.		x	x
* Improve survival rates of salmon eggs to fry by using egg boxes, net pens or hatchery rearing.	x	x	x
* <b>PINK SALMON:</b> Intensify management by incorporating coded-wire tagging and stock separation to ensure and accelerate the recovery of the wild stock.		x	x
Construct salmon spawning channels and other instream improvements to increase spawning production and provide long-term enhancement. This would have benefits in local areas only.			x
Improve access to salmon streams by building fish passes to increase the area where salmon can successfully spawn and rear. This would have benefits in local areas only.			x
* Relocate hatchery runs of pink salmon to reduce the interception rate of wild stocks of pink salmon.		x	x
Improve survival rates of salmon eggs to fry by using egg boxes, net pens, or hatchery rearing. This would have benefits in local areas only.			x
Update the Alaska Anadromous Streams Catalog to ensure that the necessary protection and regulation is provided for all listed salmon streams in the spill area.			x
* <b>CUTTHROAT TROUT:</b> Intensify management of cutthroat trout and its dependent sport fishery by determining local distribution, abundance, and productivity.		x	x
Update the Alaska Anadromous Streams Catalogue to ensure necessary protection and regulation for all listed anadromous streams in the spill area.			x
* <b>DOLLY VARDEN:</b> Intensify management of Dolly Varden and its dependent sport fishery by determining local distribution, abundance and productivity.		x	x

* <b>PACIFIC HERRING:</b> Intensify management to improve recovery by allowing increased precision in stock assessment and manipulation of harvest levels.	x	x
* <b>ROCKFISH:</b> Intensify management of the rockfish fishery to modify the harvest to compensate for injury from the spill.	x	x

<b>BIRDS</b>	Alternatives		
	3	4	5
<b>BLACK OYSTERCATCHER:</b> Accelerate the recovery of the upper intertidal zone to improve the rate of recovery in site-specific areas.			X
* Remove predators from islands that previously supported black oystercatchers. Effectiveness varies by location.	X	X	
<b>COMMON MURRE:</b> Reduce disturbance at breeding colonies to eliminate factors which could slow the recovery of affected murre colonies.			X
* Use artificial stimuli such as decoys or vocalizations to encourage recovery at affected colonies and accelerate recolonization of historic colonies.	X	X	X
* Remove predators at injured colonies or remove predators from islands that previously supported murre.	X	X	X
<b>HARLEQUIN DUCK:</b> Modify sport hunting harvest guidelines in the areas of injured populations to speed the rate of recovery during the recovery phase.			X
* Determine if eliminating oil from mussel beds removes a potential source of continuing contamination in feeding areas and take appropriate action. This would have benefits in local areas only.	X	X	X
* <b>MARbled MURRELET:</b> Minimize the incidental capture of birds in fishing nets by changes in gear or timing of fishing.	X	X	X
* <b>PIGEON GUILLEMOT:</b> Control predator access or remove predators from islands that previously supported birds.	X	X	X
<b>BALD EAGLE:</b> No options other than habitat protection have been identified.			

<b>COASTAL HABITAT</b>	Alternatives		
	3	4	5
* <b>INTERTIDAL ORGANISMS:</b> Accelerate the recovery of the upper intertidal zone to aid intertidal resources in localized areas.	x	x	x
<b>SUBTIDAL ORGANISMS:</b> No restoration options have been identified.			

<b>DESIGNATED WILDERNESS AREAS</b>	3	4	5
No options have been identified for Designated Wilderness Areas or Wilderness Study Areas.			

<b>ARCHAEOLOGY</b>	Alternatives		
	3	4	5

Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

**SERVICES**

Alternatives

3	4	5
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Resource options shown above also benefit many services.

**RECREATION AND COMMERCIAL TOURISM:** Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.

Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.

Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.

**RECREATION - SPORT FISHING:** Replace lost harvest opportunities by creating new fisheries for salmon or trout.

**SUBSISTENCE:** Replace lost harvest opportunities by creating new salmon runs.

Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.

Provide new access to traditional foods in areas outside the spill area to restore lost use.

Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

**COMMERCIAL FISHING:** Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.

**PASSIVE USE:** No options other than habitat protection have been identified for this resource.

Separate rec. + commercial tourism

collapse with recreation

OK

*Maria*

[Note to reviewers, Page 8 of the brochure begins here.]

### General Restoration

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\* The asterisk in the table denotes ~~those~~ <sup>that</sup> options ~~which~~ may produce substantial improvement in the recovery of a biological resource. Those without an "\*" may produce at least some improvement in recovery.

MAMMALS	Alternatives		
	3	4	5
HARBOR SEAL: Determine the effects of disturbance on harbor seals and implement actions to reduce adverse effects.			x
* Implement cooperative programs between fishermen and agencies to provide voluntary methods to reduce incidental take of harbor seals during fishing.	x	x	x
* Implement cooperative programs between subsistence users and agencies to assess the effects of subsistence harvest.	x	x	x
* KILLER WHALE: Determine techniques for changing black cod fishery gear to avoid conflicts with fishermen and implement actions to remove adverse effects.		x	x

Develop a site stewardship program using local residents to monitor nearby archaeological sites to discourage looting and vandalism.	x	x	x
Increase law enforcement and agency presence to patrol and monitor archaeological sites within the spill area would protect sites from looting and vandalism.	x	x	x
Preserve archaeological sites and artifacts within the spill area to provide some measure of permanent protection for select archaeological resources.	x	x	x
Acquire replacements for artifacts from the spill area as a means of preserving and studying artifacts which were taken from the spill area prior to the spill.		x	x

**SERVICES**

Alternatives

3	4	5
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Resource options shown above also benefit many services.

**RECREATION AND COMMERCIAL TOURISM:** Develop new backcountry public recreation facilities to protect both recreation and the resources on which it depends; for example, by providing an outhouse in a heavily used area.

x	x	x
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Plan and market public land for commercial recreational use to provide additional opportunities for commercial operators and recreationists to use public lands.

x
---

Create new visitor centers or build a marine environmental institute to benefit all injured resources. Increase public awareness of the nature of injury and recovery and an understanding of the ecosystem of the area.

x
---

**RECREATION - SPORT FISHING:** Replace lost harvest opportunities by creating new fisheries for salmon or trout.

x	x	x
---	---	---

**SUBSISTENCE:** Replace lost harvest opportunities by creating new salmon runs.

x
---

Test subsistence foods for continued contamination as a means of restoring confidence in the safety of subsistence resources within the spill area.

x	x	x
---	---	---

Provide new access to traditional foods in areas outside the spill area to restore lost use.

x	x	x
---	---	---

~~Develop subsistence mariculture sites to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.~~

x
---

Develop a shellfish hatchery and technical research center to benefit subsistence users by providing a source of uncontaminated shellfish for their diets.

x
---

**COMMERCIAL FISHING:** Replace harvest opportunities by creating new fish runs to replace commercial fishing opportunities lost due to fishing closures or reduced harvest.

x	x	x
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~~PASSIVE USE: No options other than habitat protection have been identified for this resource.~~