

RESTORATION PLANNING WORK GROUP/RESTORATION TEAM  
FEBRUARY 5, 1993  
10:00 A.M.

**ATTENDEES**

Dave Gibbons  
Marty Rutherford  
Mark Brodersen  
Ray Thompson  
Bob Loeffler  
Chris Swenson  
John Strand  
Veronica Gilbert  
Karen Klinge  
Pam Bergmann  
Jerome Montague

**The following items were distributed:**

Memo from Pam Bergmann to Dave Gibbons dated 2/4/93  
End of Trustee Symposium Response Statement

**BUDGET**

Dave proposed 4% for Administrative cost for alternative #2. Marty stated a footnote is needed stating that some costs, such as evaluations, are carried within the habitat protection fund. Ken stated this should be added as part of the text. Pam stated that you should include that this is averaged over a ten-year period. Dave stated the cost for habitat protection is built into the habitat protection line.

The administrative cost proposal was modified and agreed upon as follows:

Alt. #1 - 1%  
Alt. #2 - 4%  
Alt. #3 - 6%  
Alt. #4 - 7%  
Alt. #5 - 7%

Dave made the following suggestions for reductions in cost:

Admin. Director (1.2 to 1.3) (minus OSPIC and four staff)  
Finance Committee - keep  
Restoration Team - keep (somewhat uncomfortable)  
PAG - reduce to \$200,000 (.2)  
Peer Review - reduce to \$200,000 (.2)  
1994 Work Plan - should be easier - \$300,000 (6%)

Mark stated he felt the numbers above were too low. Byron agreed with Mark. Bob suggested indicating in the text that we expect to have high numbers for the next two years. The numbers for restoration are a ten-year average. Mark stated he is also uncomfortable with the numbers for peer review and the Chief Scientist going down. Dave stated alternatives 3 and 4 should not be above 6%. The RT disagreed and voted to increase alternatives 3 and 4 to 7%.

Jerome diagramed the following pie chart information:

<b>ALTERNATIVES</b>	<b>3</b>	<b>4</b>	<b>5</b>
Administration	6(8)	7(9)	7(10)
Monitoring	8	10	12
Other Restoration	14(7)	22(10)	36(22)
Hab. Protection	72(62)	61(57)	45(42)
Reserve	15	14	14

**Note:** The number in parenthesis represents a range.

Dave stated that because all restoration options cannot be identified, reserve should be used for the unknowns which come up. The RT agreed that any double counting from monitoring should go into other restoration.

John stated he, Carol and Chris will meet with Spies tonight to reconcile the injury table. Bob stated that a footnote will be added if a population level effect is possible. Dave stated the key is to match the text and table. Pam stated it is a policy decision on how to handle something when there is disagreement on population level effect. Bob stated on page 5 of the table, some chronic effects will be noted as "possibly". Bob stated that enough text will be included to understand what the tables mean. A new pie chart will be made to reflect any changes.

Mark stated contingency planning needs to drop out of the table because it is a normal agency function. Dave agreed. Mark also stated that spill prevention needs to be pulled out and possibly added to chapter 6. Bob stated that a decision needs to be made on spill prevention and whether it is covered under the settlement (civil or criminal). Dave stated the Trustees need to resolve this issue. Pam suggested that legal guidance is needed. Bob stated that spill prevention/response technology should have an appropriate location in the plan and stated that there will be a placeholder inserted into the text until this issue is resolved.

Mark stated that "special designation" is not appropriate to be singled out as a restoration option; however, it is one aspect of normal management activities. Making special designation a restoration option would be giving it too much credit. Mark stated we are charged with gathering the information necessary to justify



management actions. Chris stated special designation parallels the habitat protection process. Marty suggested using "agency management actions recommendations" to capture special designation. Mark stated that special designation is a subset of conceivable actions. Pam stated this issue should be put on hold and other comments reviewed. The RT agreed to defer this issue. Dave stated that headings for sections would be helpful. Byron stated there were blank boxes under commercial fishing and sea otters. Mark suggested adding "none identified yet". Bob stated on page 19 it would be noted those things for which nothing can be done. Sockeye was not included. Bob will check this out. Dave stated it is extremely suspect that it is absent. Bob stated that the table on page 27 has not been finalized and requires more discussion. Dave stated Option 44 should be taken out. Pam stated the table needs to be made consistent. Dave stated on page 32 under murre some change needs to be made to make it more descriptive. Dave asked if under salmon does "run" mean per stream and felt it needs clarification for the public.

Jerome raised a question of the accuracy of sockeye information. Bob stated that RPWG cannot arbitrarily change what the peer reviewers said. Ken reiterated that the main direction to RPWG is to make the information consistent. Mark suggested solving the special designation issue by renaming it. Chris suggested adding an old option "review existing management actions". Mark stated you don't want to have two separate options. Chris stated with a broader title, people might think there is overlap. Mark suggested letting RPWG deal with this renaming issue.

RPWG will come back with:

injury table (assuming there is concurrence with Spies)  
other tables (alternatives) with enough text to explain tables  
(Monday to RT)

Pam asked how comments will be dealt with. Dave stated that could be facilitated possibly through a teleconference at 3:00 on Monday. Comments are to be forwarded to Dave by 12:00.

John asked if alternative themes (one page) can be given to the PAG. Dave stated "yes".

Dave summarized the distribution of work products as follows:

services table only to TC  
alternative themes summary sheet to the TC, public  
resources injury table (to be determined Monday), possibly to TC  
budget table and pie charts to the TC, public  
rest of the alternatives package to the TC only

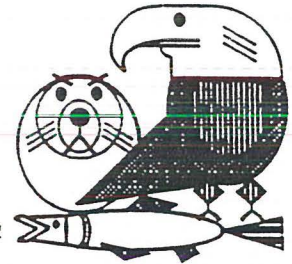
Meeting adjourned at 12:45.

# Exxon Valdez Oil Spill Trustee Council

Restoration Office

645 "G" Street, Anchorage, AK 99501


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



February 4, 1993

## MEMORANDUM

**TO:** Dave Gibbons, EVOS Interim Administrative Director

**FROM:**  Pamela Bergmann, Department of the Interior, EVOS Restoration Team Member

**SUBJECT:** Department of the Interior Preliminary Comments on the Draft Injury Tables and Restoration Plan Alternatives

As requested at the February 1, 1993 Restoration Team meeting, the Department of the Interior (DOI) has conducted a preliminary review of the draft "Table X Resources: Summary of Results of Injury Assessment Studies Done after the Exxon Valdez Oil Spill", "Table XX Services: Summary of Results of Injury Assessment Studies Done after the Exxon Valdez Oil Spill", and summary tables describing alternatives from Chapter V of the preliminary draft Restoration Plan. Comments were due to you by Noon on February 4, 1993.

As you know, these documents were not provided to the Restoration Team until mid-afternoon on February 1, 1993, and the review period coincided with the EVOS Symposium. Consequently, we were provided insufficient time to review these critical materials, and their review resulted in DOI and bureau staff missing important sessions of the EVOS Symposium.

Due to the short response period, it was not possible for DOI to thoroughly review the subject documents. Therefore, the following comments are cursory and preliminary. More specific comments will be prepared after we have had sufficient time to adequately review these materials.

### **INJURY TABLES**

The information summarized in Table X needs to be reconciled so it is consistent with information presented in the text. Specific comments on Tables X and XX (enclosed) must be addressed.

The Chief Scientist must concur with the resource injury information contained in Table X prior to its submittal to the Trustee Council.

The services table (Table XX) needs to be peer reviewed prior to its submittal to the Trustee Council.

## ***RESTORATION ALTERNATIVES***

The basis for the cost estimates needs to be explained.

It would be useful to present specific priorities, or at least a general statement of priorities (e.g., emphasis on restoring species with long natural recovery rates or those more severely injured) for options within each alternative over time. It may be appropriate to include that information in the final Restoration Plan. This level of detail will provide important guidance for annual work plans.

In most cases, the alternatives and/or options must provide more specific information regarding the location and timeframe for actions to be undertaken. Without this information, the public will not have a clear idea of what will be done, where and when. As a result, a meaningful comparison of actions and their impacts cannot be completed.

Table V-1 needs an additional variable: "Opportunities for replacing injured resources" with the notes for the alternatives being: Alt. #1--N/A; Alt. #2 and #3--None; Alt. #4 and #5--Most effective actions. In the text, add the following description: "POLICY VARIABLE: Opportunities for replacing injured resources. The court settlement allows the Trustees broad leeway in selecting activities to undertake in support of restoration. For those injured resources that take the longest period to recover (e.g., 50 years or more), or have limited options for restoration action, additional measures have been identified to increase populations outside the spill area (within the state of Alaska). If this approach cannot be incorporated into the alternatives, another approach that addresses this concern needs to be developed.

DOI believes that prior to their submittal to the Trustee Council, these documents must be thoroughly reviewed by the Restoration Team, revised based on review comments, and resubmitted to the Restoration Team for approval.

Enclosure



Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate)(b)	Decline in Population after the spill	<u>Evidence of Sublethal or Chronic Effects</u>	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Sea Lions (c)	UNKNOWN	UNKNOWN	NO	CONTINUING DECLINE	(e)	(e)	(e)	(e)	(e)	Several sea lions were observed with oiled pelts and oil residues were found in some tissues. It was not possible to determine population effects or cause of death of carcasses recovered. Sea lion populations were declining prior to the oil spill.
Sea Otters (10,000 PWS 20,000 Kenai)	YES (3,500 TO 5,000)	YES	YES	STABLE, BUT NOT RECOVERING	YES, POSSIBLY	YES	YES	YES (d)	YES (d)	Post-spill surveys showed measurable difference in populations and survival between oiled and unoled areas in 1989, 1990 and 1991. Survey data have not established a significant recovery. Prime-age animals were still found on beaches in 1989, 1990 and 1991. Carcasses of sea otters feed in the lower intertidal and subtidal areas and may still be exposed to hydrocarbons in the environment.
TERRESTRIAL MAMMALS										
Black Bear	NO	UNKNOWN	UNKNOWN	(e)	(e)	(e)	(e)	(e)	(e)	No field studies were done.
Brown Bear	NO	NO	NO	(e)	(e)	(e)	(e)	(e)	(e)	Hydrocarbon exposure was documented on Alaska Peninsula in 1989 including high hydrocarbon levels in the bile of one dead-sub. Brown bear feed in the intertidal zone and may still be exposed to hydrocarbons in the environment.

300 killer whales  
→ were 350  
leaves

Yes? see full text  
or unknown?  
(see last statement in comment)

what about 1992?

external + internal

dead yearling - unknown if this resulted in death

Not in text

There may have been an unequal distribution of injury within each region, see map for location of regions;  
 Adjusted for carcasses not found, not reported, scavenged, or otherwise lost;  
 Population may have been declining prior to the spill;  
 Based on recovery of dead animals from this region of the spill zone;  
 If no injury was detected or known, no assessment of recovery could be made;  
 Total body count, not adjusted for carcasses not found.

Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate)(b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
River Otters	YES (NUMBER UNKNOWN)	UNKNOWN	YES	UNKNOWN	YES	YES	UNKNOWN	UNKNOWN	UNKNOWN	Exposure to hydrocarbons and sub-lethal effects were determined, but no effects were established on population. Sub-lethal indicators of possible oil exposure remained in 1991. River otters feed in the intertidal and shallow subtidal areas and may be still be exposed to hydrocarbons in the environment.
Alaska Black-tailed Deer	NO	NO	NO	(e)	(e)	(e)	(e)	(e)	(e)	Slightly elevated hydrocarbons were found in tissues in some deer in 1989. in PWS.

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 If no injury was detected or known, no assessment of recovery could be made;  
 Total body count, not adjusted for carcasses not found.



Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate)(b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	

**BIRDS**

ald Eagles 2,000 PWS 6,000 GCH	YES (614-902)	YES	YES	RECOVERING	UNKNOWN	YES	YES	YES (d)	YES(d)	Productivity in PWS was disrupted in 1989, but returned to normal in 1990. Exposure to hydrocarbons and some sub-lethal effects were found in 1989 and 1990, but no continuing effects were observed on populations.
lack-legged Ittiwakes	YES (NUMBER UNKNOWN)	NO	NO	NO CHANGE	NO	YES	YES (d)	YES (d)	YES (d)	Total reproductive success in oiled and unoiled areas of PWS has declined since 1989. Hydrocarbon contaminated tissues were detected in 1989. Hydrocarbon contaminated stomach contents were detected in 1989 and 1990. This species is known for great natural variation and reproductive failure may be unrelated to the oil spill.
lack Oyster- catchers 9,500 PWS 2,000 GCH	YES (9) (129 ADULTS; UNKNOWN FOR CHICKS (9))	YES	YES	RECOVERING	YES	YES	YES (d)	YES (d)	YES (d)	Differences in egg size between oiled and unoiled areas were found in 1989. Exposure to hydrocarbons and some sublethal effects were determined. Populations declined more in oiled areas than unoiled areas in post-spill surveys in 1989, 1990 and 1991. Black oystercatchers feed in the intertidal areas and may be still be exposed to hydrocarbons in the environment.
ommon Murres	YES (175,000 to 300,000)	YES	YES	DEGREE OF RECOVERY VARIES IN COLONY	YES	NO	YES	YES	YES	Measurable impacts on populations were recorded in 1989, 1990 and 1991. Breeding is still inhibited in some colonies in the Gulf of Alaska

IN 1992,

There may have been an unequal distribution of injury within each region, see map for location of regions;  
 Adjusted for carcasses not found, not reported, scavenged, or otherwise lost;  
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Why aren't these Yes(d)? See other species too.



Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate)(b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Black-necked gulls	YES (NUMBER UNKNOWN)	NOT DETECTED	NO	NO CHANGE	NO	YES (d)	YES (d)	YES (d)	YES (d)	While dead birds were recovered in 1989, there is no evidence of a population level impact when compared to historic (1972, 1973) population levels.
Marlequin ducks	YES (423) <i>doesn't match text</i>	YES	YES	STABLE OR CONTINUING DECLINE	YES	YES	YES (d)	YES (d)	YES (d)	Post-spill samples showed hydrocarbon contamination and poor body conditions. Surveys in 1990-1992 indicated population declines and near total reproductive failure. Marlequin ducks feed in the intertidal and shallow subtidal areas and may still be exposed to hydrocarbons in the environment. <i>what year?</i>
Marbled murrelets (c)	YES (8,000 TO 12,000) <i>doesn't match text</i>	YES	UNKNOWN	STABLE OR CONTINUING DECLINE	UNKNOWN	YES	YES (d)	YES (d)	YES (d)	Measurable population effects were recorded in 1989, 1990 and 1991. Marbled murrelet populations were declining prior to the spill. Hydrocarbon contamination was found in livers of adult birds. <i>what year?</i>
Male's eugrine lions	UNKNOWN	UNKNOWN	NO	(e)	(e)	(e)	(e)	(e)	(e)	When compared to 1985 surveys, a reduction in population and lower than expected productivity was measured in 1989 in the PWS. Cause of these changes are unknown.
Pigeon guillemots (c)	YES (1,500 TO 3,000)	YES	NO	STABLE OR CONTINUING DECLINE	UNKNOWN	YES (d)	YES (d)	YES (d)	YES (d)	Pigeon guillemot populations were declining prior to the spill. Hydrocarbon contamination was found in birds and, externally, on eggs. <i>what year?</i>
Storm Petrels	YES (NUMBER UNKNOWN)	NO	AWAITING RESULTS	NO CHANGE	UNKNOWN	YES (d)	YES (d)	YES (d)	YES (d)	Few carcasses were recovered in 1989 although petrels ingested oil and transferred oil to their eggs. Reproduction was normal in 1989.

→ see marbled murrelets

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Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate)(b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Other Seabirds	YES (375,000-435,000)	VARIES BY SPECIES	UNKNOWN	VARIES BY SPECIES	UNKNOWN	YES (d)	YES (d)	YES (d)	YES (d)	Seabird recovery has not been studied. Species collected dead in 1989 include common, yellow-billed, pacific, red-throated loon; red-necked and horned grebe; northern fulmar; sooty and short-tailed shearwater; double-crested, pelagic, and red-faced cormorant; herring and mew gull; arctic and Aleutian tern; Kittlitz's and ancient murrelet; Cassin's, least, parakeet, and rhinoceros auklet; and horned and tufted puffin.
Other Sea Ducks	YES (875) (b)	NO	UNKNOWN	UNKNOWN	UNKNOWN	YES	YES (d)	YES (d)	YES (d)	Species collected dead in 1989 include Stellar's, king and common eider; white-winged, surf and black scoter; oldsquaw; bufflehead; common and Barrow's goldeneye; and common and red-breasted merganser. Sea ducks tend to feed in the intertidal and shallow subtidal areas which were most heavily impacted by oil.
Other Shorebirds	YES (NUMBER UNKNOWN)	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	YES	YES (d)	YES (d)	YES (d)	Species collected dead in 1989 include golden plover; lesser yellowlegs; semipalmated, western, least and Baird's sandpiper; surfbird; short-billed dowitcher; common snipe; red and red-necked phalarope.
Other Birds	YES (NUMBER UNKNOWN)	UNKNOWN	UNKNOWN	UNKNOWN	UNKNOWN	YES (d)	YES (d)	YES (d)	YES (d)	Species collected dead in 1989 include emperor and Canada goose; brant; mallard; northern pintail; green-winged teal; greater and lesser scaup; ruddy duck; great blue heron; long-tailed jaeger; willow ptarmigan; great-horned owl; Stellar's jay; magpie; common raven; northwestern crow; robin; varied and hermit thrush; yellow warbler; pine grosbeak; savannah and golden-crowned sparrow; white-winged crossbill.

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b) Adjusted for carcasses not found, not reported, scavenged, or otherwise lost;

c) Population may have been declining prior to the spill;

d) Based on recovery of dead animals from this region of the spill zone;

e) If no injury was detected or known, no assessment of recovery could be made;

f) Total body count, not adjusted for carcasses not found.



Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate)(b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
ISH										
Outthroat Trout	YES, SEE COMMENTS Delete?	POSSIBLY	YES	STABLE, BUT NOT RECOVERING ?	UNKNOWN	YES	UNKNOWN	UNKNOWN	UNKNOWN	Differences in survival and growth between anadromous adult populations in the oiled and un-oiled areas persisted in 1991 despite the decrease in exposure indicators. This could be due to continuing injury to the food base.
Polly Varden	YES, SEE COMMENTS Delete?	POSSIBLY	YES	STABLE, BUT NOT RECOVERING	UNKNOWN	YES	UNKNOWN	UNKNOWN	UNKNOWN	Differences in survival between anadromous adult populations in the oiled and un-oiled areas persisted in 1991 despite the decrease in exposure indicators. This could be due to continuing injury to the food base.
Pacific Herring	YES, TO EGGS AND LARVAE	UNKNOWN	YES	UNKNOWN	NO	YES	UNKNOWN	UNKNOWN	UNKNOWN	Measurable difference in egg counts between oiled and un-oiled 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 un-oiled areas. It is possible that the 1989 year class was injured and could result in reduced recruitment to the fishery.
Pink Salmon (Wild) (c)	YES, TO EGGS	POSSIBLY	YES	SEE COMMENTS ?	YES	YES	UNKNOWN	UNKNOWN	UNKNOWN	There was initial egg mortality in 1989. Egg mortality continued to be high in 1991, possibly due to genetic damage to spawners. Abnormal fry were observed in 1989. Reduced growth of juveniles was found in the marine environment, which can be correlated with reduced survival.

What other years?

What about 1990-1992?

year (c)

- 1) There may have been an unequal distribution of injury within each region, see map for location of regions;
- 2) Adjusted for carcasses not found, not reported, scavenged, or otherwise lost;
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- 4) Based on recovery of dead animals from this region of the spill zone;
- 5) If no injury was detected or known, no assessment of recovery could be made;
- 6) Total body count, not adjusted for carcasses not found.

Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate)(b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Rockfish	YES (20) (f) Do not match tent	UNKNOWN NO - RUC TO OILING UNKNOWN - DUE TO INCR. FISHING PRESSURE	YES	UNKNOWN	UNKNOWN	YES	YES	UNKNOWN	UNKNOWN	Few dead fish were found in 1989 in condition to be analyzed. Exposure to hydrocarbons with some sublethal effects were determined in those fish, but no effects established on the population. Closures to salmon fisheries increased fishing pressures on rockfish which may be impacting population.
Chumkey Salmon	UNKNOWN	YES -- DUE TO OVERESC.	? YES -- DUE TO OVERESC.	SEE COMMENTS ?	YES ? DUE TO OVERESC	UNKNOWN	YES	YES	NO	Smolt survival continues to be poor in the Red Lake and Kenai River systems due to overescapements in Red Lake in 1989, and in the Kenai River in 1987, 1988, 1989. As a result, future adult returns are expected to be low in 1994 and successive years. Trophic structures of Kenai and Skilak Lakes have been altered by overescapement.
<b>HELLFISH</b>										
Clam	YES (NUMBER UNKNOWN)	UNKNOWN	POSSIBLY, FINAL ANALYSES PENDING	UNKNOWN	UNKNOWN	YES	YES	YES	YES	Native littleneck and butter clams were impacted by both oiling and clean-up, particularly high pressure, hot water washing. Littleneck clams transplanted to oiled areas in 1990 grew significantly less than those transplanted to unoiled sites. Reduced growth recorded at oiled sites in 1989 but not 1991.
Crab (abundance)	UNKNOWN	UNKNOWN	UNKNOWN	(e)	(e)	(e)	(e)	(e)	(e)	Crabs collected from oil areas were not found to have accumulated petroleum hydrocarbons.
Starfish	UNKNOWN	UNKNOWN	UNKNOWN	(e)	(e)	(e)	(e)	(e)	(e)	Although studies were initiated in 1989, they were not completed because they were determined to be of limited value.

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Total body count, not adjusted for carcasses not found.

any killed  
by ASEB hot  
washing?



Resource	Description of Injury			Status of Recovery in December, 1992		Geographic Extent of Injury (a)				Comments/Discussion
	Oil Spill Mortality (total mortality estimate)(b)	Decline in Population after the spill	Evidence of Sublethal or Chronic Effects	Current Population Status	Evidence of Continuing Sublethal or Chronic Effects	PWS	Kenai	Kodiak	Alaska Penin.	
Sea Urchin	UNKNOWN	UNKNOWN	UNKNOWN	(e)	(e)	(e)	(e)	(e)	(e)	Studies limited to laboratory toxicity studies.
Shrimp	UNKNOWN	UNKNOWN	NO	(e)	(e)	(e)	(e)	(e)	(e)	No conclusive evidence presented for injury linked to oil spill.
<b>INTERTIDAL/SUBTIDAL COMMUNITIES</b>										
Intertidal organisms/communities	YES	YES	YES	VARIABLE BY SPECIES - SEE COMMENTS	YES	YES	YES	YES	YES	Measurable impacts on populations of plants and animals were determined. The lower intertidal and, to some extent, the mid intertidal is recovering. Some species (Fucus) in the upper intertidal zone have not recovered, and oil may persist in and mussel beds.
Subtidal communities	YES	YES	YES	VARIABLE BY SPECIES - SEE COMMENTS	YES	YES	UNKNOWN	UNKNOWN	UNKNOWN	Measurable impacts on population of plants and animals were determined in 1989. 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 show little sign of recovery through 1991.

any killed by hot H<sub>2</sub>O wash?

what years?

from oiling + hot H<sub>2</sub>O wash!

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TABLE XX Services: Summary of Results of Injury Assessment Studies Done After the Exxon Valdez Oil Spill (other review to date)

this should be yes, no, unknown, etc.

text should be under comment

Service	Description of Injury	Status of Recovery in 1992	Geographic Extent of Injury				Comments/Discussion
			PWS	Kenai	Kodiak	Alaska Penin.	
Archaeologic sites/artifacts	It is estimated that 130-150 sites have been adversely affected by oiling, cleanup activities, or looting and vandalism linked to the oil spill. Of these, 113 are estimated to have suffered substantive injury.	Archaeological sites and artifacts cannot recover, they are finite non-renewable resources. Injuries attributed to looting and vandalism linked to the oil spill are still occurring.	yes	yes	yes	yes	* Injury studies are not yet complete (January 1993).
Subsistence	Subsistence harvests of fish and wildlife in 9 of 15 villages surveyed declined from 4 - 78% in 1989 when compared to pre-spill averages. This decline in use continued in 1990-1991 in Chenega and Tatitlek in Prince William Sound. and ...  Chemical analytical studies indicate that most resources tested, including fish, marine mammals, deer, and ducks, were safe to eat, but that shellfish from oiled beaches should not be used.  In addition, village residents believe that subsistence species continue to decline or have not recovered from the oil spill.	Approximately 7 of the 15 villages show continued declines in use in the period 1990-1991. Many subsistence users believe that any potential contamination to subsistence food sources is dangerous to their health.  Concern about subsistence food safety remains in villages in the spill area.	yes	yes	yes	no	See table X, page ...  Reviewed by Chenega Bay legal council

secure

what year(s)

11 members

Peer reviewed?

do not necessarily believe food is safe to eat

Discuss pop. levels of sub. foods

expand

within not certain

?

may be

See table X, page ...

Reviewed by Chenega Bay legal council



based on what?

Service	Description of Injury	Status of Recovery in 1992	Geographic Extent of Injury				Comments/Discussion
			PWS	Kenai	Kodiak	Alaska Penin.	
creation and tourism	The nature and extent of injury varied by user group and by area. About a quarter of key informants interviewed, reported no change in their recreation experience, but others reported avoidance of the spill area, reduced wildlife sightings, residual oil, and more people. They also reported changes in their perception of recreation opportunity 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. Overall, recreation, tourism and sport-fishing declined significantly in 1989 and improved markedly in 1990 although there were residual effects.	Declines in recreation activities reported in 1989 appear to have reversed, although there is no data to support or deny this perception.	yes	yes	yes	yes	Include Commercial Tourism here?
Wilderness and intrinsic values	There is a perception of lost values to federal and state lands including parks, refuges and forests. People report that their feeling about the spill area has changed. There is wide-spread feeling that something has been lost.	Some people's feelings of lost values are diminishing (recovery). To others the values remain injured (lack of recovery). Oil has degraded substantially in many areas considered to be wilderness (including those legislative designated) but remains tenacious in others. Until oil is completely removed or degrades naturally, injury to wilderness values will continue.	yes	yes	yes	yes	Federal wilderness areas in the spill area are managed according to the Wilderness Act of 1964 and the Alaska National Interest Lands Conservation Act of 1980 (ANILCA). State wilderness lands are governed by individual state statutes. Same comments as before

Define what year(s)

how many what year(s)

Have results of rec. survey been compiled & peer reviewed?

Was this statistically valid?

write as factually-based summary of injury to wilderness areas

Service	Description of Injury	Status of Recovery in 1992	Geographic Extent of Injury				Comments/Discussion
			PWS	Kenai	Kodiak	Alaska Penin.	
<i>Part of fishing is recreation</i> Sport and Commercial Fishing	<p>During 1989, emergency commercial fishery closures were ordered in PWS, Cook Inlet, Kodiak and the Alaska Peninsula. 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 PWS was closed to shrimp fishing.</p> <p>Between 1989 and 1990 a decline in sport fishing (number of anglers, fishing trips and fishing day) were recorded for PWS, Cook Inlet and the Kenai Peninsula. In 1992 an emergency order restricting cutthroat trout fishing was issued for western PWS due to low adult returns.</p>	<p>Currently there are no oil spill-related commercial closures in effect. The 1992 sport fishing closure for cutthroat trout is expected to continue at least through 1993.</p> <p>EVOS related sockeye over-escapement in the Kenai River and Red Lake system is anticipated to result in low adult returns in 1994 and 1995. These overescapements may result in closure or harvest restrictions during these and perhaps in subsequent years.</p>	yes	yes	yes	yes	<p>Injury in the Alaska Peninsula is for Commercial fishing only. Injuries and recovery status of rockfish, shellfish and herring are uncertain. Therefore, future impacts on these fisheries is unknown.</p> <p style="text-align: center; font-size: 2em;">Delete entire Section</p>

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Marty - EXXON is handing this out at the  
Symposium (to the press)

February 5, 1993

FOR IMMEDIATE RELEASE

## END OF TRUSTEE SYMPOSIUM RESPONSE STATEMENT

Exxon issued the following statement today in response to media requests for comment on the presentations made at the Valdez Oil Spill Symposium sponsored by the Restoration Trustees:

"Exxon strongly disagrees with the characterizations of the current state of the environment in Prince William Sound presented by many Trustee scientists at the symposium this week.

"After listening to the presentations, it has become increasingly clear that, in many cases, there are significant differences between Exxon's scientists' findings and those reported by the Trustees.

"Studies supported by Exxon and conducted by leading scientists using state-of-the-art technology have rigorously evaluated improvement in conditions in Prince William Sound in the years following the spill. These studies will demonstrate, in a manner that will withstand objective scientific scrutiny, the extensive recovery in Prince William Sound.

"Exxon's scientists will present their findings in detail April 26-29 in Atlanta at the 'Symposium of Environmental Toxicology and Risk Assessment' for the American Society of Testing and Materials (ASTM).

"ASTM is an independent scientific forum with a reputation for rigor and technical excellence.

"For additional information about the ASTM conference, please contact Ms. Betty Schultz at (215) 229-5542."

Contact: Dennis Stanczuk - (907) 564-3778.