

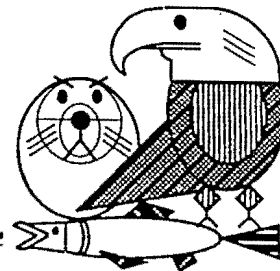
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Exxon Valdez Oil Spill Trustee Council

Restoration Office

645 G Street, Suite 401, Anchorage, Alaska 99501-3451

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



MEMORANDUM

To: Trustee Council

From: Molly McCammon
Executive Director

Date: August 16, 1996

Subj: April 1996 Update on Injured Resources and Services

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AUG 28 1996

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

This past winter and spring Dr. Robert Spies, the Chief Scientist, and Mr. Stan Senner, the Science Coordinator, reviewed the status of injured resources and services listed in the Restoration Plan and, based on current information about their status, proposed changes to the list of injured resources and services and updated the injury and recovery summaries. These changes were reviewed by the Restoration Work Force and discussed with principal investigators and others at various times, including at the 1996 Restoration Workshop.

In addition, on April 10 we circulated for public comment an *Exxon Valdez Oil Spill Restoration Plan Draft Update on Injured Resources and Services*. The comment period closed on June 15. Eight public comments were received; copies are attached.

Seven of the comments did not directly address the proposed changes. These comments included: (04/21) a concern that there has been a lack of focus on EVOS impacts to hatchery-produced fish, (04/26) a concern about the lack of mention of the recovery status of Spot Shrimp (which has not been considered an injured resource), (05/02) a request that we continue to monitor the results of the oil spill as long as there is evidence of contamination, and (05/10, 05/15, 05/17, 06/12) a suggestion that we conduct a fertilization program at Eshamy Lake. In the eighth comment (04/25), it was suggested that it is inappropriate to classify all intertidal habitats as recovering, since only two of several types of intertidal habitats have been monitored since 1991.

Based on this last comment, we still propose to list intertidal habitats as recovering, but to add a footnote indicating that this classification is based primarily on monitoring of sheltered rocky habitats (mostly in Prince William Sound and some on the Kenai-Cook Inlet coast) and that the recovery status of other specific habitats is unknown. For purposes of this table, we are reluctant to split intertidal habitats into more than one classification. Given the results of intertidal monitoring studies sponsored by the Trustee Council, as well as those conducted by the NOAA HazMat (Alan Mearns)

Trustee Agencies

State of Alaska: Departments of Fish & Game, Law, and Environmental Conservation
United States: National Oceanic and Atmospheric Administration, Departments of Agriculture and Interior

group, and given the recovery objectives stated for intertidal habitats, the Chief Scientist believes that it is appropriate to generally characterize intertidal habitats as recovering.

This update on injured resources and services does not change or amend the Restoration Plan. The U.S. Forest Service has reviewed the proposal from the standpoint of compliance with the National Environmental Policy Act and has tentatively determined that no supplement to the environmental impact statement on the Restoration Plan is needed. When final, these revisions will be used for purposes of public information and for guidance in making decisions on future restoration actions.

If you concur with the proposed changes, with the additional change in regard to the characterization of intertidal habitats, I now seek your approval and permission to publish a final September 1996 Update on Injured Resources and Services.

There is a final related matter. On February 22 Dr. Alex Wertheimer and Mr. Mark Carls of the National Marine Fisheries Service sent me a letter requesting that chum salmon be added to the list of injured resources and services. Dr. Spies reviewed their request, and he has recommended against this action. Copies of the original letter and Dr. Spies reply are enclosed. I concur with Dr. Spies recommendation.

enclosures:

April 1996 draft
five public comments
letter from Wertheimer/Carls and reply from the Chief Scientist

mm/raw

PRINCE WILLIAM SOUND FISHERMEN-PLAINTIFFS' COMMITTEE

"Organizing for Fairness"

PO. Box 1249, Cordova, Alaska. 99574

Phone (907)424-3664 Fax (907)424-3937

Interim Officers:

Chairman: C. Ross Mullins, PO. Box 436, Cordova, Ak. 99574...Phone (907) 424-3664...Fax (907) 424-3937
 ViceChair: Michael O'Leary, PO. Box 1052, Cordova, Ak. 99574...Phone (907) 424-7758
 Secretary: Liz Senear, PO. Box 762, Cordova, Ak. 99574...Phone (907) 424-5611
 Treasurer: John Renner, PO. Box 756, Cordova, Ak. 99574...Phone (907) 424-7563

Email: mullins@corcom.com

AUG 28 1996
 Cordova, Ak. April 21, 1996

Dear Trustee Council Members:

EXXON VALDEZ OIL SPILL
 TRUSTEE COUNCIL

I have just received your publication entitled Exxon Valdez Oil Spill Restoration Plan Draft Update on Injured Resources and Services April 1996. I read the document with some interest since I am also an injured resource- a commercial fisherman, along with many hundreds of other constituent commercial fishermen. While I'm not able to immediately identify the accuracy of your statistics, I am, like most of the readers who read your documents, assuming that the general numbers that your staff produces are accurate and grounded in reality.

I do believe, however, that the section on Pink Salmon beginning on page 13 should be qualified to reflect the ADF&G view point incorporate in a footnote found on page 120 of a table showing hatchery and wildstock production of PWS 1977-1994 on page 120 of the PWS Management Area 1994 Annual Finfish Management Report. In part that footnote states that "Prior to 1987, there was no definitive or statistically valid method of separating hatchery and wild stock composition in the commercial catch..." I would argue that even after 1987 the coded wire tag analysis that has been used leaves a fairly large question as to the accuracy of the wild stock estimates.

Additionally, I feel that the Trustees' emphasis on wild stock pinks and the virtually complete lack of focus upon the impact that the EVOS had upon hatchery produced fish is a mistake. This is particularly true now that the SEA studies have led Dr. Ted Cooney, one of the lead SEA scientists to conclude in the December 1995 SEA BULLETIN that: (box below)

The implication here is that there has been a shift in the balance of the PWS marine ecosystem. My experience as a commercial fisherman in the region and my observations of the past thirty three years leads me to confirm that conclusion. On page 14, paragraph two you categorize these changes as "natural factors." I believe that the ascendancy of the walleye pollock in western PWS is definitely not natural, but rather a direct result of the 1989 spill. I hope that in the

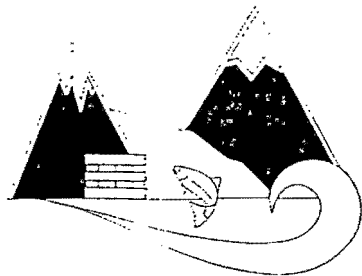
With the completion of SEA Phase I (FY94 and Fy95), investigators have a much more refined view of factors influencing the survival of the early life stages of pink salmon and herring in the Sound. It now seems likely that the spill, either directly or indirectly, shifted a balance among pelagic fish stocks including salmon, herring and pollock. These three species compete for many of the same plankton forage resources, and prey upon each other and themselves in complex trophic interactions that become expressed in changing patterns of dominance. The results of our work and that of other EVOS studies in the region indicate that walleye pollock is probably the dominant pelagic species now. (underlining added for emphasis)

future the EVOS Trustees will attempt to ensure a more comprehensive assessment and evaluation of the continuing problems that afflict the fisheries and the commercial fishermen of Prince William Sound. The general public looks to your publications to provide a comprehensive overview of the Sounds recovery. I personally would like to feel that this is the case.

Sincerely,

Ross Mullins

cc: Cordova District Fishermen United
 Dr. Gary Thomas, PWS Science Center



University of Alaska Fairbanks
School of Fisheries and Ocean Sciences

University of Alaska Fairbanks
11120 Glacier Highway
Juneau, Alaska 99801

(907) 465-6441 Office
(907) 465-6447 FAX

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AUG 28 1996

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APR 29 1996

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

25 April 1996

Dear Council Members,

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL

In the revised list of injured resources, I was surprised to see that "intertidal communities" were listed under the "recovering" heading. At the meetings in January I argued, and I thought we agreed, that at least some intertidal communities should be classed as "recovery unknown".

There are several reasons why I feel that intertidal communities should be listed under more than one column. First, bear in mind that the term intertidal communities encompasses at least nine different habitat types each with a more or less unique assemblage of species. In these nine habitat types we have found over 30 common species of plants and animals that were injured by the oil spill. In addition there are numerous rarer species contributing to the unique character of each community. The only other categories that encompassed more than one species were the subtidal communities and cormorants. If Pelagic cormorants were recovering and the other two species were not, would all cormorants then be placed under the recovering heading?

In 1991 some intertidal species and habitats were not recovering and some of those seemed to show more injury in 1991 compared to 1990. Only two of the nine intertidal habitat types have been examined since 1991, and these two have shown signs of recovery. The other seven habitat types have not been examined since 1991 and since some of those seemed to be showing more injury over time, I see no valid reason why these communities should be given recovering status. As it turns out, we do not know the recovery status of the majority of intertidal community types, so if I were to assign intertidal communities to one category it would have to be the recovery unknown category. It is clear, however, that the intertidal communities that have been studied are recovering, so there should be some representation in the recovering category.

It is my opinion that the current list of injured resources does not accurately represent the status of intertidal communities to the public. A more accurate representation would be to list some intertidal communities as recovering and some as recovery

unknown.

If you would like more information or would like to talk to me personally, feel free to call, write, e-mail me at the addresses given below.

Sincerely,

A handwritten signature in dark ink, appearing to read 'Peter van Tamelen', with a stylized, flowing script.

Dr. Peter van Tamelen
Juneau Center, School for Fisheries and Ocean Sciences
11120 Glacier Highway
Juneau, AK 99801
Phone: (907) 465-6557
E-mail: fnpvt@aurora.alaska.edu

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APR 29 1993

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL

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EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
645 G ST. SUITE 401
ANCHORAGE, AK. 99501

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

Ref.: Spot Shrimp in P.W.S.

Dear Sirs,

I would like to call to your attention that there is no mention of the recovery status of Spot Shrimp in Prince William Sound in your reports.

As you should know, the commercial harvesting of Spot Shrimp in the West side of Prince William Sound was closed and has remained closed since the 1989 Oil Spill, except for 2 short opening in 1990, 91 to test the condition of the stock. In both occasions the Opening was closed by an emergency order because the result was "alarmingly weak".

Today, this area remain closed and probably, will continue closed for a long time according to the Shellfish biologists of ADF&G. Mr. James Brady of the ADF&G said that they don't have the time and money to perform a full scale study of the collapse of the Spot Shrimp in the sound. They only perform one test per year by going to several pre-designated sites and put one set of traps to come out with a "catch per pot" number.

Although, the reasons for the disappearance of the Spot Shrimp in west side P.W.S. may be for other reason than the 1989 Oil Spill, nobody claims to know why. There is a strong possibility that the collapse of Spot Shrimp in P.W.S is attributed to the large amount of Pink Salmon fry released by the Hatcheries. This occurs at the same time when the Shrimp Larvae inhabitant the shallow water (zooplankton) in late March throughout April. This theory was mentioned to Mr. James Brady but was played down because of the controversy of going against the multi-million dollar operation such as the P.W.S. Hatchery.

I would like very much to see somebody to look into this matter, as I am loosing hope that ADF&G can do anything to help us understand this situation.

Thank you



Eric Veskovic
P.O. Box 739
Whittier AK 99591

6417 USH 11
Canton, N.Y. 13617
May 2, 1996

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AUG 28 1996

Thank you for sending me the Draft Update on Injured Resources & Services.

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

I hope that you will continue to monitor the results of this irresponsible act as long as there is evidence of contamination.

There should be no question about the long term adverse impact and its financial and environmental degradation.

Clarence Petty
Clarence Petty

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MAY 14 1996

May 10, 1996

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**EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL**

Paul Owecke
W25376 Sullivan Rd.
Trempealeau, WI 54661

Exxon Valdez Oil Spill Trustee Council
Restoration Office
645 G ST., Suite 401
Anchorage, Alaska 99501-3451

The Trustee Council is to be congratulated for its support of updating ~~recovery objectives~~ and in particular for participating in the fertilization project at Coghill lake in PWS. The positive benefits of this project are easily demonstrated, and the restoration of injured Coghill sockeye stocks and the commercial fishers has been dramatic and relatively immediate. This project also demonstrates that the knowledge and techniques could be expanded to benefit other injured sockeye stocks and fishers within PWS. Most notable are the Eshamy lake sockeye.

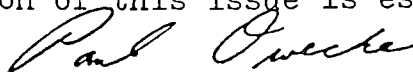
Eshamy Lake is located approximately thirty miles due south of Coghill lake, and since the 1989 spill there have been disrupted run numbers, and run timing of returning Eshamy sockeye have also been adversely affected. There is a set gillnet and drift gillnet fishery targeting the Eshamy stocks, and both have been severely impacted by the disrupted returns. Not only has there been lost harvest opportunity of Eshamy stocks, but there has also been, and will continue to be, time and area closures when fishing efforts target stocks returning to nearby Main Bay hatchery intercept the greatly diminished Eshamy stocks.

The seine fleet also receives time and area closures when Eshamy escapement is not met. All commercial salmon fishers of every gear type have to some degree suffered due to the impacts of the spill on Eshamy sockeye stocks. The setnet fishery, which we participate in, has been based since its inception on the health of the Eshamy sockeye stocks. Participants in the setnet fishery are only allowed to fish in the immediate vicinity of Eshamy lake and our futures are tied directly to the health of this stock of fish poised on the verge of collapse. This collapse could be mitigated with the assistance of the Trustee Council. It is crucial to mitigate this collapse in order to maintain this valuable sockeye stock which is important in and of itself, but also because of the negative repercussions that would ripple throughout the PWS fishing community if a collapse were to occur.

A fertilization program similar to the one conducted at Coghill lake has equally excellent prospects at Eshamy lake. Fortunately for all parties involved, there is an existing data base regarding past proposals to fertilize Eshamy Lake. The preliminary studies were conducted by Jeff Koenings of the Alaska Department of Fish and Game. This information along

with new data available from Prince William Sound Aquaculture Association could in short order delineate the parameters of a fertilization program for Eshamy Lake. As with Coghill, time is of essence if the full beneficial effect of fertilization is to occur. Your review of this request is greatly appreciated, and we believe fully appropriate, as the long term health of the Eshamy sockeye stocks have been compromised by post oil spill effects.

Hand in hand with this project is the funding and operation of the smolt and adult weir at Eshamy. The weir has been in continuous operation for many decades, but with recent cuts in the A.D.F.&G. budget the operation of the weir is in question. If the weir is not funded not only will all salmon fisheries on the western side of P.W.S. be adversely impacted, but should fisheries even occur the potential for overharvest and underescapement at Eshamy is guaranteed. This could spell the immediate demise of this sockeye stock. Even if the fertilization program is not implemented soon it is critical that funding and operation of the weir be a priority. Your careful consideration of this issue is essential.



Paul Owecke V.P. Prince William Sound
Setnet Association



Tom Aberle Pres. Prince William Sound
Setnet Association
P. O. Box 1472
Homer, Alaska 99603

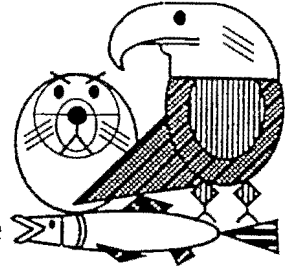
cc
Tim Linley PWSAC
Howard Ferren PWSAC
James Brady ADF&G
Slim Morstad ADF&G
John Dorio Forest Service
Cordova District Fishermen United

Exxon Valdez Oil Spill Trustee Council

Restoration Office

645 G Street, Suite 401, Anchorage, Alaska 99501-3451

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



August 6, 1996

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AUG 28 1996

Paul Owecke
W25376 Sullivan Road
Trempealeau, WI 54661

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

Tom Aberle
PWS Setnet Association
POB 1472
Homer, Alaska 99603

Dear Mr. Owecke and Mr. Aberle:

Thank you for your letter expressing support for a fertilization project at Eshamy Lake and requesting that the Trustee Council fund extended operation of the Eshamy weir.

As you may know, the Alaska Department of Fish and Game (ADF&G) has collected water samples at Eshamy Lake dating as far back as 1981. Zooplankton sampling also has been conducted off and on since 1981. According to ADF&G, the data indicate that Eshamy Lake is in the upper range in terms of zooplankton biomass compared to other sockeye producing lakes, and that the current zooplankton biomass reflects an underutilized forage base. Although the 1995 return to Eshamy Lake was the lowest since 1978, it is within the historical range of returns for that system. In addition, the highest escapement on record occurred in 1994, and there is no apparent decreasing trend in escapement since the *Exxon Valdez* oil spill (EVOS).

Enhancement of the Eshamy Lake sockeye system is the type of project that would be eligible for consideration as an EVOS restoration project as a means of replacing sockeye salmon injured by the oil spill. However, it is not clear that fertilization would enhance the run, especially since ADF&G data indicates that the current forage base is underutilized. In addition, prior to being submitted to the Trustee Council for consideration, a project of this nature would need to be reviewed by the Prince William Sound Regional Planning Team.

In regard to operation of the Eshamy weir, this is a normal management function of ADF&G. It is the policy of the Trustee Council that government agencies be funded

Trustee Agencies

State of Alaska: Departments of Fish & Game, Law, and Environmental Conservation
United States: National Oceanic and Atmospheric Administration, Departments of Agriculture and Interior

only for restoration projects that they would not have conducted had the oil spill not occurred. I am aware of the impact that declining state budgets have had on ADF&G, but the Trustee Council is not in a position to take over funding activities of this nature.

Thank you for taking the time to let me know of your interests. I have provided a copy of your letter to ADF&G as well as to each of the Trustees.

Sincerely,

A handwritten signature in black ink that reads "Molly McCammon". The signature is fluid and cursive, with a long horizontal stroke extending from the end of the name.

Molly McCammon
Executive Director

cc: Bill Hauser, EVOS Project Manager, ADF&G
James Brady, Regional Management Biologist, ADF&G

mm/raw

05/15/1996 12:27

907-783-1312

L MOSS & E DUPRE

PAGE 01

EVOS TRUSTEE COUNCIL
RESTORATION OFFICE
645 G. ST., SUITE 401
ANCHORAGE, AK. 99501-345

RECEIVED
AUG 28 1996

5-15-96
P.O. Box 869
GRIFFINWOOD, AK.
99587

DEAR COUNCIL MEMBERS,

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

AS A SET GILLNET PERMIT HOLDER IN PRINCE
WILLIAM SOUND, I FEEL THE NEGATIVE LONG
TERM EFFECTS OF THE 1989 EXXON TANKER
SPILL ARE STILL HAVING GREAT IMPACTS OF
THE ESHAMT FISHERY SOCKEYE RUNS.

ONE ALARMING TREND IS A PROGRESSIVELY
LATER ANNUAL RUN TIMING OF THE HISTORIC
ESHAMT LAKE SOCKEYE STOCK. ESHAMT
DISTRICT FISHERMAN ARE CONCERNED THAT
THE STAFF AND OPERATION OF THE ESHAMT
FISH WEIR FUNDED BY A.D.F.+G IS
OFTEN REMOVED BEFORE ALL THE FISH
HAVE ESCAPED TO ESHAMT LAKE, DUE TO
THIS LATER AND LATER RUN TIMING.

WHEN APPROACHED TO REQUEST THE WEIR BE
LEFT IN PLACE LONGER, A.D.F.+G MANAGERS
STATE THAT IT IS IMPOSSIBLE, "DUE TO LACK
OF BUDGETED FUNDS."

ESHAMT DISTRICT FISHERS ARE CONCERNED
THAT UNDOCUMENTED OVERESCAPEMENT
COULD BE THE RESULT. IN BOTH PAST AND

-2-

FUTURE YEARS.

OUR SECOND CONCERN REVOLVES ON THE ISSUE OF DOCUMENTED HISTORICAL CARRYING CAPACITIES OF ESHAMT LAKE, AND WHETHER OUTMIGRATING SMOLT LEVELS HAVE BEEN MAINTAINED.

WE FEEL THE ONLY WAY TO DETERMINE THIS IS TO FIND OUT IF THE PLANKTON LEVELS AND BIOMASS ARE BEING MAINTAINED AT OPTIMUM LEVELS. IF NOT, THERE NEEDS TO BE RESEARCH DONE EXPLORING THE POSSIBLE BENEFITS OF ESHAMT LAKE FERTILIZATION.

MY REQUEST CENTERS UPON THE SUPPORT FOR FUNDING OF EXTENDED WEIR OPERATION SCHEDULES AT ESHAMT LAGOON, AND FUNDING OF ESHAMT LAKE CARRYING CAPACITY AND THE POSSIBLE FERTILIZATION RESEARCH.

I SUPPORT FUNDING OF EITHER OF THESE OR BOTH, WITH THE PRIORITY ON FUNDING OF OPERATION OF THE ESHAMT WEIR EXTENDED SCHEDULE.

WITH THE CURRENT ALASKA STATE BUDGET SHRINKING, COMES THE THREAT OF A D F + G MANAGERS

-3-

JUST NOT FINDING THE MONEY TO OPERATE
THE WEIR AT ALL, SO THIS IS A VERY
GRAVE CONCERN FOR ALL COMMERCIAL
SEINERS, GILLNETTERS, & SETNETERS WHICH HAVE
HISTORICALLY TARGETED ESCHMUT STOCKS.

FOLLOWING TRUSTEE COUNCIL'S CAREFUL
CONSIDERATION OF THIS ISSUE, I WOULD
APPRECIATE A WRITTEN REPLY.

THANK YOU FOR YOUR CONCERN.

RESPECTFULLY,

Lauren E. Moss

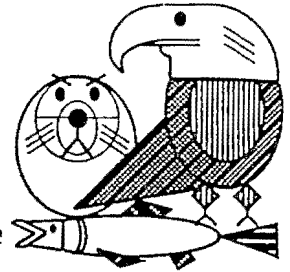
LAUREN E. MOSS

Exxon Valdez Oil Spill Trustee Council

Restoration Office

645 G Street, Suite 401, Anchorage, Alaska 99501-3451

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



August 6, 1996

RECEIVED
AUG 28 1996

Lauren E. Moss
POB 869
Girdwood, Alaska 99587

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

Dear Ms. Moss:

Thank you for your letter expressing support for a fertilization project at Eshamy Lake and requesting that the Trustee Council fund extended operation of the Eshamy weir.

As you may know, the Alaska Department of Fish and Game (ADF&G) has collected water samples at Eshamy Lake dating as far back as 1981. Zooplankton sampling also has been conducted off and on since 1981. According to ADF&G, the data indicate that Eshamy Lake is in the upper range in terms of zooplankton biomass compared to other sockeye producing lakes, and that the current zooplankton biomass reflects an underutilized forage base. Although the 1995 return to Eshamy Lake was the lowest since 1978, it is within the historical range of returns for that system. In addition, the highest escapement on record occurred in 1994, and there is no apparent decreasing trend in escapement since the *Exxon Valdez* oil spill (EVOS).

Enhancement of the Eshamy Lake sockeye system is the type of project that would be eligible for consideration as an EVOS restoration project as a means of replacing sockeye salmon injured by the oil spill. However, it is not clear that fertilization would enhance the run, especially since ADF&G data indicates that the current forage base is underutilized. In addition, prior to being submitted to the Trustee Council for consideration, a project of this nature would need to be reviewed by the Prince William Sound Regional Planning Team.

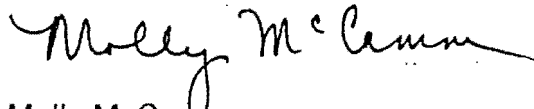
In regard to operation of the Eshamy weir, this is a normal management function of ADF&G. It is the policy of the Trustee Council that government agencies be funded only for restoration projects that they would not have conducted had the oil spill not occurred. I am aware of the impact that declining state budgets have had on ADF&G, but the Trustee Council is not in a position to take over funding activities of this nature.

Trustee Agencies

State of Alaska: Departments of Fish & Game, Law, and Environmental Conservation
United States: National Oceanic and Atmospheric Administration, Departments of Agriculture and Interior

Thank you for taking the time to let me know of your interests. I have provided a copy of your letter to ADF&G as well as to each of the Trustees.

Sincerely,

A handwritten signature in cursive script that reads "Molly McCammon". The signature is written in black ink and is positioned above the printed name.

Molly McCammon
Executive Director

cc: Bill Hauser, EVOS Project Manager, ADF&G
James Brady, Regional Management Biologist, ADF&G

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May 17, 1996
Homer, Alaska

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AUG 28 1996

Jim Preston
PWS Setnetter

Bx 394

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL

Homer, AK 99603

To: Exxon Valdez Oil Spill Trustee Council
Restoration office
645 G. St., Ste. 401
Anchorage, AK 99501-3451

Please support funding for the Eshamy
Weir and a fertilization project at
Eshamy lake. This particular fish
stock needs help. The Eshamy
red salmon is one of the
finest natural run reds in Alaska.
I cannot think of a more direct
benefit for the Sound than to
use EVOS funding for the Eshamy Reds.
Historically, it was the Eshamy
Red that "caused" the P.W.S.
setnetter to really become established -
many years ago.

Sincerely
Jim Preston
Bx 394

Homer, AK 99603

cc: Paul Owske
Tom Abate

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MAY 24 1996

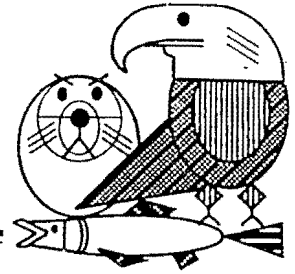
EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL

Exxon Valdez Oil Spill Trustee Council

Restoration Office

645 G Street, Suite 401, Anchorage, Alaska 99501-3451

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



August 7, 1996

RECEIVED
AUG 28 1996

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

Jim Preston
POB 394
Homer, Alaska 99603

Dear Mr. Preston:

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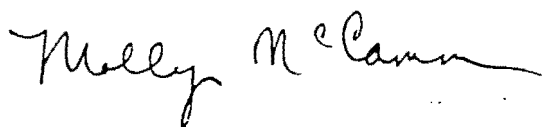
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Trustee Agencies

State of Alaska: Departments of Fish & Game, Law, and Environmental Conservation
United States: National Oceanic and Atmospheric Administration, Departments of Agriculture and Interior

Thank you for taking the time to let me know of your interests. I have provided a copy of your letter to ADF&G as well as to each of the Trustees.

Sincerely,

A handwritten signature in black ink, reading "Molly McCammon". The signature is fluid and cursive, with the first name "Molly" and last name "McCammon" clearly distinguishable.

Molly McCammon
Executive Director

cc: Bill Hauser, EVOS Project Manager, ADF&G
James Brady, Regional Management Biologist, ADF&G

mm/raw

P. O. Box 544

Cordova, Alaska 99574-0544

June 5, 1996

AUG 28 1996

JUN 12 1996

EXXON Valdez Oil Spill Trustee Council
Restoration Office

645 G. Street, Suite #401

Anchorage, Alaska 99501-3451

EXXON VALDEZ OIL SPILL

TRUSTEE COUNCIL

ADMINISTRATIVE RECORD

EXXON VALDEZ OIL SPILL

TRUSTEE COUNCIL

Dear Trustee Council:

We would like to request that the EXXON Valdez Oil Spill Trustee Council (EVOS) support the funding of the Eshamy weir and promote a fertilization project at Eshamy Lake.

The Trustee Council (EVOS) is congratulated for participating in the fertilization project of Coghill Lake in Prince William Sound. The positive benefits of that project are apparent and it is beginning to show an immediate response for the injured sockeye stock damaged by the EXXON Valdez Oil Spill.

The Coghill Project demonstrates that the knowledge and techniques could be expanded to benefit other injured sockeye stocks in Prince William Sound. Since the 1989 Oil Spill the Eshamy sockeye have been adversely affected. The sockeye run numbers and the run timing have been badly disrupted. The set gillnet and the drift gillnet fishery have been severely impacted by the disrupted returns. The time and the area closures have increased since the 1989 Oil Spill.

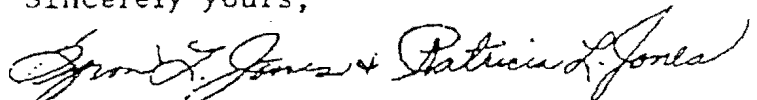
The seine fleet has also been affected by the area closures in Prince William Sound. All commercial salmon fishers of every gear type have suffered in some degree by the impacts of the Oil Spill on the Eshamy sockeye stocks.

The setnet fishery, in which we participate, has been based on the health of the Eshamy sockeye stocks. Participants in the setnet fishery are only allowed to fish in the Eshamy District of Prince William Sound. The health of the Eshamy sockeye is on the verge of collapse. With the help of the EVOS Council, this collapse could be turned around as it was in the Coghill District.

A fertilization project similar to the one conducted at Coghill Lake has excellent prospects at Eshamy Lake. The Alaska Department of Fish & Game has studies and information available, as well as new data available from Prince William Sound Aquaculture Corporation which could help set the parameters for a fertilization program for Eshamy Lake.

Your immediate response to this project request will be greatly appreciated.

Sincerely yours,



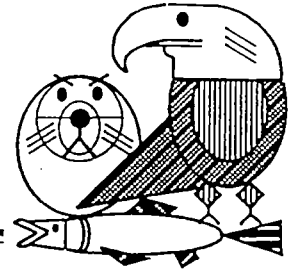
Byron L. Jones & Patricia L. Jones

Exxon Valdez Oil Spill Trustee Council

Restoration Office

645 G Street, Suite 401, Anchorage, Alaska 99501-3451

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



August 7, 1996

RECEIVED
AUG 28 1996

Byron and Patricia Jones
POB 544
Cordova, Alaska 99574-0544

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

Dear Mr. and Mrs. Jones:

Thank you for your letter expressing support for a fertilization project at Eshamy Lake and requesting that the Trustee Council fund extended operation of the Eshamy weir.

As you may know, the Alaska Department of Fish and Game (ADF&G) has collected water samples at Eshamy Lake dating as far back as 1981. Zooplankton sampling also has been conducted off and on since 1981. According to ADF&G, the data indicate that Eshamy Lake is in the upper range in terms of zooplankton biomass compared to other sockeye producing lakes, and that the current zooplankton biomass reflects an underutilized forage base. Although the 1995 return to Eshamy Lake was the lowest since 1978, it is within the historical range of returns for that system. In addition, the highest escapement on record occurred in 1994, and there is no apparent decreasing trend in escapement since the *Exxon Valdez* oil spill (EVOS).

Enhancement of the Eshamy Lake sockeye system is the type of project that would be eligible for consideration as an EVOS restoration project as a means of replacing sockeye salmon injured by the oil spill. However, it is not clear that fertilization would enhance the run, especially since ADF&G data indicates that the current forage base is underutilized. In addition, prior to being submitted to the Trustee Council for consideration, a project of this nature would need to be reviewed by the Prince William Sound Regional Planning Team.

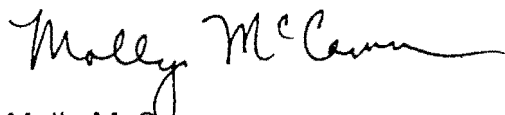
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Trustee Agencies

State of Alaska: Departments of Fish & Game, Law, and Environmental Conservation
United States: National Oceanic and Atmospheric Administration, Department of Agriculture and Interior

Thank you for taking the time to let me know of your interests. I have provided a copy of your letter to ADF&G as well as to each of the Trustees.

Sincerely,

A handwritten signature in black ink, reading "Molly McCammon". The signature is fluid and cursive, with the first name "Molly" and last name "McCammon" clearly distinguishable.

Molly McCammon
Executive Director

cc: Bill Hauser, EVOS Project Manager, ADF&G
James Brady, Regional Management Biologist, ADF&G

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A P P L I E D

marine
S C I E N C E S

Molly McCammon
Executive Director

Exxon Valdez Oil Spill Trustee Council
645 G Street Ste.402
Anchorage, AK 99501

RECEIVED
AUG 28 1996

April 20, 1996

RECEIVED
APR 26 1996

Dear Molly,

- EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL

I have received a copy of the February 22, 1996 letter from Dr. Alex Wertheimer and Mr. Mark Carls of the NMFS Auke Bay Laboratory to you nominating chum salmon (*Oncorhynchus keta*) to the list of injured resources. The Restoration Plan for the *Exxon Valdez* Oil Spill allows amendment of the injured species list if new information is presented that a species of particular concern suffered damage. Only a portion of all the species affected by the spill have been included on the formal injured resources list.

Addition of the chum salmon to the injured resources list is based on an argument by analogy: that is, the chum salmon occupies a habitat that is very similar to that of the pink salmon, and since pink salmon eggs sustained injury from exposure to oil in intertidal gravels and in growing juveniles by exposure in the open waters of PWS (apparently from ingestion of oil particles), so too must have the chum salmon. Since the pink salmon is on the list of injured species, it is argued that the chum salmon should also be on the list.

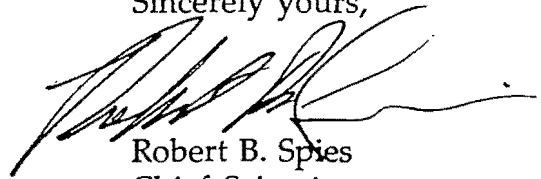
Unfortunately the only evidence of a relationship between the chum salmon and the 1989 oil spill is from analysis of P450IA enzyme induction in juvenile chum salmon. These data show that chum salmon juveniles were exposed, but the data do not necessarily mean that this exposure caused significant harm. We have no direct evidence of adverse consequences of this exposure on chum salmon, neither were directed studies carried out to make such an assessment. While it is likely that chum salmon were exposed to oil similarly to that of pink salmon, due to the greatly variable sensitivity from species to species and without direct evidence of harm, it is difficult to argue persuasively that chum salmon were as sensitive to oil exposure as were pink salmon. Also, the monoclonal antibody used to measure the degree of induction of P450IA can vary in the strength of its binding from species to species, so we cannot even be sure that the stronger reaction seen in chum salmon juveniles necessarily means that exposure was greater than in pink salmon juveniles.

While I think it is more likely than not that chum salmon suffered some degree of injury from the spill, without direct evidence there remains a great deal of uncertainty. Even in the case of birds recently nominated to the



list, some species were not recommended in spite of irrefutable evidence of some harm--i.e., recovery of oiled carcasses. In the case of the chum salmon there is not even irrefutable evidence of harm to a small portion of the population, let alone evidence of a substantial impact to the population which has been the general standard in the past for amending the list. I therefore recommend against adding chum salmon to the list of injured resources.

Sincerely yours,

A handwritten signature in black ink, appearing to read 'Robert B. Spies', with a long horizontal flourish extending to the right.

Robert B. Spies
Chief Scientist

CC: S. Senner
A. Wertheimer
M. Carls



UNITED STATES DEPARTMENT OF COMMERCE
National Oceanic and Atmospheric Administration

NATIONAL MARINE FISHERIES SERVICE
ALASKA FISHERIES SCIENCE CENTER
AUKE BAY LABORATORY

1305 Glacier Hwy, Juneau, AK 99801-8626
(907) 789-6000

RECEIVED

AUG 28 1996

24 hour FAX (907) 789-6094
February 22, 1996

EXXON-VALDEZ OIL SPILL
TRUSTEE COUNCIL
ADMINISTRATIVE RECORD

RECEIVED
FEB 28 1996

EXXON VALDEZ OIL SPILL
TRUSTEE COUNCIL

Ms. Molly McCammon
Executive Director
Exxon Valdez Oil Spill Trustee Council
645 G Street Suite 402
Anchorage, Alaska 99501

Dear Molly:

This letter is to request that chum salmon (*Oncorhynchus keta*) be included on the list of species injured by the oil spill. The emphasis of damage assessment for salmon in Prince William Sound following the oil spill was on pink salmon (*O. gorbuscha*). This was reasonable, given their high abundance and resulting biological and economic importance in the Sound. Both short-term and long-term damage have been well documented for pink salmon. We think that a strong case can be made that similar damage occurred to chum salmon in the oiled area, based on both direct evidence of exposure and on analogous life-history characteristics of pink and chum salmon. In general, it seems appropriate to include less studied species that are similar to well documented species on assessment lists; damage can be inferred, as can subsequent recovery.

Damage to juvenile pink salmon. The impact of the oil spill on juvenile pink salmon was clearly documented. One sublethal effect of the oil spill was to reduce the growth of juvenile pink salmon (Willette 1996; Wertheimer and Celewycz 1996). Exposure and contamination of juvenile pink salmon were observed in oiled areas (Carls et al. 1996b), and ingestion of oil or oiled contaminated prey was a likely route of contamination (Sturdevant et al. 1996). Laboratory experiments corroborated that ingestion of whole oil can indeed cause contamination and growth reduction (Carls et al. 1996a). Geiger et al. (1996) estimated the lost productivity due to reduced growth during early marine rearing of juvenile pink salmon.

Damage to juvenile chum salmon. Chum salmon were also contaminated in the oiled area, based on cytochrome P450 induction. In fact, chum salmon had higher levels of induction than did pink salmon captured in the same general area (Carls et al. 1996b). Chum salmon could be more susceptible to contamination due to their foraging habits; chum salmon juveniles utilize lower



gradient beaches and more epibenthic prey than do pink salmon juveniles (Wertheimer and Celewycz 1996; Sturdevant et al. 1996), which could expose them to a greater degree to oil that accumulated in the sediments. So few juvenile chum salmon were captured in oiled areas that we could not test for reduced growth (Wertheimer et al. 1994). However, ingestion of oil-contaminated food has been shown to reduce growth of Atlantic salmon (*Salmo salar*) as well as pink salmon (Vignier et al. 1992). Because we have evidence of acute exposure of chum salmon juveniles, because the feeding ecology of chum salmon would make them more susceptible to contamination than pink salmon, and because effects of oil ingestion have been shown for more than one species of salmonids, we conclude that chum salmon juveniles in the oiled area suffered at least the degree of injury as did pink salmon.

Damage to reproductive viability. Increased mortality of pink salmon embryos has been documented in oiled streams compared to non-oiled control streams (Bue et al 1996). Between 50% and 75% of the pink salmon spawn intertidally, which resulted in exposure of many embryos to oil in 1989. This increased mortality has persisted for one - two generations after the initial exposures in 1989. Research is continuing on whether reduced viability in subsequent generations is heritable genetic damage, or to the effects of continued exposure of subsequent generations to persistent oil in the sediments.

A substantial proportion of chum salmon in PWS also spawn in intertidal zones (Thorsteinson et al. 1971), where their embryos could be exposed to contamination by oil from EVOS. In the western Sound, chum salmon utilize fewer watersheds than do pink salmon, especially in the oiled areas. Chum salmon are known to utilize less than 10 watersheds that drain into oiled shorelines, compared to more than 50 such watersheds utilized by pink salmon. Thus there was little opportunity to document damage done to spawning populations of chum salmon, and damage assessment research focused on pink salmon. However, chum salmon embryos were probably just as susceptible as pink salmon in the oiled streams that they utilize, and should be considered as having been damaged during this life history phase also.

We do not see any need to change restoration strategies or research due to listing chums as an injured species. Just as most of the rationale for the listing is by analogy to damage to pink salmon, the evidence of recovery for pink salmon can also be

assumed to apply to chum salmon. We propose including chum salmon on the list of injured species in order to more completely communicate the scientific consensus on damage to the public.

Sincerely,



Alex Wertheimer
Fishery Research Biologist



Mark Carls
Fishery Research Biologist

Attachment: references cited

cc: Wright
Rice
Spies

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Wertheimer, A. C., A. G. Celewycz, M. Carls, and M. V. Sturdevant. 1994. Impact of the oil spill on juvenile pink and chum salmon and their prey in critical nearshore habitats. Exxon Valdez Oil Spill Trustee Council Status Report, Fish Study 4, NMFS Component. Final Report.

Willette, M. 1996. Impacts of the Exxon Valdez oil spill on the migration, growth, and survival of juvenile pink salmon in Prince William Sound. In S. D. Rice, R. B. Spies, D. A. Wolfe, and B. A. Wright (Eds.). *Exxon Valdez Oil Spill Symposium Proceedings*. American Fisheries Society Symposium Number 18.