Trustee Council Use Only
Project No: 050758
Date Received: ____

GEM PROPOSAL SUMMARY PAGE

(To be filled in by proposer)

Project Title:	Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Project Period:	Federal Fiscal Year 05
Proposer(s):	Steve Moffitt, Alaska Department of Fish and Game, Cordova, Alaska. steve_moffitt@fishgame.state.ak.us
Study Location:	Prince William Sound

Abstract: This project will conduct tagging technology studies needed to develop management applications from the SEA pink salmon model. This project was conceived during a pink salmon predictive workshop recently held in Cordova March 16-18, 2004. Workshop participants recommended that preseason forecasting and numerical model validation could be approached by a direct census of juveniles as they are leaving Prince William Sound (PWS). Catching juveniles emigrating from PWS would also enable application of a second mark to partition survival between the early marine and oceanic lifestages. At present, all juveniles of hatchery origin in PWS are otolith thermal marked. Combining estimates of stock composition obtained from otolith thermal marks and early marine survival will enable estimation of survivals of each hatchery release group and a very robust evaluation of pink salmon model simulations. The estimates will also be used to evaluate the accuracy of preseason forecasts of salmon run size obtained from a direct census of juveniles emigrating from PWS. This project will test the feasibility of using passive integrated transponder tags to partition early marine and oceanic survival of pink salmon. The project will estimate tag loss and tagging-induced mortality of juvenile pink salmon and tag detection rates at area salmon processors.

Funding:	EVOS Funding Requested:	FY 05 $	18.9	
	(must include 9%GA)	FY 06 $		
		FY 07 $		
				TOTAL: 18.9
	Non-EVOS Funds to be Used:	FY 05 $	58.2	
		FY 06 $		
		FY 07 $		TOTAL: 58.2
Date:	April 14, 2004			

GEM RESEARCH PLAN

I. NEED FOR THE PROJECT

A. Statement of Problem

This project was conceived during a pink salmon predictive workshop recently held in Cordova March 16-18, 2004 (See DPD R. Mullins and K. Adams, Implementing the SEA Pink Salmon Survival Model: phase I – project development FY05). Workshop participants recommended that preseason forecasting and numerical model validation could be approached by a direct census of juveniles as they are leaving Prince William Sound (PWS). This project will conduct tagging feasibility studies needed to plan model implementation. Validation of the SEA pink salmon model will require independent measures of fry surviving the critical early marine period in Prince William Sound (PWS). Workshop participants recommended that model validation could be approached by a direct census of juveniles as they are leaving PWS. Catching juveniles emigrating from PWS would also enable application of a second mark to partition survival between the early marine and oceanic lifestages. At present, all juveniles of hatchery origin in PWS (approximately 550 million) have their otoliths thermally marked in the early embryonic rearing phase. This project will test the feasibility of using passive integrated transponder (PIT) tags to partition early marine and oceanic survival of pink salmon (Parker 1968, Karpenko 1998). Combining estimates of early marine survival and stock composition of the juvenile population obtained from otolith thermal marks will enable estimation of early marine survivals of each hatchery release group and a very robust evaluation of pink salmon survival model simulations

B. Relevance to GEM Program Goals and Scientific Priorities

This project will contribute to implementation of the SEA pink salmon model which will be used to test hypotheses regarding ecological processes affecting mortality of juvenile pink salmon in PWS. The project will test the feasibility of using PIT tags to partition early marine and oceanic survival of pink salmon. The results of the project will be used to develop an implementation plan for the SEA pink salmon model. A separate proposal for development of the implementation plan has been submitted (R. Mullins and K. Adams, Implementing the SEA Pink Salmon Survival Model: phase I – project development FY05). These important feasibility tests will inform the actual implementation of the planned pink salmon model and assure that time is not lost to background studies when the program is initiated.

II. PROJECT DESIGN

A. Objectives

Management Applications:Implementing the SEA Pink Salmon Survival Model – Tagging Technology. Moffitt

1. Estimate PIT tag loss and tagging-induced mortality of juvenile pink salmon emigrating PWS in early July.

2. Determine optimal configurations of PIT tag scanning equipment at each salmon processor in PWS and estimate tag detection rates at each processor.

B. Procedural and Scientific Methods

Objective 1.

Tag loss and tagging-induced mortality and will be estimated from field studies conducted in July, 2005. Logistical support for this project component will be provided by ADF&G, which has sampled juveniles emigrating from PWS annually since 1997. Juvenile pink salmon (n=200) will be captured by a purse seine vessel near the Armin F. Koernig Hatchery and placed in an insulated tote supplied with recirculating seawater. The fish will be anesthetized in a clove oil bath, and a PIT tag will be inserted into the body cavity of each fish using a hypodermic needle. Tagged fish will be placed in a net pen near the hatchery and held for 96 hours. Dead fish will be removed from the net pen daily and scanned for the presence of a tag. At the end of the experiment, all remaining live fish will be scanned for the presence of a tag and enumerated. No control group will be included in the study because we do not need to separate the effect of handling versus tagging.

Objective 2.

The optimal configuration of PIT tag scanning equipment and tag detection rates will be estimated from studies conducted with adult salmon at processors in July, 2005. PIT tag scanning equipment for this project component will be provided by ADF&G. Salmon processing plants will be identified where PIT tags will be recovered. Two hand-held racket antennas will be operated on each processing line whenever possible to provide for redundancy in the detection of PIT tags. The two antennas will be attached at different angles, because tag detection is a function of the angle of the tag in the electromagnetic field created by the antenna. The antennas will also be attached as far as possible away from each other and from any metal or electric motors to reduce interference that might reduce tag detection. A PIT tag reader will be attached to each antenna by a cable. The two readers needed for the installation on each processing line will be housed in a tote immediately below the processing line. An external 12V battery will be used to power both readers. The configuration of the installation will vary among processing plants depending on the design of the processing equipment. We will make every effort to maximize tag detection rate given the constraints of each processing plant environment. If possible, scanning methods will be standardized among sites.

Technicians will maintain the PIT tag readers and conduct tag detection tests at each processing plant. Upon each visit to the plant, technicians will inspect the readers for problems with the

installation (e.g., loose antenna, error messages on the reader, or water damage). The voltage on the external batteries will be tested and the battery replaced if the voltage drops below 12V. Upon each visit, the technicians will record date, time, processor, line number, PIT tag reader serial number, problems with the reader, and battery voltage. One hundred fish will be scanned using each method to estimate detection and the code from each detected tag will be recorded. Each set of tags used for detection tests will be scanned by a PIT tag reader to create a file of the tag codes in the set. The tags will then be inserted into the body cavity of a set of fish and run through the processing line in the normal fashion. After each tag detection test, the data from the two PIT tag readers attached to each processing line will be downloaded to a hand held computer. In the laboratory, the data from the hand held computer will be downloaded to a desktop or laptop computer and an algorithm run to calculate detection rate. The algorithm will compare the tag codes in the detection test set to the tag codes detected by the reader during the test. The algorithm will calculate detection rate for each reader and for both readers combined, i.e., if a tag was detected by one reader but not the other. The algorithm will write these three detection rates and a list of tag codes that were not detected to a file. Lists of undetected tag codes will be periodically inspected to determine if specific codes were consistently not detected indicating damage to the tag. Tagged fish that are not detected more often than expected will be removed from the experiment and replaced with another tagged fish.

All tag detection experiments will be conducted under conditions similar to those expected during normal plant operations. If poor tag detection rates are estimated, the cause will be identified and rectified if possible. Possible causes of low detection rates include: malfunction of detector, presence of nearby metal or electric motors, high fish passage rates, fast conveyor rates, tags too close together, or operator error. Each time the scanning method is changed another tag detection test will be conducted. The scanning method that results in the highest detection rate will be used at each site.

C. Data Analysis and Statistical Methods

Objective 1.

The short-term survival of tagged fish (S_t) will be estimated from $S_t=m_L/m_T$, where m_L is the number of live tagged fish at the end of the experiment, and m_T is the total number of tagged fish at the beginning of the experiment. Tag loss (T_L) will be estimated from $T_L=n_L/m_T$, where n_L is the number of live fish without a tag at the end of the experiment. The standard error of the estimates will be calculated as described by Zar (1984).

Objective 2.

Tag detection rate (C_d) from each test will be estimated from $C_d= m_d/m_t$, where m_d is the number of detected tags, and m_t is the number of known tagged fish scanned. The standard error of the estimate will be calculated as described by Zar (1984).

D. Description of Study Area

The tag loss and tagging-induced mortality component of this project will be conducted in southwestern PWS. Tagged fish will be held in net pens at the Armin F. Koernig hatchery. Tag detection studies will be conducted at processors handling pink salmon harvested in PWS. These plants are located in Seward, Valdez and Cordova.

E. Coordination and Collaboration with Other Efforts

This project was conceived during a pink salmon predictive workshop recently held in Cordova March 16-18, 2004. This workshop was attended by local fishers and processors, investigators from the University of Alaska, University of Maryland, National Oceanic and Atmospheric Administration, Alaska Department of Fish and Game, Prince William Sound Science Center, Valdez Fisheries Development Association, and Prince William Sound Aquaculture Association. The results of the project will be used to develop an implementation plan for the SEA pink salmon model. A separate proposal for development of the implementation plan has been submitted (R. Mullins and K. Adams, PWS Fisheries Research Application Planning).

III. SCHEDULE

A. Project Milestones

Objective 1. Estimate PIT tag loss and tagging-induced mortality of juvenile pink salmon emigrating PWS. To be met July 2005.

Objective 2. Determine optimal configurations of PIT tag scanning equipment at each salmon processor in PWS and estimate tag detection rates at each processor. To be met August 2005.

B. Measurable Project Tasks

FY 05, 1st quarter (October 1, 2004-December 31, 2004)

October: Project funding approved by Trustee Council

FY 05, 2nd quarter (January 1, 2005-March 31, 2005)
January 12-16 (tentative): Annual GEM Workshop

FY 05, 3rd quarter (April 1, 2005-June 30, 2005)

April 1:	Purchase PIT tags and recruit technicians
June 15:	Train technicians to operate PIT tag scanning equipment

FY 05, 4th quarter (July 1, 2005-September 30, 2005)

July 1-15:	Conduct PIT tag loss and mortality studies
July 15-August 15:	Conduct PIT tag detection studies at processors
September 30:	Submit project final report to Trustee Council

IV. RESPONSIVENESS TO KEY TRUSTEE COUNCIL STRATEGIES

A. Community Involvement and Traditional Ecological Knowledge (TEK)

This project was conceived during a pink salmon predictive workshop recently held in Cordova March 16-18, 2004. This workshop was attended by local fishers and processors, and investigators from the University of Alaska, University of Maryland, National Oceanic and Atmospheric Administration, Alaska Department of Fish and Game, Prince William Sound Science Center, Valdez Fisheries Development Association, and Prince William Sound Aquaculture Association. This project will employ locally hired staff whenever possible.

B. Resource Management Applications

This project will develop technologies needed to improve preseason forecasting of pink salmon runs to PWS through tagging and direct censusing of juveniles as they are emigrating the sound. The project will conduct feasibility studies needed to develop PIT tagging technologies and estimate the early marine survival of pink salmon in PWS. The results of the project will be used to develop an implementation plan for the SEA pink salmon model focused on improving preseason forecasts of pink salmon returning to PWS. Local ADF&G area management staff will utilize improved preseason forecasts to optimize the harvest of wild and hatchery pink salmon returning to PWS.

V. PUBLICATIONS AND REPORTS

Due to the limited feasibility nature of this project, no publications other than the final report will be prepared.

VI. PROFESSIONAL CONFERENCES

Due to the limited feasibility nature of this project, we do not expect to present the results of this project at a scientific conference.

Management Applications:Implementing the SEA Pink Salmon Survival Model – Tagging Technology. Moffitt

LITERATURE CITED:

Parker, R.R. 1968. Marine mortality schedules of pink salmon of the Bella Coola River, central British Columbia. J. Fish. Res. Bd. Can. 25: 757-794.

Karpenko, V.I. 1998. Ocean mortality of northeast Kamchatka pink salmon and influencing factors. N. Pac. Anad. Fish Comm. Bull. 1: 251-261.

Zar, J. H. 1984. *Biostatistical analysis*. 2nd ed. Prentice Hall, Englewood Cliffs, New Jersey. 718 pp.

Steven D. Moffitt

P.O. Box 669
Cordova, Alaska 99574

Work: (907) 424-3212
FAX: (907) 424-3235
steve_moffitt@fishgame.state.ak.us

Professional Background:

Prince William Sound/Copper River Research Project Leader, Alaska Department of Fish and Game, August 2000 to present. Duties: Develop, implement, and evaluate research projects on Pacific herring, Pacific salmon, and eulachon in Prince William Sound and the Copper River. Specific duties include setting spawning escapement goals, preseason forecasts, evaluation of harvest policies, assessment of runs inseason, and local area network supervision. Supervise one full-time Fishery Biologist II and one 11-month seasonal Fishery Biologist I. Supervisor: Mr. Brian Bue and Mr. Jim Edmundson, Regional Research Biologists.

Prince William Sound/Copper River Assistant Research Project Leader, Fishery Biologist II, Alaska Department of Fish and Game, November 1991 to August 2000. Duties: Responsible for sampling, compilation, and analysis of age, sex, size, and stock composition data; and salmon catch and escapement reporting. Responsible for assisting with inseason assessment of Pacific salmon and Pacific herring abundance. Supervise five seasonal employees and responsible for five project budgets. Supervisors: Mr. John Wilcock and Mr. Mark Willette, Area Research Biologists

Assistant Project Leader, Fishery Biologist II, Alaska Department of Fish and Game, July 1991 to November 1991. Planned work and supervised five employees in collecting and compiling pink and chum salmon fry/egg abundance and mortality data. Assisted with data analysis and damage assessment report writing. Supervisor: Mr. Sam Sharr, Area Research Biologist

Education:

B.S. Wildlife Management, University of Alaska Fairbanks, 1989.

Selected Publications:

Bue, B.G., S. Sharr, S.D. Moffitt, and A. Craig. 1996. Effects of the *Exxon Valdez* oil spill on pink salmon embryos and preemergent fry. Pages 619-627 *in* S.D. Rice, R. B. Spies, D. A. Wolfe, and B. A. Wright, editors. Proceedings of the *Exxon Valdez* oil spill symposium. American Fisheries Society Symposium 18.

Craig, A., S. Sharr, and S. Moffitt. 1995. A compilation of historical preemergent fry and egg deposition survey data from Prince William Sound, 1961-1995. Alaska Department of Fish and Game, Commercial Fisheries Management and Development Division. Regional Information Report No. 2A-95-49, Anchorage.

Management Applications:Implementing the SEA Pink Salmon Survival Model – Tagging Technology. Moffitt

Lambert, M.B., D.J. Degan, A.M. Mueller, J.J. Smith, S. Moffitt, B. Marston, and N. Gove. 2002. Assessing methods to index inseason salmon abundance in the lower Copper River, 2002 Annual Report. USFWS Office of Subsistence Management, Fisheries Resource Monitoring Program, Annual Report No. FIS01-021, Anchorage, Alaska.

Marty, G.D., T.R. Meyers, and S.D. Moffitt. 2002. Effects of disease on recovery of Pacific herring in Prince William Sound, Alaska, Fall 2000 and Spring 2001. *Exxon Valdez* Oil Spill Restoration Project Annual Report (Restoration Project 01462), Alaska Department of Fish and Game, Habitat and Restoration Division, Anchorage, Alaska.

Moffitt, S.D. and J. A. Wilcock. 1997. Salmon catch and escapement statistics for Copper River, Bering River, and Prince William Sound, 1993. Alaska Department of Fish and Game, Division of Commercial Fisheries, Regional Information Report No. 2A97-25, Anchorage.

Moffitt, S., B. Marston, and M. Miller. 2002. Summary of eulachon research in the Copper River Delta, 1998-2002. Report to the Alaska Board of Fisheries. Alaska Department of Fish and Game, Commercial Fisheries Division. Regional Information Report No. 2A02-34, Anchorage.

Sharp, D. and S. Moffitt. 2000. Proposal 276 / Commercial Fishery Management in the Copper River District. Report to the Alaska Board of Fisheries, Anchorage, Alaska-January 9, 2001. Alaska Department of Fish and Game, Commercial Fisheries Division. Regional Information Report No. 2A00-41, Anchorage.

Recent collaborators:

Don Degan – Aquacoustics
Michael Lambert – Native Village of Eyak
Michael Link – LGL Consulting
Dr. Gary Marty – University of California Davis
Jason Smith – LGL Consulting

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

Budget Category:	Proposed FY 05	Proposed FY 06	Proposed FY 07	TOTAL PROPOSED
Personnel	$6.4	$0.0	$0.0	$6.4
Travel	$1.6	$0.0	$0.0	$1.6
Contractual	$3.0	$0.0	$0.0	$3.0
Commodities	$2.9	$0.0	$0.0	$2.9
Equipment	$3.4	$0.0	$0.0	$3.4
Subtotal	$17.3	$0.0	$0.0	$17.3
General Administration (9% of Subtotal)	$1.6	$0.0	$0.0	$1.6
Project Total	$18.9	$0.0	$0.0	$18.9

Cost-share Funds: total = $58.2 K

This project is an adjunct to the project 05636-BAA Planning Proposal for a future Pink Salmon Fry Survival Model and Forecasting Implementation project. This project will test the feasibility of using PIT tags to estimate the early marine survival of pink salmon fry that are exiting Prince William Sound to the Alaska Coastal Current during July of 2005.

$3.2 K: ADF&G will provide 0.5 months of staff time to supervise the project .
$1.0 K: ADF&G will provide miscellaneous tagging supplies (hypodermic needles, syringes, cables, totes, batteries, etc.)
$24.0 K: ADF&G will provide PIT tag scanning equipment that ADF&G has on hand at its Soldotna location.
$30.0 K: ADF&G will provide anchovy purse seine used to capture fish for tagging mortality and tag loss (objective 1).

By conducting this feasibility project in FY05 a full year will be saved on a schedule for planned implementation of the PWS Pink Salmon Fry Survival and Forecast Model. It is necessary to determine the feasibility of using PIT tags in juvenile pink salmon before full implementation. PIT tags are intended to replace the use of coded wire tag technology with which the original testing of the Pink Salmon Fry Survival Model was done during the SEA Project-0360.

FY 05-07

Date Prepared: 4/12/2004

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3A TRUSTEE AGENCY SUMMARY

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

Personnel Costs:		GS/Range/	Months	Monthly		Personnel
Name	Description	Step	Budgeted	Costs	Overtime	Sum
Vacant	Fisheries Technician II	FWTII	2.0	3.2		6.4
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		2.0	3.2	0.0	
					Personnel Total	$6.4

Travel Costs:	Ticket	Round	Total	Daily	Travel
Description	Price	Trips	Days	Per Diem	Sum
Round Trip Soldotna to Cordova (Willette)	0.5	1	5	0.1	1.0
Round Trip Cordova to Anchorage (Fish and Wildlife Technician)	0.4	1	2	0.1	0.6
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$1.6

FY 05

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3B
Personnel
& Travel
DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

Contractual Costs:	Contract Sum
Description	
Vessel charter (1 day @ $2.5K per day)	2.5
Air charter (Round Trip Cordova to Valdez)	0.5
If a component of the project will be performed under contract, the 4A and 4B forms are required. **Contractual Total**	$3.0
Commodities Costs:	Commodity Sum
Description	
PIT tags (800 ea. @ $3.6 per tag)	2.9
Commodities Total	$2.9

FY 05

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3B
Contractual & Commodities DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

New Equipment Purchases:	Number	Unit	Equipment
Description	of Units	Price	Sum
Hand-held computer	2	1.7	3.4
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$3.4

Existing Equipment Usage:	Number	Inventory
	of Units	Agency
PIT tag scanning equipment (8 tag readers, 12 antennas, misc. supplies)	8	ADF&G
Anchovy purse seine net	1	ADF&G

FY 05

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3B
Equipment
DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

Personnel Costs:		GS/Range/	Months	Monthly		Personnel
Name	Description	Step	Budgeted	Costs	Overtime	Sum
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		0.0	0.0	0.0	
					Personnel Total	$0.0

Travel Costs:	Ticket	Round	Total	Daily	Travel
Description	Price	Trips	Days	Per Diem	Sum
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$0.0

FY 06

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3B
Personnel
& Travel
DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

Contractual Costs:	Contract Sum
Description	
If a component of the project will be performed under contract, the 4A and 4B forms are required. **Contractual Total**	$0.0
Commodities Costs:	Commodity Sum
Description	
Commodities Total	$0.0

FY 06

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3B
Contractual & Commodities DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

New Equipment Purchases:	Number of Units	Unit Price	Equipment Sum
Description			
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage:	Number of Units	Inventory Agency
Description		

FY 06

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3B
Equipment
DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

Personnel Costs:		GS/Range/	Months	Monthly		Personnel
Name	Description	Step	Budgeted	Costs	Overtime	Sum
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
						0.0
	Subtotal		0.0	0.0	0.0	
					Personnel Total	$0.0

Travel Costs:	Ticket	Round	Total	Daily	Travel
Description	Price	Trips	Days	Per Diem	Sum
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
					0.0
				Travel Total	$0.0

FY 07

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3B
Personnel
& Travel
DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

Contractual Costs:	Contract Sum
Description	
Contractual Total	$0.0

Commodities Costs:	Commodity Sum
Description	
Commodities Total	$0.0

FY 07

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3B
Contractual & Commodities DETAIL

EXXON VALDEZ OIL SPILL TRUSTEE COUNCIL
DETAILED BUDGET FORM FY 05 - FY 07

New Equipment Purchases: Description	Number of Units	Unit Price	Equipment Sum
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
			0.0
		New Equipment Total	$0.0

Existing Equipment Usage: Description	Number of Units	Inventory Agency

FY 07

Project Number: 050758
Project Title: Management Applications: Implementing the SEA Pink Salmon Survival Model - Tagging Technology
Agency: ADF&G

FORM 3B
Equipment
DETAIL

BUDGET JUSTIFICATION: Fiscal Year: 05 = $18.9K including GA

Personnel: $6.4 K

Funds are requested to support two ADF&G Fish and Wildlife Technician II positions for 1 month. These staff will conduct PIT tag detection tests at salmon processors in the Prince William Sound area (*Objective 2)*. ADF&G will provide an in-kind contribution of 0.5 man months of staff time (cost $3.2K) to supervise the technicians (*Objectives 1 & 2*).

Travel: $1.6 K

Funds are requested for Willette to travel from Soldotna to Cordova during the salmon fishery in August to determine the optimal configuration of PIT tag scanning equipment at area processors and conduct tag detection tests (*Objective 2*).

Funds are also requested for a Fish and Wildlife Technician to travel to Seward via Anchorage to assist with PIT tag detection tests at Icicle Seafoods in Seward (*Objective 2).*

Contractual: $3.0 K

Funds are requested for 1 day of charter for ADF&G vessel to conduct PIT tag loss and mortality studies (*Objective 1*).

Funds are requested for 1 roundtrip air charter flight from Cordova to Valdez. Travel is needed to conduct PIT tag detection tests at the Peter Pan Seafoods plant in Valdez (*Objective 2).*

Commodities: $2.9 K

Funds are requested to purchase 800 PIT tags for use in tag detection tests at 4 processors in the PWS area (*Objective 2).*

Miscellaneous tagging supplies (hypodermic needles, syringes, cables, totes, batteries, etc.) will be provided by ADF&G ($1.0K) as an in-kind contribution (*Objectives 1 & 2*).

Equipment: $3.4 K

Funds are requested to purchase 2 hand-held computers needed to download data from PIT tag scanning equipment (*Objectives 1 & 2).*

INDIRECT = $1.6K EVOS GA

ADF&G will provide the following equipment as an in-kind contribution (*Objectives 1 & 2)*:
PIT tag scanning equipment $24.0K
Anchovy purse seine $30.0K

Management Applications:Implementing the SEA Pink Salmon Survival Model – Tagging Technology. Moffitt