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STATE/FEDERAL NATURAL RESOURCE DAMAGE ASSESSMENT
DRAFT PRELIMINARY STATUS REPORT

Project Title:	INJURY TO SALMON EGGS AND PREEMERGENT FRY IN PRINCE WILLIAM SOUND
Study ID Number:	Fish/Shellfish Study Number 2
Lead Agency:	State of Alaska, ADF&G; Commercial Fish Division
Cooperating Agency(ies):	Federal: USFS State: DNR
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EXECUTIVE SUMMARY

This study is part of an integrated group of Natural Resource Damage Assessment Fish/Shellfish Studies (NRDA F/S Studies 1,2,3, and 4), being conducted to quantify damage to pink (*Oncorhynchus gorbuscha*) and chum (*O. keta*) salmon stocks from the *M/V Exxon Valdez* oil spill. Each study will attempt to determine injury to salmon stocks at different stages in the life cycle. This project is designed to determine whether pink or chum salmon egg mortality or egg to preemergent fry survival in intertidal and upstream areas of Prince William Sound (PWS) was affected by oil contamination from the spill.

Wild stock pink and chum salmon play a major role in the PWS ecosystem. These salmon species not only provide a significant source of food for many fish, bird, and mammal species but also convey needed nutrients and minerals from the marine ecosystem to the estuary, freshwater stream, and terrestrial environments.

Up to 75% of the pink and chum salmon in PWS spawn in intertidal areas (Helle, Williamson, and Bailey 1964). These areas are highly susceptible to contamination from marine oil spills, and preemergent pink salmon fry are adversely affected by exposure to oil in seawater (Moles, Babcock, and Rice 1987). The *M/V Exxon Valdez* oil spill occurred just prior to the seaward migration of pink and chum salmon and impacted intertidal spawning areas in central and southwest PWS.

A significant increase in pink salmon egg mortality was found for oiled streams ($p=0.047$ with adjusted egg mortalities of 9% and 16%, $p=0.038$ with adjusted egg mortalities of 17% and 28%, and $p=0.003$ with adjusted egg mortalities of 20% and 43% for unoiled and oiled streams in 1989, 1990, and 1991 respectively). The greatest increase in mortality occurred at the highest intertidal zone (the "bathtub ring" of PWS).

No statistical differences in egg to preemergent fry survival were detected for the 1989 or 1990 brood years. This does not mean damages were not present; rather, it is indicative of insufficient power in sampling design or sampling levels to detect a difference.

Results are not available from fry histopathology, or mixed-function oxidase samples. However, results of the 1989 and 1990 mussel hydrocarbon studies from NRDA F/S Study 1 generally agree with visual observations of oil contamination from NRDA F/S Studies 1 and 2.

Determination of loss in adult salmon production cannot be made until data from NRDA F/S Studies 1,2,3, and 4 can be further analyzed.

OBJECTIVES

1. Estimate the density, by tide zone, of preemergent fry in 48 streams and eggs in 31 streams using numbers of live and dead eggs and fry.

2. Estimate egg mortality and overwinter survival of pink and chum salmon eggs in both oiled and unoiled streams.

3. Document hydrocarbon contamination of preemergent fry and mussels (*Mytilus sp.*) using tissue hydrocarbon analysis and eggs and preemergent fry using Mixed-Function Oxidase (MFO) and histopathology analysis.

4. Assess any loss in adult production from changes in overwinter survival using the results of NRDA F/S Studies 1,2,3, and 4.

5. Identify potential alternative methods and strategies for restoration of lost use, populations, or habitat where injury is identified.

INTRODUCTION

Wild salmon play a major role in Prince William Sound (PWS) marine and freshwater ecosystems while also contributing to the region's commercial fisheries. Migrating salmon fry are an important spring food source for various birds and fishes. Marine mammals prey on the ocean life stages of Pacific salmon while terrestrial mammals and birds, such as bears, river otters, eagles, and gulls depend on salmon for a large portion of their summer diet. Salmon also provide a pathway for transferring nutrients from marine ecosystems to near-shore and terrestrial communities. In recent years, commercial catches of wild salmon have ranged from 10.0 to 15.0 million pink salmon and from 0.8 to 1.5 million chum salmon.

About 75% of spawning pink and chum salmon in PWS use intertidal areas (Helle, Williamson, and Bailey 1964). Intertidal areas are very susceptible to contamination from marine oil spills. Oil contamination has adverse effects on pink salmon fry, especially in saltwater (Moles, Babcock, and Rice 1987). The 24 March 1989 spill from the *M/V Exxon Valdez* occurred immediately before the migration of PWS salmon fry, and oil contaminated many areas used by salmon for spawning and rearing.

Crude oil from the *M/V Exxon Valdez* moved counter clockwise around PWS and exited at the southwest corner. Since oiled streams were in southwestern PWS, overwinter survival work was generally confined to this area (Figure 1), although a few streams were also sampled on Montague Island and eastern PWS (Figure 2).

METHODS

Sample Sites

Egg Sampling

In 1989, the first year of the study, egg deposition sampling was completed on 31 streams from 27 September to 15 October (Figure 2). The streams were selected using the following criteria:

1. Adult salmon returns were expected to be large enough to indicate a high probability of success in egg and fry sampling.
2. Egg and fry sampling had been done in past years.
3. Streams that had low to no oil impact, i.e., controls, were selected near high oil impact streams as well as other parts of PWS to help account for variability in egg and fry survival due to different environmental conditions.

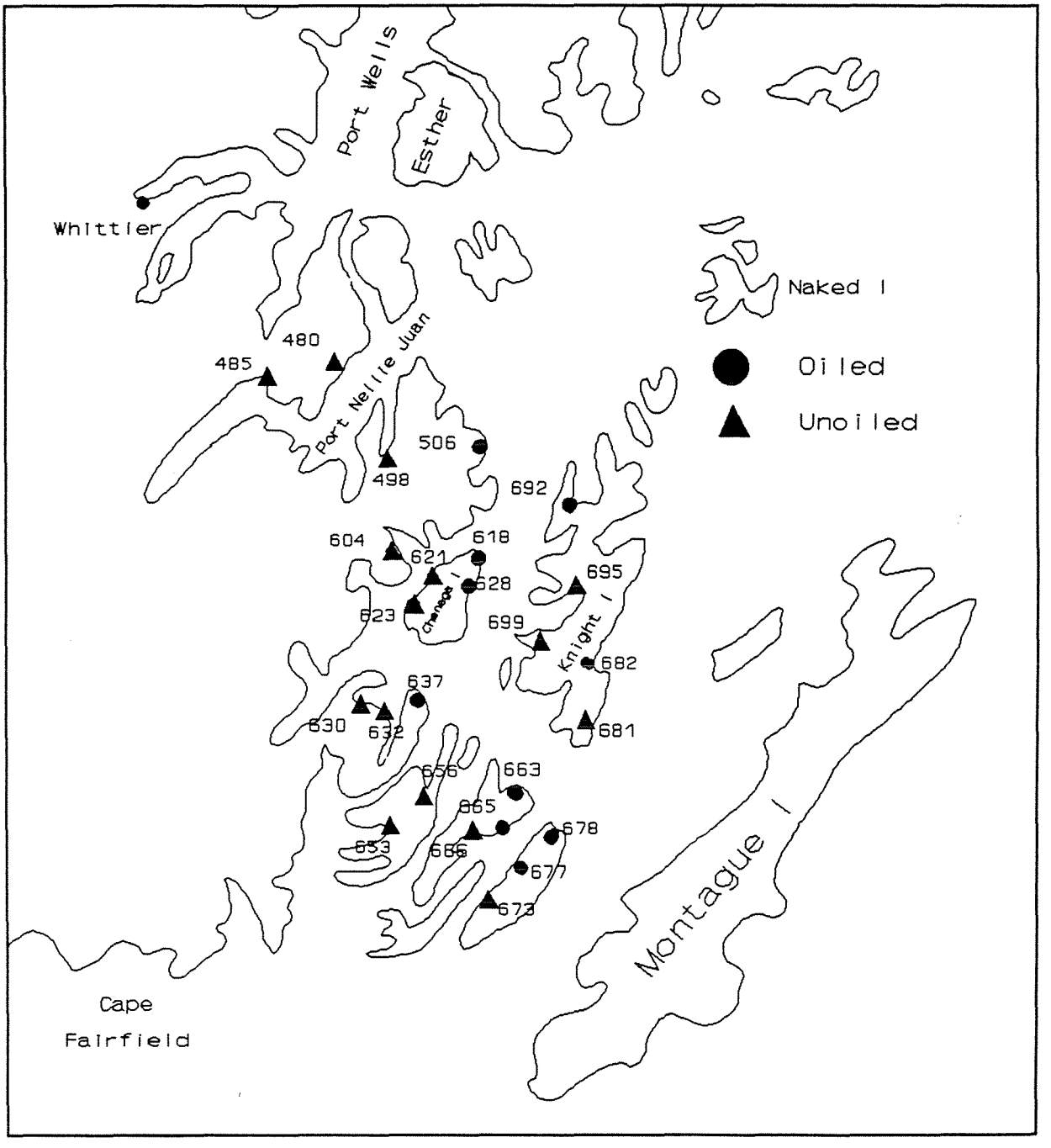

Figure 1. Specific streams sampled in southwestern Prince William Sound during 1989, 1990, and 1991 and their designations (oiled or unoiled) for egg mortality and overwinter survival analysis.

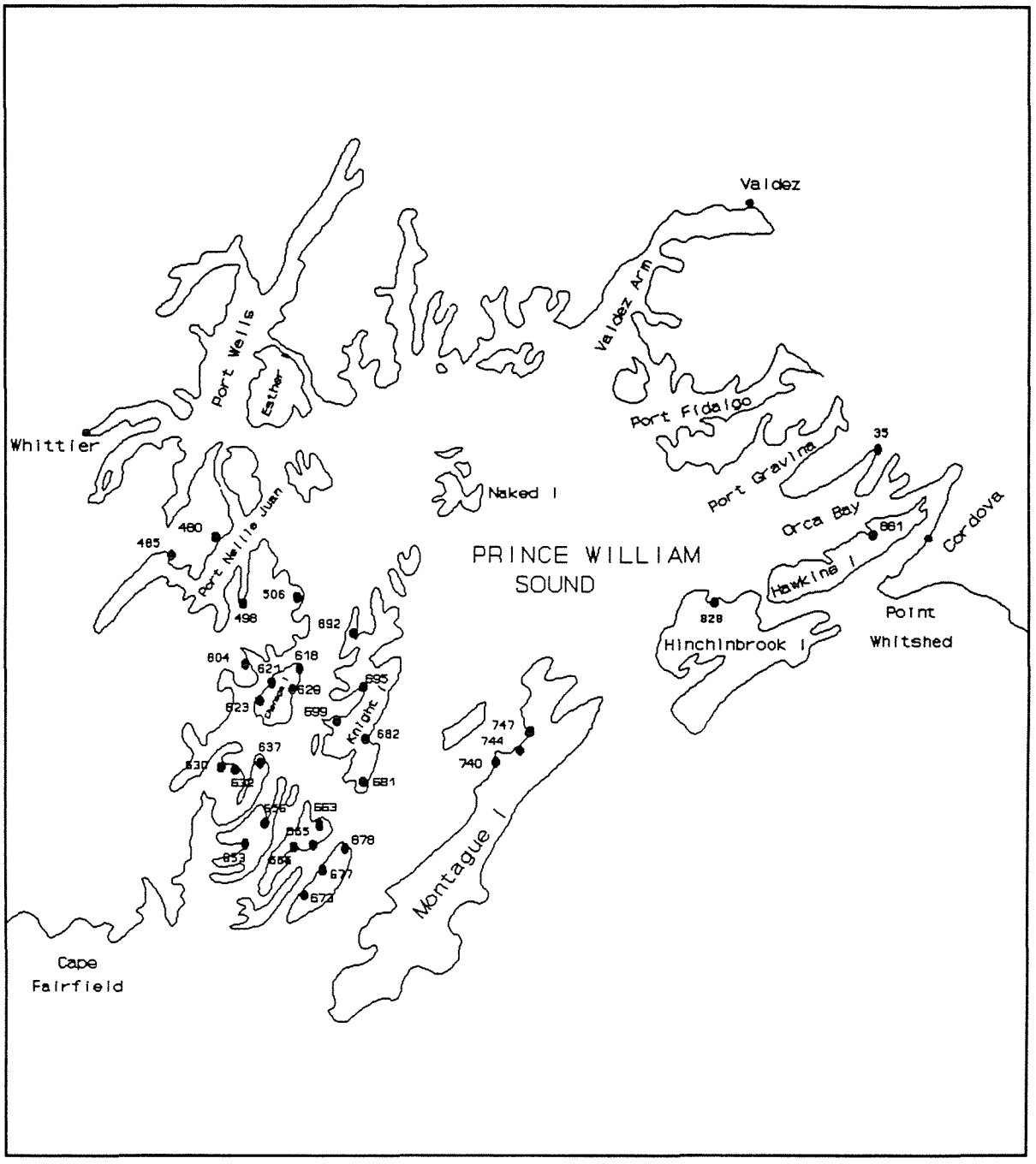

Figure 2. Streams examined by the 1989, 1990, and 1991 egg surveys and the 1990 and 1991 fry surveys.

In 1990 egg sampling was completed on 31 streams from 24 September to 18 October. These streams were also sampled for preemergent fry (by this study) and adult escapement (by NRDA F/S Study 1, Injury to salmon spawning areas in Prince William Sound).

In 1991 egg sampling was completed on 31 streams from 23 September to 12 October. These streams were also sampled for preemergent fry (by this study), and 16 of the 31 streams were sampled for adult escapement by NRDA F/S Study 1.

Preemergent Fry Sampling

In 1990 and 1991, 48 streams were sampled for preemergent fry. These included 25 streams historically sampled to forecast adult pink and chum salmon returns as well as 23 additional streams from the oil impact area. Sampling started on 15 March and was completed on 5 May 1990. Most streams (41) were sampled before 15 April, but snow and bay ice delayed sampling on a few (7). In 1991 sampling began on 15 March and was completed by 17 May. Most streams (37) were sampled before 15 April, but snow and ice delayed sampling on a few (11).

The 25 streams used for the adult return forecasting model have historically been sampled for the following reasons:

1. They contribute a large proportion of the wild return of pink and chum salmon to PWS.
2. They have significant spawning populations in both odd and even years.
3. They are representative of the spatial distribution of spawning escapement in PWS.
4. They are accessible for sampling in most years.

Sample Design

The methods used for both egg and preemergent fry sampling were based in part on those described by Pirtle and McCurdy (1977). Sampling was stratified by tide zone to control for possible differences in egg mortality or overwinter survival due to differences in salinity, temperature, predation, oiling, or a combination of these factors. Zone boundaries were established with a surveyor's level and stadia rod and staked prior to fry sampling. Four zones, three intertidal and one above tidal inundation were sampled, whenever possible, for each stream: 1.8 - 2.4 m, 2.4 - 3.0 m, 3.0 - 3.7 m above mean low water, and upstream of mean high tide (3.7 m). No sampling was done below the 1.8 - 2.4 m zone because survival was expected to be low (Helle, Williamson, and Bailey 1964). Upstream sample transects were often still within reach of

extreme high tides (3.7 - 4.6 m) because ice and snow limit upstream sampling for preemergent fry in the spring.

Separate linear transects were established for each zone on the egg and preemergent fry surveys. Although most transects were 30.5 m long, some were shorter due to steep stream gradients. Transects were placed in riffle areas where spawning was observed during escapement surveys conducted for NRDA F/S Study 1. Transects ran diagonally across the river: fry survey transects started downstream against the right bank and moved upstream to the left bank while egg survey transects started downstream against the left bank and moved upstream to the right bank. This placement of egg and fry transects reduced sampling overlap and the influence of fall egg sampling on spring fry abundance. A map was drawn for each stream showing the tide zones and transect locations in relation to major landmarks. Each egg survey transect was marked with surveyor's flagging to assure that egg and fry survey transects would be in the same immediate area. This should result in a better estimate of egg to fry survival within each sample zone.

Fourteen circular digs, each 0.186 m^2, were systematically made along each transect. The sample size was a compromise between reducing variance and the practicality of conducting the study. Fewer digs were completed on narrow stream channels to avoid excessive sampling of the stream. Streams that split into two or more channels within a zone were sampled either by allocating digs among channels based on spawner distribution observed during NRDA F/S Study 1 or, where spawner distribution was unknown, by an equal allocation.

The following data were collected for each tide zone transect during both egg and fry sampling:

1. The sample date.
2. The sample tide zone.
3. The start and stop time for the tide zone transect.
4. Numbers and condition (live or dead) of fry and eggs by species for each dig.
5. A subjective estimate of the overall percent yolk sac absorption for fry in each dig.

Data were entered from "Rite in the Rain" books into a Lotus spreadsheet and an R:BASE database for editing and summarization.

Pink salmon eggs were separated from chum and coho (*O. kisutch*) salmon eggs by their smaller size. Chum salmon eggs were separated from coho salmon eggs by their greater development and different coloration. An egg was considered dead if it was opaque or discolored with concentrations of lipids. Pink salmon fry were differentiated from chum salmon fry by their smaller size and lack of parr marks. Sampling often killed fry (especially newly hatched

fry), so fry were only considered dead if decomposition was evident.

Data Analysis

Egg and Preemergent Fry Densities

Densities of live eggs for stream i, zone j in m^2 were estimated by:

$$\hat{E}_{ij} = \frac{\Sigma\ LE_{ijk}}{0.186 n_{ij}} \quad ,$$

where LE_{ijk} is the number of live eggs found in the k^{th} dig, in stream i, zone j, and n_{ij} is the number of digs from stream i, zone j. Densities of dead eggs as well as dead and live fry were found using the same estimator with appropriate substitutions.

Fry densities have historically been used as an index of abundance in the adult return forecasting model. Stream area measurements completed during work on NRDA F/S Study 1 will allow density estimates to be expanded into an estimate of total number of eggs and fry in a given stream.

Egg Mortality and Overwinter Survival

Pink salmon egg mortalities were estimated for each stream using the following relationship:

$$\hat{M}_{ij} = \frac{\Sigma\ (DE_{eijk} + DF_{eijk})}{\Sigma\ (LE_{eijk} + DE_{eijk} + LF_{eijk} + DF_{eijk})} \quad ,$$

where DE_{eijk}, DF_{eijk}, LE_{eijk}, and LF_{eijk} are the number of dead eggs, dead fry, live eggs, and live fry for the k^{th} dig from stream i, zone j, collected during the egg survey, respectively.

Pink salmon egg to preemergent fry survivals were estimated as:

$$\hat{S}_{ij} = \frac{(\Sigma\ LF_{fijk})\ /\ n_f}{\Sigma\ (LE_{eijk} + DE_{eijk} + LF_{eijk} + DF_{eijk})\ /\ n_e} \quad ,$$

where LF_{fijk} is the number of live fry for the k^{th} dig from stream i, zone j, collected during the fry survey, and n_e and n_f are the number of digs for stream i, zone j for the egg and fry surveys.

Differences in egg mortality and overwinter survival were examined using a mixed effects two-factor experiment with repeated measures on one factor (Neter, Wasserman, and Kutner, 1985):

$$Y_{ijk} = \ldots + O_i + Z_j + (OZ)_{ij} + S_{k(i)} + \epsilon_{(ijk)}.$$

The two treatments were extent of oiling, (O_i, 2 levels; oiled and unoiled), and height in the intertidal zone (Z_j, 4 levels; 2.1, 2.7, and 3.4 m above mean low water and upstream), both fixed effects. The data were blocked by stream ($S_{k(i)}$), a random effect nested within extent of oiling. The interaction of extent of oiling and height in the intertidal zone was also examined. The assumption of constant variance for error terms was tested using the F_{max}-test (Sokal and Rohlf, 1969) while normality of error terms was visually assessed using scatter plots, box plots, and normal probability plots. Arcsin square root, logit, log, and square root transforms were examined if the data indicated non-constant variances or non-normal error terms. Assumptions relating to a valid split-plot analysis of the repeated measures factor, zone, were also examined. Tests of homogeneity of between-treatment covariance matrices and the degree of sphericity of the pooled covariance matrix (Mauchly, 1940) were effected. Four contrasts (oil vs. unoiled for the 4 stream zones) and corresponding Bonferroni family confidence intervals (α = 0.10 overall) were estimated if a significant difference due to oiling was detected. The SAS (SAS Institute Inc., 1991) General Linear Models Procedure was used to analyze the data.

Extent of oiling for the 1989, 1990, and 1991 analysis was based on visual observations of streams (NRDA F/S Studies 1 and 2) and hydrocarbon results of 1989 mussel samples (NRDA F/S Study 1) (Table 1). Six different groupings of oiled and unoiled streams were compared because visual observations and hydrocarbon results did not match for two streams (#506, Loomis Creek, and #681, Hogan Bay Creek). The following grouping was selected based on the evidence available:

1. Fifteen unoiled (control) streams including Hogan Bay Creek (streams 480, 485, 498, 604, 621, 623, 630, 632, 653, 656, 666, 673, 695, 699, and 681);

2. Ten known oiled streams including Loomis Creek (streams 618, 628, 637, 663, 665, 677, 678, 682, 692, and 506).

Streams 35, 740, 744, 747, 828, and 861 were left out of the analysis because they were not near the oiled streams.

ble 1. Samples collected from 31 PWS streams to document hydrocarbon contamination and results of analysis to date.

		Hydrocarbon Samples[abc]					Mixed Function Oxidase[bc]			
		Mussels		Fry			Fry Surveys		Egg Surveys	
No.	Stream Name	1989	1990	1989	1990	1991	1990	1991	1990	1991
35	Koppen Creek	NO	NO	X			X	X	X	X
480	Mink Creek	NO	NO	NO	X		X	X	X	X
485	W. Finger Creek	NO	NO	NO	X		X	X	X	X
498	McClure Creek	NO	NO				X	X	X	X
506	Loomis Creek	NO	NO?[d]		X	X	X	X	X	X
604	Erb Creek	NO	NO	NO			X	X	X	X
618	Junction Creek	YES	NO				X	X	X	X
621	Totemoff Creek	NO	NO	X	X		X	X	X	X
623	Brizgaloff Creek	NO	NO		X		X	X	X	X
628	Chenega Creek		NO		X		X	X	X	X
630	Bainbridge Creek	NO	NO		X	X	X	X	X	X
632	Claw Creek	NO	NO		X		X	X	X	X
637	Pt. Countessss	YES	NO	X	X		X	X	X	X
653	Hogg Creek	NO	NO		X		X	X	X	X
656	Halverson Creek	NO	NO				X	X	X	X
663	Shelter Bay	YES	NO?		X		X	X	X	X
665	Bjorne Creek		NO?				X	X	X	X
666	O'Brien Creek	NO			X		X	X	X	X
673	Falls Creek	NO	NO	NO	X		X	X	X	X
677	Hayden Creek	YES	NO	NO	X		X	X	X	X
678	Sleepy Bay		YES		X			X	X	X
681	Hogan Bay	NO	NO				X		X	X
682	Snug Harbor	YES	NO	X	X		X	X	X	X
692	Herring Bay	YES	YES		X		X	X	X	X
695	Port Audrey	NO	NO	X	X		X	X	X	X
699	Cathead Bay	NO	NO	NO	X	X	X	X	X	X
740	Kelez Creek	NO	NO	NO	X		X	X	X	X
744	Wilby Creek	NO	NO				X	X	X	X
747	Cabin Creek	NO	NO		X		X	X	X	X
828	Cook Creek	NO	NO	NO			X	X	X	X
861	Bernard Creek	NO	NO	NO	X		X	X	X	X

a A yes indicates oiling.
b A blank indicates no sample was taken.
c An X indicates that a sample was collected and analysis is pending.
d A ? indicates borderline results.

Assessment of Lost Adult Production

Lost production of adult pink salmon will be estimated using information obtained in this study along with estimates of total adult pink salmon production from NRDA F/S Studies 1, 3, and 28.

Documenting Hydrocarbon Contamination

Hydrocarbon Sampling

Samples used to determine hydrocarbon levels in preemergent fry were collected from intertidal stream channels during the 1989 (14 streams), 1990 (23 streams) and 1991 (3 streams) preemergent fry surveys (Table 1). Fry were dislodged from the stream gravel with a clam rake and caught in a stainless steel strainer pre-rinsed with dimethylchloride. Replicate samples of fry (approximately 10 grams each) were collected from each stream about 2.5 m above mean low water. Samples were collected when the tide was below the sampling area to avoid contamination by oil on the salt water surface. Captured fry were placed in glass jars topped with teflon lined lids, and then frozen. In 1989, glass jars and lids were pre-rinsed three times with dimethylchloride, dried, and kept in locked storage prior to use. In 1990 and 1991, pre-rinsed sample jars were obtained from a certified laboratory. Field blanks (jars opened at the site, closed, and frozen with the tissue samples) were collected at about every third stream. Chain of custody procedures were followed for all samples. Mussel samples were also collected for hydrocarbon analysis from most streams examined by NRDA F/S Study 1 in both 1989 and 1990 (Table 1).

Histopathology Sampling

Preemergent fry were collected from the intertidal channels of 22 streams during the spring of 1989 to assess possible damage from oil exposure. Captured fry were placed in glass jars containing Bouin's solution, topped with teflon lined lids, and frozen.

Mixed-Function Oxidase Sampling

Egg Sampling. Live and dead pink salmon eggs and fry were collected from 31 streams during the fall 1990 and 1991 egg surveys to test for mixed-function oxidase (MFO) (Table 1). Samples were collected, whenever possible, from all four tide zones of each stream. Live pink salmon eggs and fry were separated from dead eggs and fry for all the digs of a transect and randomly selected for MFO samples. Whenever possible, two samples of at least 50 live eggs and fry and one sample of at least 50 dead eggs and fry were collected and placed in 8 oz. jars containing a phosphate buffered, 10% formalin

solution. Labels on each jar had the following information: sample number, stream number, stream name, stream location, latitude, longitude, tide zone, type of sample, collector, and sample date.

Preemergent Fry Sampling. Live pink or chum salmon fry were collected from 35 streams in 1990 and 31 streams in 1991 during the spring to test for MFO. Whenever possible, two samples of at least 20 fry were collected from each of the four tide zones within each stream. Live fry were retained from all the digs of a transect and randomly selected for MFO samples. Fry were placed in glass jars containing a phosphate buffered, 10% formalin solution. Labels on each jar had the following information: sample number, stream number, stream name, stream location, latitude, longitude, tide zone, type of sample, collector, and sample date.

RESULTS

Egg and Preemergent Fry Densities

Egg and Preemergent fry densities were summarized for the 1989, 1990, and 1991 egg surveys and the 1990 and 1991 fry surveys (appendices A.1, A.2, A.3, A.4, and A.5).

Egg Mortality and Overwinter Survival

Heteroscedastic variances were detected in the 1989 egg mortality data. Visual examination of the data suggested that the logit and arcsin square root transformations were appropriate. The arcsin square root transformation was used to stabilize the variance for the analysis for all three years of egg mortality data. Arcsin square root transformed data appeared to be normal for all three data sets.

The 1989 analysis indicated a statistically significant difference in egg mortality ($p=0.047$) between oiled and control streams (Figure 3). No significant zone effect ($p=0.61$) or oil by zone interaction ($p=0.86$) was evident. Examination of estimated contrasts indicated the differences in mortality were in the intertidal zones. The overall adjusted mean egg mortalities for the oiled and control streams were 0.164 and 0.087.

1989 PWS Pink Salmon Egg Mortality

Adjusted Means and 90% Confidence Bounds

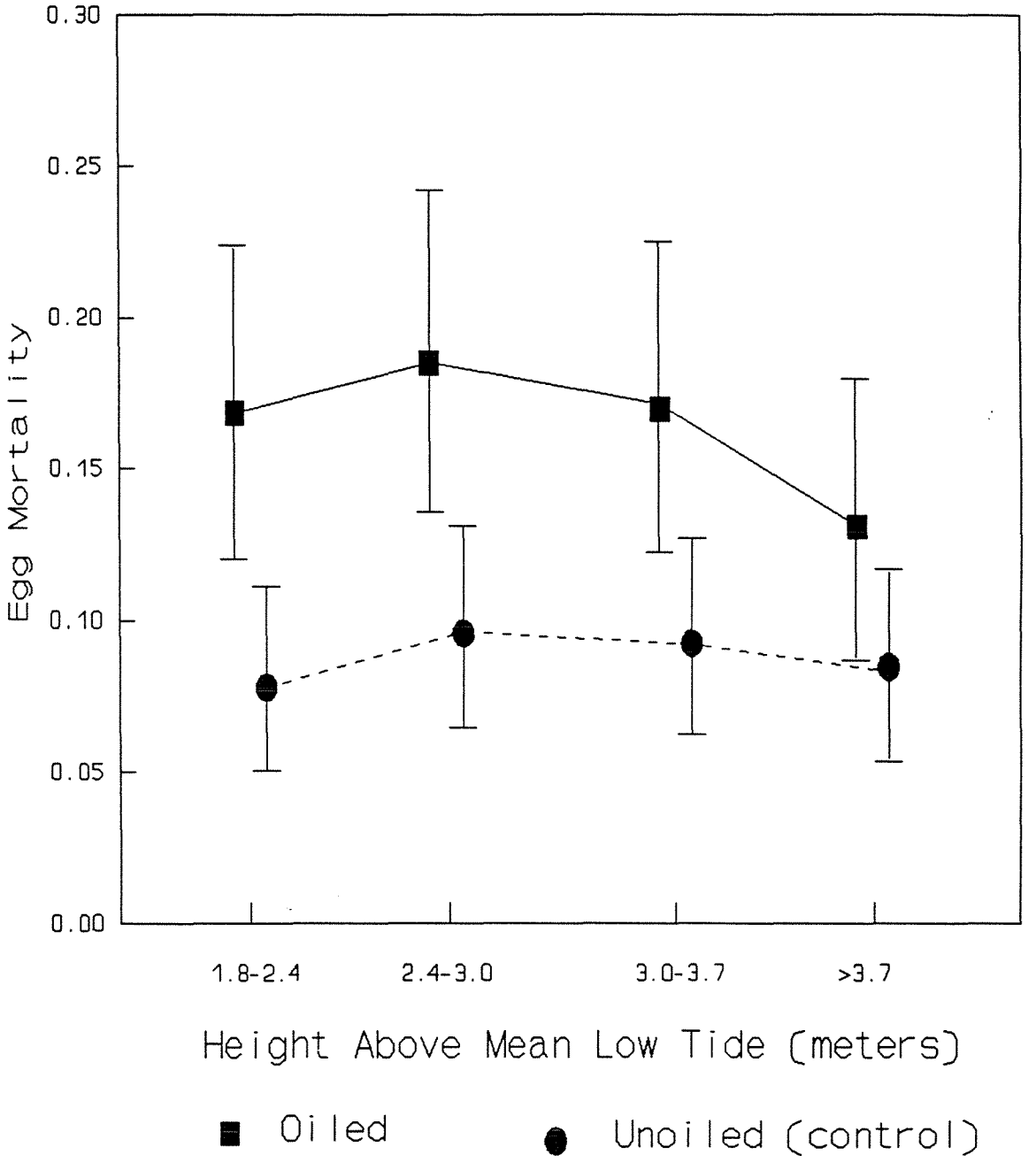

Figure 3 Adjusted mean mortality of 1989 pink salmon eggs by tide zone for oiled and control (unoiled) streams in Prince William Sound.

The 1990 egg mortality data also showed a statistically significant difference ($p=0.038$) between oiled and control streams (Figure 4). No significant zone effect or oil by zone interaction ($p=0.148$ and $p=0.325$) was observed. Estimated contrasts indicated the differences due to oiling were in the upper intertidal zone. The overall adjusted mean egg mortalities for the oiled and control streams were 0.282 and 0.170.

The 1991 egg mortality data indicated very significant differences between the oiled and control streams ($p=0.003$) (Figure 5). A significant zone effect ($p=0.009$) was evident although no oil by zone interaction was found ($p=0.746$). Estimated contrasts indicated differences due to oiling in all three intertidal zones as well as the upstream zone. The overall adjusted mean egg mortalities for the oiled and control streams were 0.430 and 0.197. The possibility that the differences in egg mortality across all tide zones are the result of sublethal oil effects are being investigated by NRDA F/S Study 1.

Egg to preemergent fry survival data were edited prior to analysis to remove values greater than 1.0 , i.e., overwinter survivals greater than 100%. While a test for heteroscedasticity of variances among oil by zone treatments for the 1989 and 1990 egg-to-fry survival data yielded insignificant F tests, visual examination of scatter plots of residuals suggested a need for some transformation. The data appeared normal after an arcsin square-root transformation.

The 1989 analysis of the egg-to-fry survival data indicated no significant effects of oil ($p=0.58$) (Figure 6). No significant zone by oil interaction was found ($p=0.28$), but a significant zone effect was observed ($p=0.001$).

Similar results were obtained for the 1990 egg-to-fry survival data (Figure 7). No significant oil or zone by oil effect was found ($p=0.449$, 0.79). A significant zone effect was observed ($p=0.02$).

Documentation of Hydrocarbon Contamination

No results are available for hydrocarbon analysis of preemergent samples fry collected in 1990 and 1991. The 1989 preemergent fry samples showed no contamination in the one stream analyzed where oil was visually evident (Table 1).

1990 PWS Pink Salmon Egg Mortality

Adjusted Means and 90% Confidence Bounds

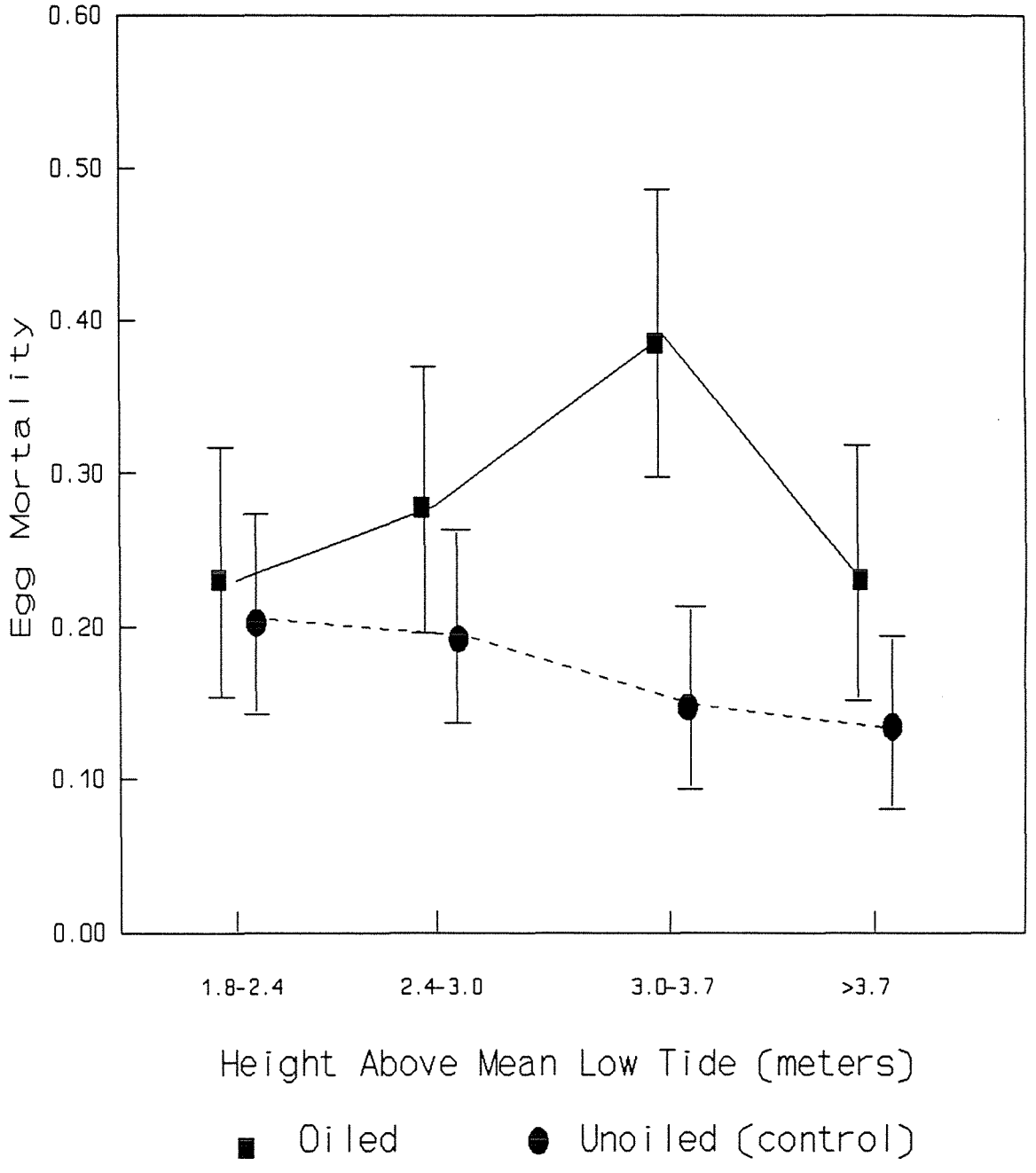

Figure 4 Adjusted mean mortality of 1990 pink salmon eggs by tide zone for oiled and control (unoiled) streams in Prince William Sound.

1991 PWS Pink Salmon Egg Mortality

Adjusted Means and 90% Confidence Bounds

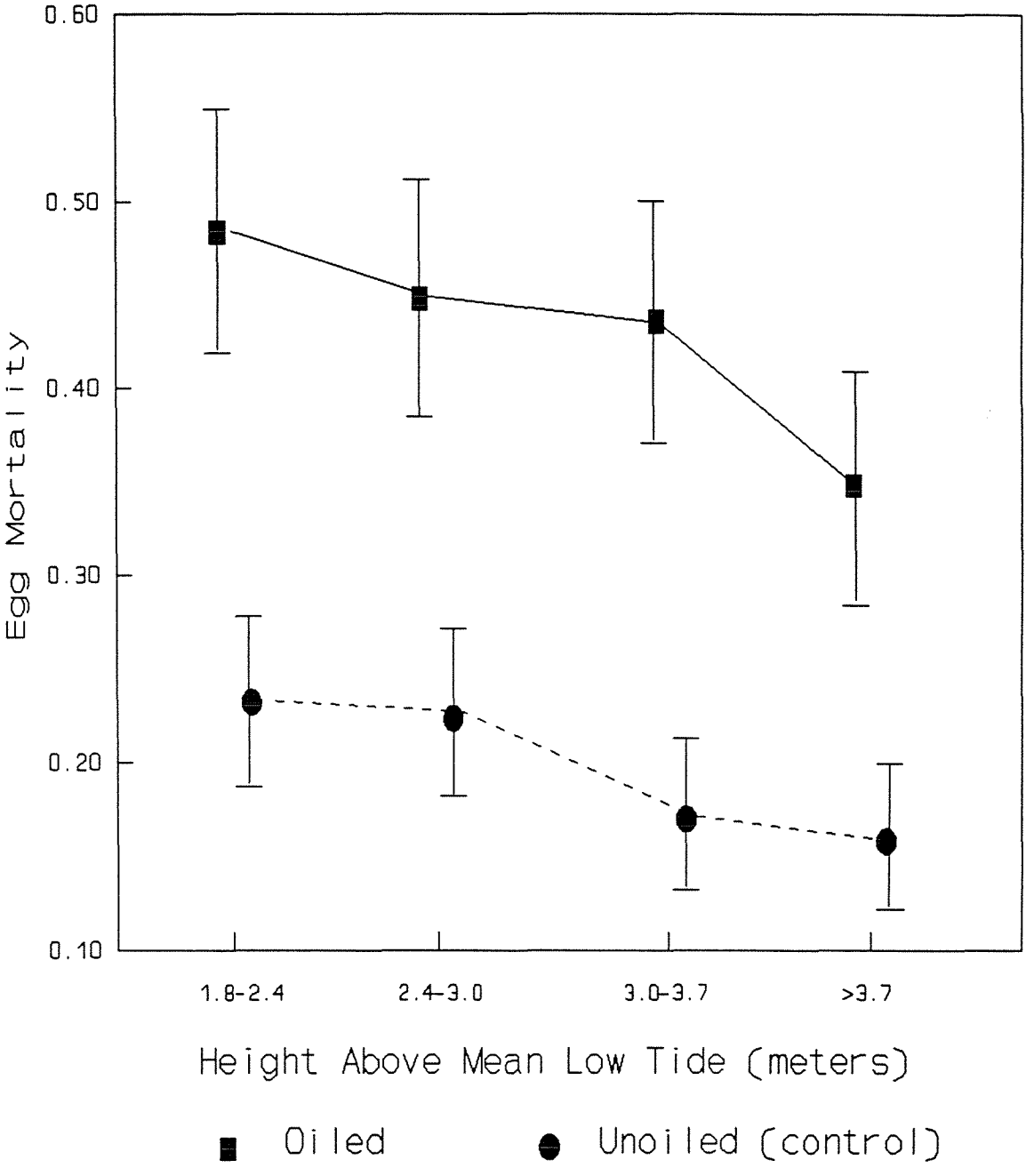

Figure 5 Adjusted mean mortality of 1991 pink salmon eggs by tide zone for oiled and control (unoiled) streams in Prince William Sound.

1989-90 PWS Pink Salmon Egg to Fry Survival

Adjusted Means and 90% Confidence Bounds

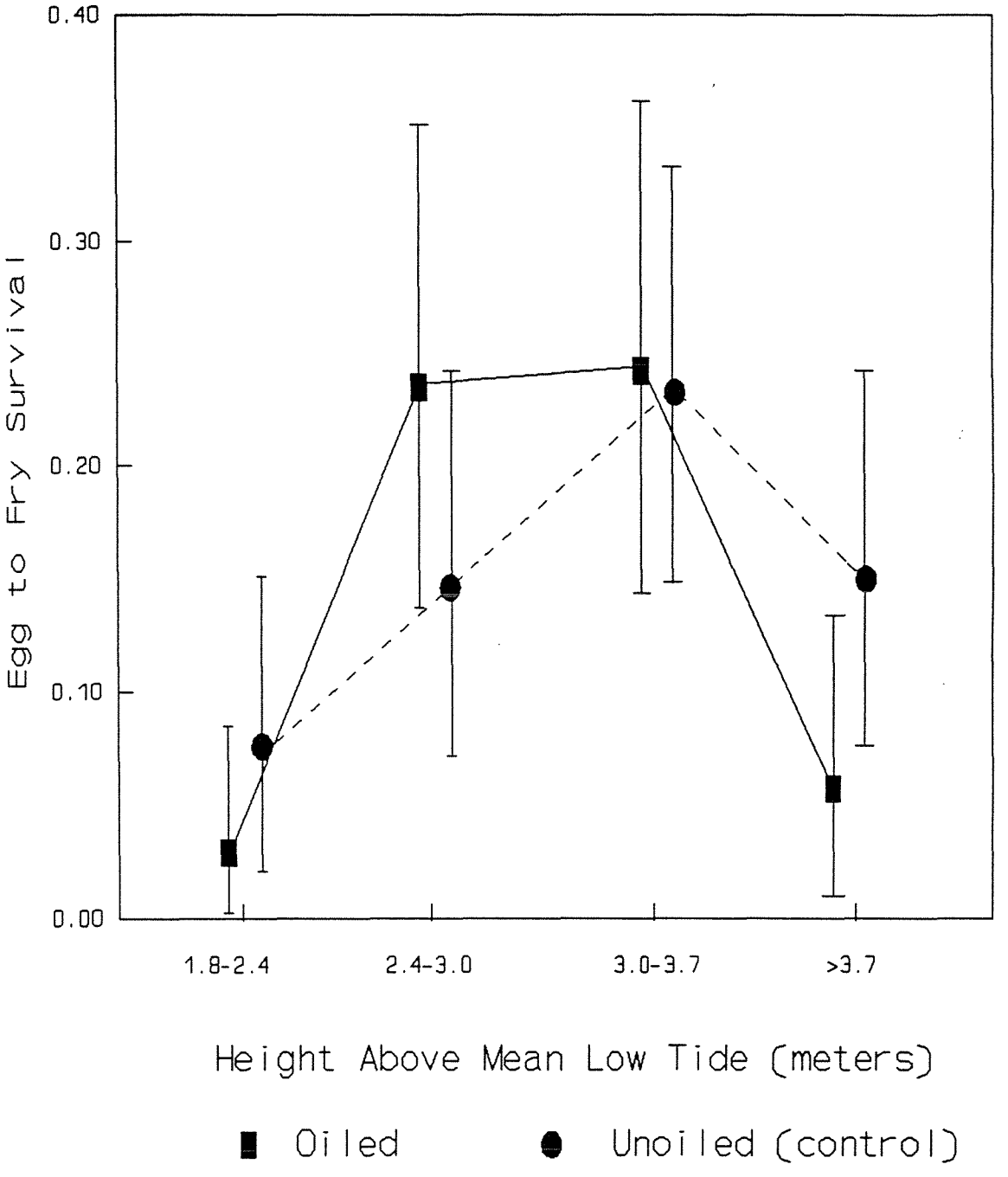

Figure 6 Pink salmon egg to preemergent fry adjusted survival means for oiled and control (unoiled) streams in Prince William Sound for the 1989 brood year.

1990-91 PWS Pink Salmon Egg to Fry Survival

Adjusted Means and 90% Confidence Bounds

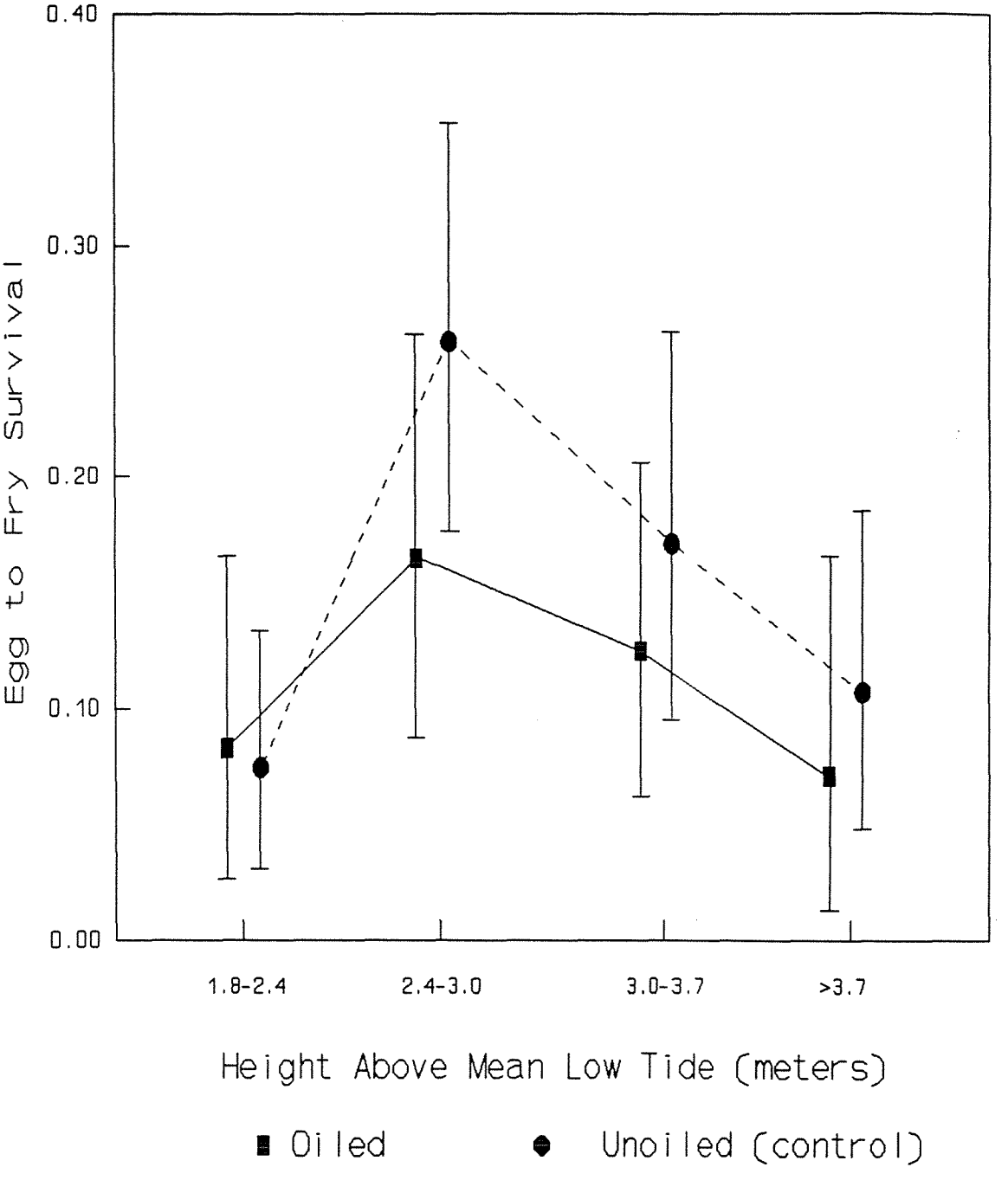

Figure 7 Pink salmon egg to preemergent fry adjusted survival means for oiled and control (unoiled) streams in Prince William Sound for the 1990 brood year.

Analysis for hydrocarbons in mussel samples collected in 1989 by NRDA F/S Study 1 showed positive contamination in six of the eight streams sampled where oil was visually evident (Table 1). Analysis of the 1990 mussel samples showed positive contamination in two and possible contamination in three of the ten streams where oil was visually evident in 1989 (Table 1).

STATUS OF INJURY ASSESSMENT

Egg and Preemergent Fry Densities

Densities of eggs and preemergent fry were used directly to assess injury from oiling. The data were used to determine egg mortality and overwinter survival.

Egg Morality and Overwinter Survival

The 1989 data showed a 7% difference in egg mortality between oiled and unoiled streams with the differences in the intertidal zones. The 1990 data showed a significantly higher egg mortality in the 3.0 to 3.7 m tide zone of oiled streams. The findings are consistent with visual documentation of oil impacts. In 1989, oil was visible throughout the intertidal zones with the heaviest deposits at mean high tide (3.7 m), while in 1990 oil was visible mostly at mean high tide.

In 1991 there were significant differences in egg mortality between oiled and unoiled streams in all the intertidal zones as well as the upstream zone. The largest difference in egg mortality was again in the highest intertidal zone. Differences in egg mortality between oiled and unoiled streams should not be expected in the upstream transects unless there were sublethal oil effects on the 1989 brood year. Seven of the ten oiled streams have upstream transects still within reach of extreme high tides. Results of adult spawner histopathology and cytological samples collected in 1991 by NRDA F/S Study 1 may help determine if the large differences in the 1991 egg mortalities were due to sublethal oil effects.

No difference in egg to preemergent fry survival between oiled and unoiled streams was found for the 1989 or 1990 brood years. This does not mean damages were not present; rather, it is indicative of insufficient power in sampling design or sampling levels to detect a difference.

Before final conclusions regarding oil damage can be made, the following are needed: hydrocarbon sample and coastal habitat study

results indicating the extent of oiling, histopathology and cytological study results to examine possible sublethal oil effects, historical summary and analysis of egg and preemergent fry pre-spill data bases, and further egg and preemergent fry surveys for a post-spill data base.

Assessment of Lost Adult Production

Adult salmon production lost due to changes in spawning success cannot be assessed until the 1990 and 1991 catch and escapement data are evaluated. Measures of production generated by NRDA F/S Study 1 (wild stock escapement) and NRDA F/S Study 3 (allocation of the catch between wild and hatchery stocks using coded-wire tag results) will be needed. A loss in wild stock production could occur due to poor adult spawner escapement resulting in poor egg deposition, poor overwinter survival, poor early marine survival, or poor marine survival. Adult production losses due to oil damage may be hard to detect apart from natural variation without estimates of survival and extent of oil exposure at all life stages. NRDA F/S Studies 1,2,3, and 4 will provide the framework to assess whether lost production was attributable to oil injury or natural variation.

Documentation of Hydrocarbon Contamination

Results from histopathology samples collected during the 1989 fry survey and histopathology and MFO samples collected during the 1990 and 1991 egg and fry surveys are not available. Results from hydrocarbon samples collected by NRDA F/S Study 1 in 1989 generally agree with visual observations made immediately following the oil spill (NRDA F/S Studies 1 and 2); however, two streams with visible oil did not have contaminated mussel tissue samples in 1989. The 1990 hydrocarbon samples showed positive contamination at the two streams where oil was still visibly evident. Before making a final determination of which streams were oiled and the extent of oiling, further analysis of hydrocarbon samples needs to be done and other documentation of oil contamination needs to be summarized.

Restoration Strategies

Salmon stocks in PWS impacted by the *M/V Exxon Valdez* oil spill are also heavily exploited in commercial, sport, and subsistence fisheries and can most effectively be restored through stock specific management practices designed to reduce exploitation on impacted stocks. Impacted stocks occur in mixed-stock fisheries dominated by hatchery and wild stocks from unaffected areas of PWS.

Restoration based on stock specific management of the commercial fishery for reduced exploitation of impacted stocks will require the following:

1. Identification of impacted stocks through the NRDA process.
2. Determination of fisheries exploitation rates appropriate for facilitating the natural recovery of impacted stocks.
2. Accurate in-season estimation of escapements to impacted and unimpacted wild stocks.
3. Accurate in-season estimation of the commercial catch stock composition by time and area.
4. Management action to reduce fishing effort on impacted stocks if the results of escapement and catch composition data indicate exploitation above levels desired to achieve restoration of the stock.

The advantages of restoration strategies based on more precise management are that the management framework is in place, the historic data base is sound, the research tools necessary for accurate escapement and catch stock-composition estimates have been tested and established in the NRDA arena, and regulatory mechanisms are in place and well tested.

We have worked closely with the fisheries management staff of the Alaska Department of Fish and Game, Commercial Fisheries Division, to develop a research and management package that will accomplish restoration objectives with minimal disruption of existing fisheries and fisheries management programs. Research projects exist or have been proposed that are designed to provide the escapement and catch stock-composition estimates necessary for restoration based on improved management. An escapement enumeration project similar to NRDA F/S Study 1, including an expanded aerial survey program, should provide the improved escapement enumeration needed. A coded wire tagging and recovery project similar to NRDA F/S Study 3 will provide the catch stock composition estimates needed.

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APPENDICES

APPENDIX A.1

Numbers of live and dead pink and chum salmon eggs and fry by tide zone for the 1989 egg deposition survey

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
35	Koppen Creek	10 15 89	9.0	30	455	3688	1415.93	249.68	0	0	289	940	360.89	187.01	0	39	14
			11.0	40	3390	8463	3249.19	708.75	0	3	519	624	239.57	93.50	0	69	14
			Upstream	60	2126	6085	2336.21	541.98	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		3845	12151	2332.56	408.73	0	3	808	1564	300.23	103.25	0	108	28
			Total Upstream		2126	6085	2336.21	541.98	0	0	0	0	.00	.00	0	0	14
480	Mink Creek	9 27 89	7.0	20	71	1169	448.81	218.66	1	0	33	272	104.43	55.87	0	311	14
			9.0	30	160	1138	436.91	213.75	0	0	458	606	232.66	132.15	0	75	14
			11.0	40	98	2597	997.06	335.25	0	1	22	60	23.04	16.47	0	1045	14
			Upstream	60	85	1311	503.33	165.56	0	2	15	11	4.22	4.22	0	156	14
			Total Intertidal		329	4904	627.60	153.06	1	1	513	938	120.04	48.84	0	1431	42
			Total Upstream		85	1311	503.33	165.56	0	2	15	11	4.22	4.22	0	156	14
485	W. Finger Creek	9 29 89	7.0	20	0	0	.00	.00	0	0	158	1255	481.83	188.28	0	54	14
			9.0	30	52	656	251.86	171.41	0	0	154	906	347.84	188.43	0	228	14
			11.0	40	13	3026	1161.77	355.42	0	0	100	629	241.49	181.62	0	993	14
			Upstream	60	65	2772	1064.25	340.35	0	5	0	0	.00	.00	0	0	14
			Total Intertidal		65	3682	471.21	150.10	0	0	412	2790	357.05	105.93	0	1275	42
			Total Upstream		65	2772	1064.25	340.35	0	5	0	0	.00	.00	0	0	14
498	McClure Creek	9 29 89	7.0	20	317	1355	520.22	148.50	0	1	22	0	.00	.00	0	0	14
			9.0	30	484	3119	1197.47	351.06	0	1	0	0	.00	.00	0	0	14
			11.0	40	843	6625	2543.53	498.04	0	210	0	0	.00	.00	0	0	14
			Upstream	60	61	1174	450.73	219.13	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		1644	11099	1420.41	242.53	0	212	22	0	.00	.00	0	0	42
			Total Upstream		61	1174	450.73	219.13	0	0	0	0	.00	.00	0	0	14

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
506	Loomis Creek	9 30 89	7.0	20	1094	2369	909.53	336.59	0	2	61	94	36.09	28.63	0	5	14
			9.0	30	2474	2929	1124.53	267.92	0	0	34	11	4.22	3.83	0	0	14
			11.0	40	1591	7250	2783.48	605.07	0	0	0	0	.00	.00	0	0	14
			Upstream	60	360	1688	1296.14	413.28	0	0	0	0	.00	.00	0	0	7
			Total Intertidal		5159	12548	1605.85	274.51	0	2	95	105	13.44	9.72	0	5	42
			Total Upstream		360	1688	1296.14	413.28	0	0	0	0	.00	.00	0	0	7
604	Erb Creek	10 2 89	7.0	20	57	999	383.54	299.19	0	18	38	92	35.32	35.32	0	5	14
			9.0	30	83	1181	453.42	218.18	0	0	527	468	179.68	178.44	0	32	14
			11.0	40	842	2407	924.12	352.42	0	18	0	0	.00	.00	0	1	14
			Upstream	60	164	1876	720.25	356.23	0	95	0	1	.38	.38	0	23	14
			Total Intertidal		982	4587	587.03	170.37	0	36	565	560	71.67	60.37	0	38	42
			Total Upstream		164	1876	720.25	356.23	0	95	0	1	.38	.38	0	23	14
618	Junction Creek	10 2 89	7.0	20	422	1507	675.01	318.65	0	0	0	0	.00	.00	0	0	12
			9.0	30	274	1669	747.57	253.81	0	0	0	0	.00	.00	0	0	12
			11.0	40	305	1266	567.06	216.02	0	0	0	0	.00	.00	0	0	12
			Upstream	60	78	946	423.73	185.44	0	0	0	0	.00	.00	0	0	12
			Total Intertidal		1001	4442	663.22	149.77	0	0	0	0	.00	.00	0	0	36
			Total Upstream		78	946	423.73	185.44	0	0	0	0	.00	.00	0	0	12
621	Totemoff Creek	10 2 89	7.0	20	126	140	53.75	22.45	0	2	0	0	.00	.00	0	0	14
			9.0	30	242	2136	820.07	301.80	0	16	0	0	.00	.00	0	0	14
			11.0	40	828	2732	1048.89	318.37	0	176	0	0	.00	.00	0	0	14
			Upstream	60	432	788	302.54	155.02	0	3	0	0	.00	.00	0	0	14
			Total Intertidal		1196	5008	640.90	157.51	0	194	0	0	.00	.00	0	0	42
			Total Upstream		432	788	302.54	155.02	0	3	0	0	.00	.00	0	0	14

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
623	Brizgaloff Creek	10 3 89	7.0	20	13	507	194.65	109.97	0	1	0	0	.00	.00	0	0	14
			9.0	30	47	1960	752.50	348.45	0	0	0	0	.00	.00	0	0	14
			11.0	40	1083	2760	1059.64	356.86	0	191	0	0	.00	.00	0	0	14
			Upstream	60	1567	4335	1664.33	484.39	0	59	0	0	.00	.00	0	0	14
			Total Intertidal		1143	5227	668.93	175.21	0	192	0	0	.00	.00	0	0	42
			Total Upstream		1567	4335	1664.33	484.39	0	59	0	0	.00	.00	0	0	14
628	Chenega Creek	9 30 89	7.0	20	468	1898	728.70	327.18	0	0	0	0	.00	.00	0	0	14
			9.0	30	516	1687	647.69	228.87	0	1	0	0	.00	.00	0	0	14
			11.0	40	544	2814	1080.38	318.03	0	0	0	0	.00	.00	0	0	14
			Upstream	63	1509	7264	1394.43	217.01	0	50	2	39	7.49	6.71	0	0	28
			Total Intertidal		1528	6399	818.92	168.53	0	1	0	0	.00	.00	0	0	42
			Total Upstream		1509	7264	1394.43	217.01	0	50	2	39	7.49	6.71	0	0	28
630	Bainbridge Creek	10 3 89	7.0	20	1	206	79.09	53.90	0	0	0	0	.00	.00	0	0	14
			9.0	30	180	973	373.56	163.72	0	1	0	0	.00	.00	0	0	14
			11.0	40	159	3469	1331.85	238.65	0	184	0	0	.00	.00	0	0	14
			Upstream	60	725	5215	2002.19	499.42	0	18	0	0	.00	.00	0	1	14
			Total Intertidal		340	4648	594.83	127.03	0	185	0	0	.00	.00	0	0	42
			Total Upstream		725	5215	2002.19	499.42	0	18	0	0	.00	.00	0	1	14
632	Claw Creek	10 4 89	7.0	20	10	294	112.88	75.03	0	0	0	0	.00	.00	0	0	14
			9.0	30	38	242	92.91	66.98	0	0	0	0	.00	.00	0	0	14
			9.0	33	20	188	202.10	93.57	0	0	0	0	.00	.00	0	0	5
			11.0	40	146	6993	2684.81	665.86	0	16	0	0	.00	.00	0	0	14
			Upstream	60	67	1914	734.84	224.86	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		214	7717	882.53	261.22	0	16	0	0	.00	.00	0	0	47
			Total Upstream		67	1914	734.84	224.86	0	0	0	0	.00	.00	0	0	14

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
637	Pt. Countess	10 4 89	7.0	20	1814	1429	548.63	216.74	0	0	0	0	.00	.00	0	0	14
			9.0	30	170	1828	701.82	141.31	0	0	0	0	.00	.00	0	0	14
			11.0	41	213	1270	975.18	357.34	0	0	0	0	.00	.00	0	0	7
			11.0	42	549	3272	2512.43	750.92	0	0	0	0	.00	.00	0	0	7
			Upstream	61	146	1201	922.20	240.16	0	0	0	0	.00	.00	0	0	7
			Upstream	62	311	2290	1758.39	574.29	0	0	0	0	.00	.00	0	0	7
		Total	Intertidal		2746	7799	998.09	188.74	0	0	0	0	.00	.00	0	0	42
		Total	Upstream		457	3491	1340.29	320.73	0	0	0	0	.00	.00	0	0	14
653	Hogg Creek	10 5 89	7.0	20	10	1783	684.54	222.29	0	0	0	0	.00	.00	0	0	14
			9.0	31	5	269	180.73	140.33	0	0	0	0	.00	.00	0	0	8
			9.0	32	31	834	747.13	502.99	0	0	0	0	.00	.00	0	0	6
			11.0	40	20	2153	826.60	263.95	9	0	0	0	.00	.00	0	0	14
			Upstream	60	68	1952	749.43	330.38	0	4	0	0	.00	.00	0	0	14
		Total	Intertidal		66	5039	644.87	137.67	9	0	0	0	.00	.00	0	0	42
		Total	Upstream		68	1952	749.43	330.38	0	4	0	0	.00	.00	0	0	14
656	Halverson Creek	10 5 89	7.0	20	75	373	143.21	68.81	0	0	0	0	.00	.00	0	0	14
			9.0	30	737	1973	757.49	244.48	0	3	0	0	.00	.00	0	0	14
			11.0	40	600	3731	1432.44	427.74	0	26	0	0	.00	.00	0	0	14
			Upstream	60	296	5459	2095.87	387.87	0	180	0	0	.00	.00	0	0	14
		Total	Intertidal		1412	6077	777.71	181.43	0	29	0	0	.00	.00	0	0	42
		Total	Upstream		296	5459	2095.87	387.87	0	180	0	0	.00	.00	0	0	14

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
663	Shelter Bay	10 9 89	7.0	20	19	771	296.01	216.47	0	0	0	0	.00	.00	0	0	14
			9.0	30	81	840	376.25	197.23	0	0	0	0	.00	.00	0	0	12
			9.0	33	12	273	1467.38	.00	0	0	0	0	.00	.00	0	0	1
			11.0	40	1128	4315	1932.76	215.81	0	0	0	0	.00	.00	0	0	12
			Upstream	60	250	2149	962.57	261.05	0	0	0	0	.00	.00	0	0	12
			Total Intertidal		1240	6199	854.35	166.84	0	0	0	0	.00	.00	0	0	39
			Total Upstream		250	2149	962.57	261.05	0	0	0	0	.00	.00	0	0	12
665	Bjorne Creek	10 10 89	7.0	20	408	2359	905.69	273.16	0	0	0	0	.00	.00	0	0	14
			9.0	30	1147	3940	1512.68	389.82	0	0	0	0	.00	.00	0	0	14
			11.0	41	169	1180	906.07	304.36	0	0	0	0	.00	.00	0	0	7
			11.0	42	312	17	13.05	10.61	0	0	0	0	.00	.00	0	0	7
			11.0	43	119	360	161.25	100.56	0	0	0	0	.00	.00	0	0	12
			Upstream	60	554	4971	1908.51	311.59	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		2155	7856	781.96	148.40	0	0	0	0	.00	.00	0	0	54
			Total Upstream		554	4971	1908.51	311.59	0	0	0	0	.00	.00	0	0	14
666	O'Brien Creek	10 11 89	7.0	20	173	1049	402.74	266.55	0	0	0	0	.00	.00	0	0	14
			7.0	23	85	316	141.54	117.81	0	0	0	0	.00	.00	0	0	12
			9.0	30	175	2655	1019.33	262.70	0	0	0	0	.00	.00	0	0	14
			11.0	40	223	3529	1354.88	308.95	0	1	0	0	.00	.00	0	0	14
			Upstream	60	63	712	546.71	275.24	0	0	0	0	.00	.00	0	0	7
			Upstream	63	360	1093	839.27	373.23	0	0	0	0	.00	.00	0	0	7
			Total Intertidal		656	7549	751.41	141.08	0	1	0	0	.00	.00	0	0	54
			Total Upstream		423	1805	692.99	226.44	0	0	0	0	.00	.00	0	0	14

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
673	Falls Creek	10 10 89	7.0	21	24	560	376.25	155.94	0	0	0	0	.00	.00	0	0	8
			7.0	22	32	584	224.21	178.39	0	1	0	0	.00	.00	0	0	14
			9.0	30	53	2089	802.03	388.72	0	31	0	0	.00	.00	0	0	14
			11.0	40	80	1345	516.38	194.67	0	10	0	0	.00	.00	0	0	14
			Upstream	60	29	1757	674.56	227.60	0	1	0	0	.00	.00	0	0	14
			Total Intertidal		189	4578	492.14	134.04	0	42	0	0	.00	.00	0	0	50
			Total Upstream		29	1757	674.56	227.60	0	1	0	0	.00	.00	0	0	14
677	Hayden Creek	10 10 89	7.0	21	151	1154	886.11	427.54	0	0	0	0	.00	.00	0	0	7
			7.0	22	27	774	594.32	200.03	0	1	0	0	.00	.00	0	0	7
			9.0	31	49	627	481.45	205.98	0	0	0	0	.00	.00	0	0	7
			9.0	32	66	834	640.39	214.32	0	7	0	0	.00	.00	0	0	7
			11.0	41	7	86	66.04	60.71	0	0	0	0	.00	.00	0	0	7
			11.0	42	103	274	210.39	171.97	0	0	0	0	.00	.00	0	0	7
			Upstream	61	4	19	14.59	9.44	0	0	0	0	.00	.00	0	0	7
			Upstream	62	26	142	109.04	109.04	0	0	0	0	.00	.00	0	0	7
			Total Intertidal		403	3749	479.78	101.10	0	8	0	0	.00	.00	0	0	42
			Total Upstream		30	161	61.81	54.18	0	0	0	0	.00	.00	0	0	14
678	Sleepy Bay	10 9 89	7.0	20	13	381	170.66	82.37	0	0	0	0	.00	.00	0	0	12
			9.0	30	111	956	428.21	153.05	0	0	0	0	.00	.00	0	0	12
			11.0	40	231	1770	792.81	256.18	0	0	0	0	.00	.00	0	0	12
			Upstream	60	316	901	345.92	184.64	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		355	3107	463.89	109.09	0	0	0	0	.00	.00	0	0	36
			Total Upstream		316	901	345.92	184.64	0	0	0	0	.00	.00	0	0	14

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
681	Hogan Bay	10 11 89	7.0	20	186	2178	836.20	285.53	0	0	0	0	.00	.00	0	0	14
			9.0	31	141	1137	873.05	331.45	0	0	0	0	.00	.00	0	0	7
			9.0	32	432	2583	1983.38	563.56	0	0	0	0	.00	.00	0	0	7
			11.0	40	960	8167	3135.54	316.59	0	1	0	0	.00	.00	0	0	14
			Upstream	60	93	1290	495.27	201.47	0	1	0	0	.00	.00	0	0	14
			Total Intertidal		1719	14065	1799.99	235.20	0	1	0	0	.00	.00	0	0	42
			Total Upstream		93	1290	495.27	201.47	0	1	0	0	.00	.00	0	0	14
682	Snug Harbor	10 11 89	7.0	20	350	1644	736.38	261.24	0	0	0	0	.00	.00	0	0	12
			9.0	30	1000	2658	1020.48	380.51	0	31	0	0	.00	.00	0	0	14
			11.0	40	477	4582	1759.16	395.91	0	27	0	0	.00	.00	0	0	14
			Upstream	60	134	1000	383.93	130.29	0	8	0	0	.00	.00	0	0	14
			Total Intertidal		1827	8884	1193.79	213.78	0	58	0	0	.00	.00	0	0	40
			Total Upstream		134	1000	383.93	130.29	0	8	0	0	.00	.00	0	0	14
692	Herring Bay	9 29 89	7.0	20	286	1887	724.47	332.80	0	0	0	0	.00	.00	0	0	14
			9.0	30	1163	2619	1005.51	398.40	0	0	0	0	.00	.00	0	0	14
			11.0	40	718	5044	1936.54	266.13	0	0	0	0	.00	.00	0	0	14
			Upstream	60	301	3841	1474.67	431.29	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		2167	9550	1222.17	206.18	0	0	0	0	.00	.00	0	0	42
			Total Upstream		301	3841	1474.67	431.29	0	0	0	0	.00	.00	0	0	14

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
695	Port Audrey	10 1 89	7.0	21	29	288	221.14	148.90	0	0	0	0	.00	.00	0	0	7
			7.0	22	81	1958	1503.46	523.14	0	21	0	0	.00	.00	0	0	7
			9.0	31	190	432	331.71	122.87	0	0	0	0	.00	.00	0	0	7
			9.0	32	107	1662	1276.18	834.50	0	0	0	0	.00	.00	0	0	7
			11.0	40	1015	3821	1466.99	563.74	0	5	0	0	.00	.00	0	0	14
			Upstream	60	94	1669	640.78	231.96	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		1422	8161	1044.41	255.94	0	26	0	0	.00	.00	0	0	42
			Total Upstream		94	1669	640.78	231.96	0	0	0	0	.00	.00	0	0	14
699	Cathead Bay	10 1 89	7.0	20	137	814	312.52	155.10	0	0	222	0	.00	.00	0	0	14
			9.0	30	88	691	265.29	149.27	2	0	0	0	.00	.00	0	0	14
			11.0	40	118	999	383.54	219.54	0	0	0	0	.00	.00	0	0	14
			Upstream	60	59	737	282.96	154.55	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		343	2504	320.45	100.25	2	0	222	0	.00	.00	0	0	42
			Total Upstream		59	737	282.96	154.55	0	0	0	0	.00	.00	0	0	14
740	Kelez Creek	10 12 89	7.0	20	11	269	103.28	100.80	0	0	0	0	.00	.00	0	0	14
			9.0	30	85	944	362.43	122.33	0	0	0	0	.00	.00	0	0	14
			11.0	40	91	17	7.61	3.47	0	5	0	0	.00	.00	0	0	12
			11.0	43	114	1109	496.74	280.21	0	0	0	0	.00	.00	0	0	12
			Upstream	60	125	1334	512.16	249.34	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		301	2339	241.77	79.71	0	5	0	0	.00	.00	0	0	52
			Total Upstream		125	1334	512.16	249.34	0	0	0	0	.00	.00	0	0	14

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
744	Wilby Creek	10 13 89	7.0	20	20	587	225.37	123.77	0	0	0	0	.00	.00	0	0	14
			9.0	30	3	67	25.72	23.28	0	0	0	0	.00	.00	0	0	14
			11.0	40	3	44	33.79	22.03	0	0	0	0	.00	.00	0	0	7
			11.0	43	4	30	23.04	16.03	0	0	0	0	.00	.00	0	0	7
			Upstream	60	28	325	124.78	86.91	0	1	0	0	.00	.00	0	0	14
			Total Intertidal		30	728	93.17	43.68	0	0	0	0	.00	.00	0	0	42
			Total Upstream		28	325	124.78	86.91	0	1	0	0	.00	.00	0	0	14
747	Cabin Creek	10 13 89	7.0	20	442	706	271.05	166.17	0	1	0	0	.00	.00	0	0	14
			9.0	30	147	2185	838.88	306.06	0	1	0	0	.00	.00	0	0	14
			11.0	40	1387	1752	724.38	218.79	0	0	0	0	.00	.00	0	0	13
			Upstream	60	406	1123	431.15	87.49	0	3	0	0	.00	.00	0	0	14
			Total Intertidal		1976	4643	608.69	139.80	0	2	0	0	.00	.00	0	0	41
			Total Upstream		406	1123	431.15	87.49	0	3	0	0	.00	.00	0	0	14
828	Cook Creek	10 13 89	7.0	20	0	3	1.15	.61	0	0	0	0	.00	.00	0	0	14
			9.0	30	603	1757	674.56	260.16	0	0	0	0	.00	.00	0	0	14
			11.0	41	39	739	567.45	363.52	0	0	0	1	.77	.77	0	0	7
			11.0	42	88	361	277.20	212.59	0	0	0	0	.00	.00	0	0	7
			11.0	43	111	96	86.00	81.72	0	0	0	0	.00	.00	0	0	6
			Upstream	60	881	4820	1850.54	386.40	0	257	0	0	.00	.00	0	1	14
			Upstream	100	1075	5297	2033.67	645.23	17	231	0	0	.00	.00	0	258	14
			Total Intertidal		841	2956	331.01	102.96	0	0	0	1	.11	.11	0	0	48
			Total Upstream		1956	10117	1942.10	369.43	17	488	0	0	.00	.00	0	259	28

Appendix A.1

1989 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Eggs E/m^2	Pink Salmon Eggs SE	Pink Salmon Fry Dead	Pink Salmon Fry Live	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Eggs E/m^2	Chum Salmon Eggs SE	Chum Salmon Fry Dead	Chum Salmon Fry Live	No. of Digs
861	Bernard Creek	10 14 89	7.0	20	209	826	317.13	113.03	0	1	0	0	.00	.00	0	0	14
			9.0	30	79	1229	471.85	180.74	0	2	0	0	.00	.00	0	0	14
			11.0	40	227	4481	1720.38	485.03	0	100	0	0	.00	.00	0	0	14
			Upstream	60	550	5736	2202.21	481.31	0	417	0	0	.00	.00	0	0	14
			Total Intertidal		515	6536	836.45	198.23	0	103	0	0	.00	.00	0	0	42
			Total Upstream		550	5736	2202.21	481.31	0	417	0	0	.00	.00	0	0	14
Prince William Sound Summary																	
			Total Intertidal		37809	194731	791.14	34.13	12	1117	2637	5958	24.21	62.93	0	2857	1323
			Total Upstream		13408	85186	1015.24	62.93	17	1335	17	51	.61	79.07	0	439	451

APPENDIX A.2

Numbers of live and dead pink and chum salmon eggs and fry by tide zone for the 1990 egg deposition survey

Appendix A.2

1990 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
35	Koppen Creek	9 24 90	9.0	30	6107	1859	713.72	315.76	0	0	102	117	44.92	44.10	0	2	14
			11.0	40	7946	3209	1232.03	404.97	0	0	2	18	6.91	5.33	0	0	14
			Upstream	60	5205	1113	427.31	171.01	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		14053	5068	972.88	256.85	0	0	104	135	25.92	22.10	0	2	28
			Total Upstream		5205	1113	427.31	171.01	0	0	0	0	.00	.00	0	0	14
480	Mink Creek	9 25 90	7.0	20	1441	3886	1491.95	315.71	0	0	6	1	.38	.38	0	1	14
			9.0	30	450	3033	1164.46	342.57	0	18	303	188	72.18	38.61	0	170	14
			11.0	40	417	1979	759.79	241.95	0	70	20	110	42.23	38.98	0	31	14
			Upstream	60	350	3595	1380.22	436.57	0	7	79	314	120.55	96.21	0	181	14
			Total Intertidal		2308	8898	1138.73	176.95	0	88	329	299	38.26	18.42	0	202	42
			Total Upstream		350	3595	1380.22	436.57	0	7	79	314	120.55	96.21	0	181	14
485	W. Finger Creek	9 26 90	7.0	20	89	1694	650.38	189.82	0	0	29	344	132.07	120.26	0	0	14
			9.0	30	138	3827	1469.29	372.94	0	158	3	97	37.24	24.79	0	10	14
			11.0	40	302	4131	1586.01	456.04	0	14	44	929	356.67	199.37	0	110	14
			Upstream	60	710	2588	993.61	245.14	0	16	38	333	127.85	113.06	0	0	14
			Total Intertidal		529	9652	1235.23	211.46	0	172	76	1370	175.33	78.94	0	120	42
			Total Upstream		710	2588	993.61	245.14	0	16	38	333	127.85	113.06	0	0	14
498	McClure Creek	9 25 90	7.0	20	1769	1937	743.67	240.20	0	0	0	0	.00	.00	0	0	14
			9.0	30	3396	3460	1328.39	329.60	0	7	0	0	.00	.00	0	0	14
			11.0	40	3480	5665	2174.96	499.32	0	28	0	0	.00	.00	0	0	14
			Upstream	60	469	2702	1037.38	515.04	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		8645	11062	1415.67	228.80	0	35	0	0	.00	.00	0	0	42
			Total Upstream		469	2702	1037.38	515.04	0	0	0	0	.00	.00	0	0	14

Appendix A.2

1990 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
506	Loomis Creek	9 30 90	7.0	20	1245	3377	1296.53	412.20	0	0	0	0	.00	.00	0	0	14
			9.0	30	4348	2627	1008.58	417.01	0	1	0	0	.00	.00	0	0	14
			11.0	40	3283	1350	518.30	218.33	0	0	0	0	.00	.00	0	0	14
			Upstream	60	1914	2487	954.83	278.59	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		8876	7354	941.14	209.50	0	1	0	0	.00	.00	0	0	42
			Total Upstream		1914	2487	954.83	278.59	0	0	0	0	.00	.00	0	0	14
604	Erb Creek	10 29 90	7.0	20	262	1043	800.88	492.89	0	0	0	0	.00	.00	0	0	7
			7.0	23	199	627	481.45	187.30	0	9	0	0	.00	.00	0	0	7
			9.0	30	2884	3930	1508.84	523.43	0	1	634	20	7.68	6.89	0	0	14
			11.0	40	845	1662	638.09	234.07	0	2	3	24	9.21	6.48	0	18	14
			Upstream	60	119	1302	499.88	275.21	0	1	0	0	.00	.00	0	0	14
			Total Intertidal		4190	7262	929.36	214.08	0	12	637	44	5.63	3.14	0	18	42
			Total Upstream		119	1302	499.88	275.21	0	1	0	0	.00	.00	0	0	14
618	Junction Creek	9 28 90	7.0	20	267	2268	1015.88	499.60	0	0	0	0	.00	.00	0	0	12
			9.0	30	151	1446	647.69	604.19	0	0	0	0	.00	.00	0	0	12
			11.0	40	1539	974	436.27	192.53	0	0	0	0	.00	.00	0	0	12
			Upstream	60	452	495	221.72	218.79	0	0	0	0	.00	.00	0	0	12
			Total Intertidal		1957	4688	699.94	264.41	0	0	0	0	.00	.00	0	0	36
			Total Upstream		452	495	221.72	218.79	0	0	0	0	.00	.00	0	0	12
621	Totemoff Creek	9 28 90	7.0	20	3195	3843	1475.44	390.40	52	16	0	0	.00	.00	0	0	14
			9.0	30	406	2494	957.52	304.48	0	7	0	0	.00	.00	0	0	14
			11.0	40	595	2673	1026.24	364.75	0	290	0	0	.00	.00	0	0	14
			Upstream	60	39	423	162.40	87.78	1	0	0	0	.00	.00	0	0	14
			Total Intertidal		4196	9010	1153.07	203.11	52	313	0	0	.00	.00	0	0	42
			Total Upstream		39	423	162.40	87.78	1	0	0	0	.00	.00	0	0	14

Appendix A.2

1990 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
623	Brizgaloff Creek	9 27 90	7.0	20	1855	4747	1822.51	490.18	0	1	0	0	.00	.00	0	0	14
			9.0	30	1749	1694	650.38	280.76	0	0	9	2	.77	.77	0	0	14
			11.0	40	2585	4331	1662.79	589.98	0	0	2	0	.00	.00	0	0	14
			Upstream	60	3301	4220	1620.18	382.58	0	76	0	0	.00	.00	0	0	14
			Total Intertidal		6189	10772	1378.56	277.64	0	1	11	2	.26	.26	0	0	42
			Total Upstream		3301	4220	1620.18	382.58	0	76	0	0	.00	.00	0	0	14
628	Chenega Creek	9 29 90	7.0	20	169	276	105.96	68.65	0	0	0	0	.00	.00	0	0	14
			9.0	30	969	5465	2098.17	483.00	0	0	0	0	.00	.00	0	0	14
			11.0	40	1507	2066	793.20	212.71	0	0	0	0	.00	.00	0	0	14
			Upstream	60	989	7325	2812.28	483.73	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		2645	7807	999.11	215.84	0	0	0	0	.00	.00	0	0	42
			Total Upstream		989	7325	2812.28	483.73	0	0	0	0	.00	.00	0	0	14
630	Bainbridge Creek	10 14 90	7.0	20	164	17	6.53	3.04	0	0	0	0	.00	.00	0	0	14
			9.0	30	780	3342	1283.09	336.75	13	342	0	0	.00	.00	0	0	14
			11.0	40	622	8727	3350.54	574.88	12	798	0	0	.00	.00	0	8	14
			Upstream	60	817	7867	3020.37	533.91	22	571	0	0	.00	.00	4	3	14
			Total Intertidal		1566	12086	1546.72	305.32	25	1140	0	0	.00	.00	0	8	42
			Total Upstream		817	7867	3020.37	533.91	22	571	0	0	.00	.00	4	3	14
632	Claw Creek	10 14 90	7.0	20	67	1665	639.24	316.57	0	261	0	0	.00	.00	0	0	14
			9.0	30	263	4038	1550.30	405.16	0	248	0	0	.00	.00	0	0	14
			11.0	40	260	7164	2750.46	587.23	0	639	0	0	.00	.00	0	0	14
			Upstream	60	0	0	.00	.00	0	1	0	0	.00	.00	0	0	7
			Total Intertidal		590	12867	1646.67	287.44	0	1148	0	0	.00	.00	0	0	42
			Total Upstream		0	0	.00	.00	0	1	0	0	.00	.00	0	0	7

Appendix A.2

1990 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
637	Pt. Countess	10 3 90	7.0	20	1793	3324	1276.18	350.33	0	0	0	0	.00	.00	0	0	14
			9.0	30	1400	4349	1669.71	452.30	0	37	0	0	.00	.00	0	0	14
			11.0	41	1777	3321	1275.03	252.80	0	8	0	0	.00	.00	0	0	14
			Upstream	61	368	2223	1706.95	374.09	0	7	0	0	.00	.00	0	0	7
			Upstream	62	251	577	443.05	147.24	0	0	0	0	.00	.00	0	0	7
			Total Intertidal		4970	10994	1406.97	205.40	0	45	0	0	.00	.00	0	0	42
			Total Upstream		619	2800	1075.00	260.80	0	7	0	0	.00	.00	0	0	14
653	Hogg Creek	10 15 90	7.0	20	132	2044	784.75	311.12	0	185	0	0	.00	.00	0	0	14
			9.0	31	26	633	486.05	224.71	0	0	0	0	.00	.00	0	0	7
			9.0	32	9	214	164.32	158.14	0	2	0	0	.00	.00	0	0	7
			11.0	40	35	2553	980.17	557.03	0	299	0	0	.00	.00	0	0	14
			Upstream	60	517	1795	689.15	285.78	0	14	0	0	.00	.00	0	0	14
			Total Intertidal		202	5444	696.70	216.60	0	486	0	0	.00	.00	0	0	42
			Total Upstream		517	1795	689.15	285.78	0	14	0	0	.00	.00	0	0	14
656	Halverson Creek	10 15 90	7.0	22	100	774	297.16	131.06	0	75	0	0	.00	.00	0	0	14
			9.0	30	223	1473	565.53	186.32	0	1467	0	0	.00	.00	0	0	14
			11.0	40	590	5282	2027.91	381.32	0	659	0	0	.00	.00	0	0	14
			Upstream	60	1282	4639	1781.04	192.75	0	879	0	0	.00	.00	0	0	14
			Total Intertidal		913	7529	963.53	186.98	0	2201	0	0	.00	.00	0	0	42
			Total Upstream		1282	4639	1781.04	192.75	0	879	0	0	.00	.00	0	0	14
663	Shelter Bay	10 13 90	7.0	20	81	1223	547.80	439.44	0	0	0	0	.00	.00	0	0	12
			9.0	30	291	2287	1024.39	279.91	0	0	0	0	.00	.00	0	0	12
			11.0	40	629	3597	1611.16	547.42	0	0	0	0	.00	.00	0	0	12
			Upstream	60	148	1026	459.56	199.93	0	0	0	0	.00	.00	0	0	12
			Total Intertidal		1001	7107	1061.11	255.41	0	0	0	0	.00	.00	0	0	36
			Total Upstream		148	1026	459.56	199.93	0	0	0	0	.00	.00	0	0	12

Appendix A.2

1990 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
665	Bjorne Creek	10 4 90	7.0	20	697	1255	481.83	455.22	0	0	0	0	.00	.00	0	0	14
			9.0	30	1957	2038	782.45	222.12	0	0	0	0	.00	.00	0	0	14
			11.0	40	1820	1718	659.59	222.53	0	16	0	0	.00	.00	0	0	14
			Upstream	60	1357	2271	871.90	313.52	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		4474	5011	641.29	180.89	0	16	0	0	.00	.00	0	0	42
			Total Upstream		1357	2271	871.90	313.52	0	0	0	0	.00	.00	0	0	14
666	O'Brien Creek	10 11 90	7.0	20	177	1275	489.51	180.17	0	0	0	0	.00	.00	0	0	14
			9.0	30	88	1239	475.69	144.09	0	4	0	0	.00	.00	0	0	14
			11.0	40	675	3579	1374.08	292.03	0	118	0	0	.00	.00	0	0	14
			Upstream	60	645	1607	616.97	237.17	0	1	0	0	.00	.00	0	0	14
			Total Intertidal		940	6093	779.76	137.65	0	122	0	0	.00	.00	0	0	42
			Total Upstream		645	1607	616.97	237.17	0	1	0	0	.00	.00	0	0	14
673	Falls Creek	10 12 90	7.0	20	57	1299	498.72	264.89	0	183	0	0	.00	.00	0	0	14
			9.0	30	204	4995	1917.72	482.26	0	1399	0	0	.00	.00	0	0	14
			11.0	40	98	843	323.65	167.22	0	85	0	0	.00	.00	0	0	14
			Upstream	60	63	489	187.74	63.57	0	122	0	0	.00	.00	0	0	14
			Total Intertidal		359	7137	913.37	217.67	0	1667	0	0	.00	.00	0	0	42
			Total Upstream		63	489	187.74	63.57	0	122	0	0	.00	.00	0	0	14

Appendix A.2

1990 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
677	Hayden Creek	10 12 90	7.0	21	17	140	107.50	56.39	0	2	0	0	.00	.00	0	0	7
			7.0	22	59	300	230.36	137.78	0	45	0	0	.00	.00	0	0	7
			9.0	31	90	1340	1028.93	402.66	0	7	0	0	.00	.00	0	0	7
			9.0	32	247	1834	1408.25	510.01	0	340	0	0	.00	.00	0	0	7
			11.0	41	293	1049	805.48	514.65	0	0	0	0	.00	.00	0	0	7
			11.0	42	175	1683	1292.30	793.70	0	437	0	0	.00	.00	0	0	7
			Upstream	61	9	89	68.34	45.63	0	0	0	0	.00	.00	0	0	7
			Upstream	62	452	1361	1045.05	376.09	0	61	0	0	.00	.00	0	0	7
		Total Intertidal			881	6346	812.14	196.55	0	831	0	0	.00	.00	0	0	42
		Total Upstream			461	1450	556.70	226.86	0	61	0	0	.00	.00	0	0	14
678	Sleepy Bay	10 3 90	7.0	20	37	462	206.94	134.16	0	0	0	0	.00	.00	0	0	12
			9.0	30	117	141	63.16	49.29	0	0	0	0	.00	.00	0	0	12
			11.0	40	574	433	193.95	149.90	0	0	0	0	.00	.00	0	0	12
			Upstream	60	131	827	317.51	168.86	0	0	0	0	.00	.00	0	0	14
		Total Intertidal			728	1036	154.68	67.93	0	0	0	0	.00	.00	0	0	36
		Total Upstream			131	827	317.51	168.86	0	0	0	0	.00	.00	0	0	14
681	Hogan Bay	10 13 90	7.0	20	60	201	77.17	59.62	0	1	0	0	.00	.00	0	0	14
			9.0	30	33	9	3.46	2.30	0	0	0	0	.00	.00	0	0	14
			11.0	40	207	1303	500.26	249.83	0	7	0	0	.00	.00	0	0	14
			Upstream	60	159	1489	571.67	297.39	0	10	0	0	.00	.00	0	0	14
		Total Intertidal			300	1513	193.63	90.23	0	8	0	0	.00	.00	0	0	42
		Total Upstream			159	1489	571.67	297.39	0	10	0	0	.00	.00	0	0	14

Appendix A.2

1990 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
682	Snug Harbor	10 16 90	7.0	20	1218	1438	552.09	183.71	0	234	0	0	.00	.00	0	0	14
			9.0	30	2208	2908	1116.46	313.72	0	63	0	0	.00	.00	0	0	14
			11.0	40	1289	5018	1926.55	455.81	0	894	0	0	.00	.00	0	0	14
			Upstream	60	616	4667	1791.79	525.22	3	1042	0	0	.00	.00	0	0	14
			Total Intertidal		4715	9364	1198.37	209.02	0	1191	0	0	.00	.00	0	0	42
			Total Upstream		616	4667	1791.79	525.22	3	1042	0	0	.00	.00	0	0	14
692	Herring Bay	9 30 90	7.0	20	394	954	366.27	166.44	0	0	0	0	.00	.00	0	0	14
			9.0	30	629	1563	600.08	237.54	0	1	0	0	.00	.00	0	0	14
			11.0	40	1089	3150	1209.38	285.44	0	0	0	0	.00	.00	0	0	14
			Upstream	60	564	1796	689.54	232.24	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		2112	5667	725.24	143.47	0	1	0	0	.00	.00	0	0	42
			Total Upstream		564	1796	689.54	232.24	0	0	0	0	.00	.00	0	0	14
695	Port Audrey	9 29 90	7.0	21	119	1028	789.36	376.69	0	10	0	0	.00	.00	0	0	7
			7.0	22	83	625	479.91	250.55	4	20	0	0	.00	.00	0	0	7
			9.0	30	1863	2279	874.97	380.32	0	6	0	0	.00	.00	0	0	14
			11.0	40	908	1578	605.84	277.68	0	14	0	0	.00	.00	0	0	14
			Upstream	60	490	2434	934.48	388.78	1	9	0	0	.00	.00	0	0	14
			Total Intertidal		2973	5510	705.15	170.23	4	50	0	0	.00	.00	0	0	42
			Total Upstream		490	2434	934.48	388.78	1	9	0	0	.00	.00	0	0	14

Appendix A.2

1990 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
699	Cathead Bay	10 1 90	7.0	20	381	3043	1168.29	384.33	0	39	603	0	.00	.00	0	0	14
			9.0	30	153	3160	1213.21	321.42	0	3	0	0	.00	.00	0	0	14
			11.0	40	183	2071	795.12	279.79	0	0	0	0	.00	.00	0	0	14
			Upstream	60	156	2437	935.63	453.45	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		717	8274	1058.88	188.84	0	42	603	0	.00	.00	0	0	42
			Total Upstream		156	2437	935.63	453.45	0	0	0	0	.00	.00	0	0	14
740	Kelez Creek	10 10 90	7.0	20	586	690	264.91	103.82	0	6	0	0	.00	.00	0	0	14
			9.0	30	101	849	325.96	172.58	0	8	0	0	.00	.00	0	0	14
			11.0	40	394	564	216.54	91.76	0	27	0	0	.00	.00	0	0	14
			Upstream	60	97	1242	476.84	192.23	0	6	0	0	.00	.00	0	0	14
			Total Intertidal		1081	2103	269.13	72.29	0	41	0	0	.00	.00	0	0	42
			Total Upstream		97	1242	476.84	192.23	0	6	0	0	.00	.00	0	0	14
744	Wilby Creek	10 9 90	7.0	20	79	36	13.82	3.77	0	0	0	0	.00	.00	0	0	14
			9.0	31	2	4	3.07	1.98	0	0	0	0	.00	.00	0	0	7
			9.0	32	174	236	181.21	175.86	0	13	0	0	.00	.00	0	0	7
			11.0	40	310	2777	1066.17	275.71	0	192	0	0	.00	.00	0	0	14
			Upstream	60	4	620	238.04	165.45	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		565	3053	390.71	120.18	0	205	0	0	.00	.00	0	0	42
			Total Upstream		4	620	238.04	165.45	0	0	0	0	.00	.00	0	0	14
747	Cabin Creek	10 9 90	7.0	20	1946	283	108.65	47.88	0	0	0	0	.00	.00	0	0	14
			9.0	30	620	447	171.62	108.06	0	0	0	0	.00	.00	0	0	14
			11.0	40	2477	1734	665.73	203.18	0	0	0	0	.00	.00	0	0	14
			Upstream	60	1133	1024	393.14	108.91	0	2	0	0	.00	.00	0	0	14
			Total Intertidal		5043	2464	315.33	85.75	0	0	0	0	.00	.00	0	0	42
			Total Upstream		1133	1024	393.14	108.91	0	2	0	0	.00	.00	0	0	14

Appendix A.2

1990 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
828	Cook Creek	10 18 90	7.0	20	26	625	239.96	137.98	0	0	0	0	.00	.00	0	0	14
			9.0	30	985	4226	1622.48	390.62	0	218	0	0	.00	.00	0	0	14
			11.0	40	235	3865	1483.88	429.81	0	168	0	0	.00	.00	0	0	14
			Upstream	60	157	1883	722.94	244.06	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		1246	8716	1115.44	217.00	0	386	0	0	.00	.00	0	0	42
			Total Upstream		157	1883	722.94	244.06	0	0	0	0	.00	.00	0	0	14
861	Bernard Creek	10 8 90	7.0	20	1429	990	380.09	148.23	0	1	0	0	.00	.00	0	0	14
			9.0	30	2466	1430	549.02	225.90	0	0	0	0	.00	.00	0	0	14
			11.0	40	1339	5019	1926.94	574.84	0	48	0	0	.00	.00	0	0	14
			Upstream	60	60	667	256.08	249.09	0	1	0	0	.00	.00	0	0	14
			Total Intertidal		5234	7439	952.01	233.12	0	49	0	0	.00	.00	0	0	42
			Total Upstream		60	667	256.08	249.09	0	1	0	0	.00	.00	0	0	14
Prince William Sound Summary																	
			Total Intertidal		94198	217326	919.79	37.72	81	10251	1760	1850	7.83	63.94	0	350	1270
			Total Upstream		23024	69280	880.33	63.94	27	2826	117	647	8.22	76.98	4	184	423

APPENDIX A.3

Numbers of live and dead pink and chum salmon eggs and fry by tide zone for the 1991 egg deposition survey

Appendix A.3

1991 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
35	Koppen Creek	9 23 91	9.0	30	2461	177	67.96	41.96	0	0	0	0	.00	.00	0	0	14
			11.0	40	5771	1492	572.82	226.06	0	0	66	68	26.11	26.11	0	0	14
			Upstream	60	6021	1748	671.11	215.98	0	0	1	0	.00	.00	0	0	14
			Total Intertidal		8232	1669	320.39	122.83	0	0	66	68	13.05	13.05	0	0	28
			Total Upstream		6021	1748	671.11	215.98	0	0	1	0	.00	.00	0	0	14
480	Mink Creek	10 9 91	7.0	20	46	726	278.73	113.40	0	0	0	0	.00	.00	0	0	14
			9.0	30	126	1880	721.79	232.12	0	2	6	60	23.04	23.04	0	81	14
			11.0	41	71	1017	780.91	448.64	2	108	0	0	.00	.00	0	0	7
			11.0	42	132	835	641.16	374.98	1	93	0	0	.00	.00	0	0	7
			Upstream	60	60	2291	879.58	266.30	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		375	4458	570.52	128.34	3	203	6	60	7.68	7.68	0	81	42
			Total Upstream		60	2291	879.58	266.30	0	0	0	0	.00	.00	0	0	14
485	W. Finger Creek	10 8 91	7.0	20	0	15	5.76	3.80	0	0	0	24	9.21	7.59	0	0	14
			9.0	30	172	5346	2052.48	726.28	0	1	8	599	229.97	223.78	0	34	14
			11.0	40	94	5546	2129.27	318.89	3	10	10	286	109.80	88.40	4	291	14
			Upstream	60	126	3855	1480.04	521.27	0	1	0	0	.00	.00	0	0	14
			Total Intertidal		266	10907	1395.84	300.15	3	11	18	909	116.33	79.52	4	325	42
			Total Upstream		126	3855	1480.04	521.27	0	1	0	0	.00	.00	0	0	14
498	McClure Creek	10 8 91	7.0	20	402	1452	557.46	136.57	0	0	0	0	.00	.00	0	0	14
			9.0	30	813	4375	1679.69	415.97	0	3	0	0	.00	.00	0	0	14
			11.0	40	681	4695	1802.54	320.79	0	193	83	0	.00	.00	0	0	14
			Upstream	60	3238	5242	2012.55	552.92	0	1	0	0	.00	.00	0	0	14
			Total Intertidal		1896	10522	1346.57	196.95	0	196	83	0	.00	.00	0	0	42
			Total Upstream		3238	5242	2012.55	552.92	0	1	0	0	.00	.00	0	0	14

Appendix A.3

1991 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
506	Loomis Creek	10 9 91	7.0	20	520	830	318.66	108.99	0	0	0	0	.00	.00	0	0	14
			9.0	30	1299	2064	792.43	290.24	0	0	0	0	.00	.00	0	0	14
			11.0	40	2300	2150	825.45	300.55	0	0	0	0	.00	.00	0	0	14
			Upstream	60	557	1978	759.41	288.49	0	1	0	0	.00	.00	0	0	14
		Total Intertidal			4119	5044	645.51	144.96	0	0	0	0	.00	.00	0	0	42
		Total Upstream			557	1978	759.41	288.49	0	1	0	0	.00	.00	0	0	14
604	Erb Creek	10 10 91	7.0	20	222	3641	1397.88	357.08	0	31	0	0	.00	.00	0	0	14
			9.0	30	1825	6606	2536.23	417.38	0	1	103	22	8.45	8.04	0	16	14
			11.0	40	167	2633	1010.88	412.78	0	0	0	0	.00	.00	0	0	14
			Upstream	60	252	3688	1415.93	307.40	0	0	0	0	.00	.00	0	0	14
		Total Intertidal			2214	12880	1648.33	245.19	0	32	103	22	2.82	2.69	0	16	42
		Total Upstream			252	3688	1415.93	307.40	0	0	0	0	.00	.00	0	0	14
618	Junction Creek	10 1 91	7.0	20	28	9	4.03	1.77	0	0	0	0	.00	.00	0	0	12
			9.0	30	486	690	309.06	193.77	0	0	0	0	.00	.00	0	0	12
			11.0	40	822	1855	830.89	318.86	0	0	0	0	.00	.00	0	0	12
			Upstream	60	189	499	223.51	187.15	0	0	0	0	.00	.00	0	0	12
		Total Intertidal			1336	2554	381.33	133.85	0	0	0	0	.00	.00	0	0	36
		Total Upstream			189	499	223.51	187.15	0	0	0	0	.00	.00	0	0	12
621	Totemoff Creek	10 10 91	7.0	20	3892	4286	1645.52	490.60	0	1	0	0	.00	.00	0	0	14
			9.0	30	885	2166	831.59	291.60	0	2	0	0	.00	.00	0	0	14
			11.0	40	2065	5026	1929.63	373.30	4	451	1	0	.00	.00	0	0	14
			Upstream	60	648	4406	1691.59	452.49	0	154	0	0	.00	.00	0	0	14
		Total Intertidal			6842	11478	1468.91	233.31	4	454	1	0	.00	.00	0	0	42
		Total Upstream			648	4406	1691.59	452.49	0	154	0	0	.00	.00	0	0	14

Appendix A.3

1991 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
623	Brizgaloff Creek	10 11 91	7.0	20	797	608	233.43	161.27	0	0	0	0	.00	.00	0	0	14
			9.0	30	820	2824	1084.21	321.96	0	0	0	0	.00	.00	0	0	14
			11.0	40	1926	3119	1197.47	427.35	0	0	0	0	.00	.00	0	0	14
			Upstream	60	2682	9093	3491.06	962.94	0	56	0	0	.00	.00	0	0	14
			Total Intertidal		3543	6551	838.37	193.71	0	0	0	0	.00	.00	0	0	42
			Total Upstream		2682	9093	3491.06	962.94	0	56	0	0	.00	.00	0	0	14
628	Chenega Creek	10 1 91	7.0	20	437	1169	448.81	249.08	0	1	0	0	.00	.00	0	0	14
			9.0	30	907	3979	1527.65	397.07	0	0	0	0	.00	.00	0	0	14
			11.0	40	1087	3910	1501.16	273.02	0	4	0	0	.00	.00	0	0	14
			Upstream	60	1059	6564	2520.11	424.66	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		2431	9058	1159.21	193.02	0	5	0	0	.00	.00	0	0	42
			Total Upstream		1059	6564	2520.11	424.66	0	0	0	0	.00	.00	0	0	14
630	Bainbridge Creek	10 11 91	7.0	20	773	1010	387.77	162.10	0	0	0	0	.00	.00	0	0	14
			9.0	30	1632	4896	1879.71	458.31	0	0	0	0	.00	.00	0	0	14
			11.0	40	1440	8924	3426.18	486.41	0	210	0	0	.00	.00	0	0	14
			Upstream	60	1931	6384	2451.00	383.38	0	125	1	0	.00	.00	0	0	14
			Total Intertidal		3845	14830	1897.89	295.83	0	210	0	0	.00	.00	0	0	42
			Total Upstream		1931	6384	2451.00	383.38	0	125	1	0	.00	.00	0	0	14
632	Claw Creek	9 30 91	7.0	20	301	2600	998.21	273.88	0	0	0	0	.00	.00	0	0	14
			9.0	30	117	2145	823.53	326.98	0	0	0	0	.00	.00	0	0	14
			11.0	40	497	6728	2583.07	491.04	0	0	0	0	.00	.00	0	0	14
			Upstream	60	17	438	336.32	332.75	0	0	0	0	.00	.00	0	0	7
			Total Intertidal		915	11473	1468.27	244.93	0	0	0	0	.00	.00	0	0	42
			Total Upstream		17	438	336.32	332.75	0	0	0	0	.00	.00	0	0	7

Appendix A.3

1991 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
637	Pt. Countess	9 30 91	7.0	20	975	1143	438.83	146.57	0	0	0	0	.00	.00	0	0	14
			9.0	30	757	2619	1005.51	358.86	0	0	0	0	.00	.00	0	0	14
			11.0	41	269	444	340.93	224.42	0	0	0	0	.00	.00	0	0	7
			11.0	42	449	1448	1111.86	487.74	0	0	0	0	.00	.00	0	0	7
			Upstream	61	424	997	765.55	273.15	0	0	0	0	.00	.00	0	0	7
			Upstream	62	95	1284	985.93	523.58	0	0	0	0	.00	.00	0	0	7
			Total Intertidal		2450	5654	723.58	159.45	0	0	0	0	.00	.00	0	0	42
			Total Upstream		519	2281	875.74	285.33	0	0	0	0	.00	.00	0	0	14
653	Hogg Creek	9 28 91	7.0	20	702	4657	1787.96	382.49	0	0	0	0	.00	.00	0	0	14
			9.0	31	49	14	10.75	3.89	0	0	0	0	.00	.00	0	0	7
			9.0	32	79	477	366.27	249.29	0	0	0	0	.00	.00	0	0	7
			11.0	40	321	4439	1704.26	467.13	0	0	0	0	.00	.00	0	0	14
			Upstream	60	546	3876	1488.11	443.06	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		1151	9587	1226.91	231.25	0	0	0	0	.00	.00	0	0	42
			Total Upstream		546	3876	1488.11	443.06	0	0	0	0	.00	.00	0	0	14
656	Halverson Creek	9 29 91	7.0	22	91	2726	1046.59	291.54	0	0	0	0	.00	.00	0	0	14
			9.0	30	518	886	340.16	161.52	0	0	0	0	.00	.00	0	0	14
			11.0	40	1383	2360	906.07	186.91	0	0	0	0	.00	.00	0	0	14
			Upstream	60	858	4405	1691.21	423.96	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		1992	5972	764.27	133.06	0	0	0	0	.00	.00	0	0	42
			Total Upstream		858	4405	1691.21	423.96	0	0	0	0	.00	.00	0	0	14
663	Shelter Bay	9 27 91	7.0	20	10	6	2.69	2.69	0	0	0	0	.00	.00	0	0	12
			9.0	30	474	155	69.43	50.99	0	0	0	0	.00	.00	0	0	12
			11.0	40	3528	1941	869.41	310.90	0	0	0	0	.00	.00	0	0	12
			Upstream	60	718	957	428.66	211.08	0	0	0	0	.00	.00	0	0	12
			Total Intertidal		4012	2102	313.84	121.78	0	0	0	0	.00	.00	0	0	36
			Total Upstream		718	957	428.66	211.08	0	0	0	0	.00	.00	0	0	12

Appendix A.3

1991 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
665	Bjorne Creek	9 27 91	7.0	20	316	116	44.54	37.30	0	0	0	0	.00	.00	0	0	14
			9.0	30	1610	188	72.18	26.49	0	0	0	0	.00	.00	0	0	14
			11.0	40	2738	941	361.28	135.06	0	0	0	0	.00	.00	0	0	14
			Upstream	60	3942	2060	790.89	290.83	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		4664	1245	159.33	51.47	0	0	0	0	.00	.00	0	0	42
			Total Upstream		3942	2060	790.89	290.83	0	0	0	0	.00	.00	0	0	14
666	O'Brien Creek	9 28 91	7.0	20	145	51	19.58	8.29	0	0	0	0	.00	.00	0	0	14
			9.0	30	508	451	173.15	95.22	0	0	0	0	.00	.00	0	0	14
			11.0	40	272	960	368.57	119.28	0	0	0	0	.00	.00	0	0	14
			Upstream	60	1037	2395	919.51	321.65	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		925	1462	187.10	54.47	0	0	0	0	.00	.00	0	0	42
			Total Upstream		1037	2395	919.51	321.65	0	0	0	0	.00	.00	0	0	14
673	Falls Creek	9 28 91	7.0	20	918	3417	1311.88	539.92	0	0	0	0	.00	.00	0	0	14
			9.0	30	1967	4095	1572.19	272.18	0	0	0	0	.00	.00	0	0	14
			11.0	40	1810	6742	2588.45	493.64	0	0	0	0	.00	.00	0	0	14
			Upstream	60	1254	5683	2181.87	487.93	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		4695	14254	1824.17	267.95	0	0	0	0	.00	.00	0	0	42
			Total Upstream		1254	5683	2181.87	487.93	0	0	0	0	.00	.00	0	0	14

Appendix A.3

1991 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
677	Hayden Creek	10 12 91	7.0	21	198	1284	985.93	392.75	0	0	0	0	.00	.00	0	0	7
			7.0	22	270	2081	1597.91	721.80	0	14	0	0	.00	.00	0	0	7
			9.0	31	258	1399	1074.23	632.32	0	0	0	0	.00	.00	0	0	7
			9.0	32	464	1443	1108.02	815.46	0	2	0	0	.00	.00	0	0	7
			11.0	41	473	994	763.25	311.92	0	0	0	0	.00	.00	0	0	7
			11.0	42	433	1933	1484.27	381.10	0	0	0	0	.00	.00	0	0	7
			Upstream	61	405	1195	917.59	389.06	0	0	0	0	.00	.00	0	0	7
			Upstream	62	547	1243	954.45	222.56	0	0	0	0	.00	.00	0	0	7
		Total	Intertidal		2096	9134	1168.93	224.42	0	16	0	0	.00	.00	0	0	42
		Total	Upstream		952	2438	936.02	215.38	0	0	0	0	.00	.00	0	0	14
678	Sleepy Bay	9 25 91	7.0	20	199	182	81.52	38.74	0	0	0	0	.00	.00	0	0	12
			9.0	30	1264	1245	557.66	187.91	0	0	0	0	.00	.00	0	0	12
			11.0	40	1335	688	308.17	99.82	0	0	0	0	.00	.00	0	0	12
			Upstream	60	1510	1027	460.01	167.56	0	0	0	0	.00	.00	0	0	12
		Total	Intertidal		2798	2115	315.78	77.33	0	0	0	0	.00	.00	0	0	36
		Total	Upstream		1510	1027	460.01	167.56	0	0	0	0	.00	.00	0	0	12
681	Hogan Bay	9 27 91	7.0	20	925	877	336.71	128.44	0	0	0	0	.00	.00	0	0	14
			9.0	30	1091	994	381.63	176.41	0	0	0	0	.00	.00	0	0	14
			11.0	40	3367	4681	1797.17	357.49	0	0	0	0	.00	.00	0	0	14
			Upstream	60	1340	1356	520.61	172.13	0	0	0	0	.00	.00	0	0	14
		Total	Intertidal		5383	6552	838.50	172.50	0	0	0	0	.00	.00	0	0	42
		Total	Upstream		1340	1356	520.61	172.13	0	0	0	0	.00	.00	0	0	14

Appendix A.3

1991 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
682	Snug Harbor	9 26 91	7.0	20	1957	1073	411.96	126.56	0	5	0	0	.00	.00	0	0	14
			9.0	30	3663	3049	1170.60	364.15	0	0	0	0	.00	.00	0	0	14
			11.0	40	1677	1357	520.99	342.11	0	0	0	0	.00	.00	0	0	14
			Upstream	60	5256	3624	1391.36	255.17	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		7297	5479	701.18	175.54	0	5	0	0	.00	.00	0	0	42
			Total Upstream		5256	3624	1391.36	255.17	0	0	0	0	.00	.00	0	0	14
692	Herring Bay	10 7 91	7.0	20	1039	1864	715.64	207.85	0	0	0	0	.00	.00	0	0	14
			9.0	30	2336	3971	1524.58	316.70	0	0	0	0	.00	.00	0	0	14
			11.0	40	1084	3445	1322.63	253.02	0	0	0	0	.00	.00	0	0	14
			Upstream	60	748	3081	1182.88	406.45	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		4459	9280	1187.62	157.53	0	0	0	0	.00	.00	0	0	42
			Total Upstream		748	3081	1182.88	406.45	0	0	0	0	.00	.00	0	0	14
695	Port Audrey	10 2 91	7.0	20	286	1866	716.41	312.76	0	3	0	0	.00	.00	0	0	14
			9.0	31	342	1231	945.23	472.18	0	0	0	0	.00	.00	0	0	7
			9.0	32	77	348	267.21	133.71	0	0	0	0	.00	.00	0	0	7
			11.0	40	250	1620	621.96	447.37	0	7	0	0	.00	.00	0	0	14
			Upstream	60	170	1719	659.97	315.29	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		955	5065	648.20	195.85	0	10	0	0	.00	.00	0	0	42
			Total Upstream		170	1719	659.97	315.29	0	0	0	0	.00	.00	0	0	14

Appendix A.3

1991 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
699	Cathead Bay	10 2 91	7.0	20	1781	2750	1055.80	393.55	0	0	0	0	.00	.00	0	0	14
			9.0	30	584	2226	854.63	267.57	0	0	0	0	.00	.00	0	0	14
			11.0	40	654	1719	659.97	180.79	0	0	0	0	.00	.00	0	0	14
			Upstream	60	679	2744	1053.50	470.50	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		3019	6695	856.80	167.41	0	0	0	0	.00	.00	0	0	42
			Total Upstream		679	2744	1053.50	470.50	0	0	0	0	.00	.00	0	0	14
740	Kelez Creek	9 25 91	7.0	20	373	349	133.99	81.34	0	0	0	0	.00	.00	0	0	14
			9.0	30	1340	1918	736.38	307.21	0	0	0	0	.00	.00	0	0	14
			11.0	40	1300	1557	597.78	142.67	0	0	0	0	.00	.00	0	0	14
			Upstream	60	308	2125	815.85	366.44	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		3013	3824	489.38	120.18	0	0	0	0	.00	.00	0	0	42
			Total Upstream		308	2125	815.85	366.44	0	0	0	0	.00	.00	0	0	14
744	Wilby Creek	9 25 91	7.0	20	873	76	29.18	21.37	0	31	0	0	.00	.00	0	0	14
			9.0	31	530	1074	412.34	167.37	0	0	0	0	.00	.00	0	0	14
			11.0	40	593	1885	723.71	320.70	0	0	0	0	.00	.00	0	0	14
			Upstream	60	150	681	261.46	153.30	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		1996	3035	388.41	125.88	0	31	0	0	.00	.00	0	0	42
			Total Upstream		150	681	261.46	153.30	0	0	0	0	.00	.00	0	0	14
747	Cabin Creek	9 24 91	7.0	20	377	127	48.76	23.41	0	0	0	0	.00	.00	0	0	14
			9.0	30	1927	1801	691.46	192.00	0	0	0	0	.00	.00	0	0	14
			11.0	40	585	1956	750.96	283.43	0	0	0	0	.00	.00	0	0	14
			Upstream	60	1018	1515	581.65	267.73	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		2889	3884	497.06	122.11	0	0	0	0	.00	.00	0	0	42
			Total Upstream		1018	1515	581.65	267.73	0	0	0	0	.00	.00	0	0	14

Appendix A.3

1991 Prince William Sound Pink and Chum Salmon Egg Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs				Fry		Eggs				Fry		
					Dead	Live	E/m^2	SE	Dead	Live	Dead	Live	E/m^2	SE	Dead	Live	
828	Cook Creek	9 24 91	7.0	20	28	6	2.30	.74	0	0	0	0	.00	.00	0	0	14
			9.0	30	687	893	342.85	108.59	0	0	0	0	.00	.00	0	0	14
			11.0	41	713	744	571.29	237.97	0	0	0	0	.00	.00	0	0	7
			11.0	42	420	1265	971.34	590.63	0	0	0	0	.00	.00	0	0	7
			Upstream	60	2323	3533	1356.42	334.38	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		1848	2908	372.15	117.79	0	0	0	0	.00	.00	0	0	42
			Total Upstream		2323	3533	1356.42	334.38	0	0	0	0	.00	.00	0	0	14
861	Bernard Creek	9 23 91	7.0	20	22	1	.38	.38	0	0	0	0	.00	.00	0	0	14
			9.0	30	1977	895	343.62	228.03	0	0	0	0	.00	.00	0	0	14
			11.0	40	1944	1269	487.21	156.76	0	0	0	0	.00	.00	0	0	14
			Upstream	60	3298	2769	1063.10	308.40	0	0	0	0	.00	.00	0	0	14
			Total Intertidal		3943	2165	277.07	95.45	0	0	0	0	.00	.00	0	0	42
			Total Upstream		3298	2769	1063.10	308.40	0	0	0	0	.00	.00	0	0	14
Prince William Sound Summary																	
			Total Intertidal		95599	201836	854.23	35.38	10	1173	277	1059	4.48	76.17	4	422	1270
			Total Upstream		43406	94455	1205.93	76.17	0	338	2	0	.00	96.25	0	0	421

APPENDIX A.4

Numbers of live and dead pink and chum salmon eggs and fry by tide zone for the 1990 preemergent fry survey

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m²	SE	Dead	Live	Dead	Live	F/m²	SE	
11	Humpy Creek	3 15 90	7.0	20	0	0	0	2	.83	.83	0	0	0	0	.00	.00	13
			9.0	30	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			11.0	40	375	0	0	196	75.25	72.78	0	0	0	0	.00	.00	14
			Upstream	60	2	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Upstream	63	5	0	0	0	.00	.00	0	0	0	0	.00	.00	10
			Total Intertidal		375	0	0	198	25.96	24.89	0	0	0	0	.00	.00	41
			Total Upstream		7	0	0	0	.00	.00	0	0	0	0	.00	.00	24
35	Koppen Creek	4 6 90	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
			9.0	30	53	0	0	740	284.11	131.35	7	0	0	382	146.66	93.86	14
			11.0	40	427	0	5	2245	861.92	200.69	38	0	0	126	48.38	33.83	14
			Upstream	60	1040	0	13	1545	593.17	197.65	140	0	0	163	62.58	60.52	14
			Upstream	100	1246	0	1	211	81.01	52.17	0	0	0	0	.00	.00	14
			Total Intertidal		480	0	5	2985	573.01	130.16	45	0	0	508	97.52	49.86	28
			Total Upstream		2286	0	14	1756	337.09	111.75	140	0	0	163	31.29	30.30	28
52	Control Creek	4 5 90	7.0	20	1	0	0	1	.38	.38	0	0	0	0	.00	.00	14
			9.0	30	103	0	0	409	157.03	51.85	0	0	0	0	.00	.00	14
			9.0	33	41	0	0	100	44.79	30.52	0	0	0	0	.00	.00	12
			11.0	40	1227	0	3	1055	405.04	105.13	41	0	0	59	22.65	13.78	14
			Upstream	60	569	0	83	1356	520.61	126.65	7	0	0	0	.00	.00	14
			Total Intertidal		1372	0	3	1565	155.78	37.29	41	0	0	59	5.87	3.73	54
			Total Upstream		569	0	83	1356	520.61	126.65	7	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
80	Whalen Creek	4 5 90	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	466	0	3	122	46.84	26.48	0	0	0	0	.00	.00	14
			11.0	40	631	0	1	4	1.54	.88	0	0	0	0	.00	.00	14
			Upstream	60	581	0	0	16	6.14	1.68	1	0	0	1	.38	.38	14
			Total Intertidal		1097	0	4	126	16.13	9.26	0	0	0	0	.00	.00	42
			Total Upstream		581	0	0	16	6.14	1.68	1	0	0	1	.38	.38	14
89	Fish Creek	4 5 90	7.0	20	31	0	0	86	33.02	15.55	0	0	0	1	.38	.38	14
			9.0	30	69	0	0	351	134.76	48.96	29	0	0	97	37.24	21.39	14
			11.0	40	10	0	1	161	61.81	33.90	0	0	0	102	39.16	29.97	14
			Upstream	60	376	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		110	0	1	598	76.53	21.10	29	0	0	200	25.60	12.29	42
			Total Upstream		376	0	0	0	.00	.00	0	0	0	0	.00	.00	14
117	Indian Creek	4 4 90	7.0	20	14	0	0	2	.77	.52	0	0	0	0	.00	.00	14
			9.0	30	1386	0	304	27	10.37	4.59	14	0	0	0	.00	.00	14
			11.0	40	64	0	10	2425	931.03	273.36	22	0	3	743	285.26	158.22	14
			Upstream	60	160	0	235	913	350.53	140.75	9	0	154	369	141.67	80.46	14
			Total Intertidal		1464	0	314	2454	314.05	111.99	36	0	3	743	95.09	55.56	42
			Total Upstream		160	0	235	913	350.53	140.75	9	0	154	369	141.67	80.46	14
123	Gregorieff Creek	4 4 90	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	22	0	0	481	184.67	83.14	5	0	0	33	12.67	7.49	14
			11.0	40	28	0	15	58	22.27	15.19	0	0	0	0	.00	.00	14
			Upstream	61	5	0	47	2099	1611.73	706.43	0	0	0	56	43.00	30.88	7
			Upstream	62	1	0	6	753	289.10	121.55	0	0	0	22	8.45	8.04	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
			Total Intertidal		50	0	15	539	68.98	30.34	5	0	0	33	4.22	2.61	42
			Total Upstream		6	0	53	2852	729.98	275.22	0	0	0	78	19.96	11.69	21
153	Stellar Creek	4 3 90	7.0	20	308	0	1	833	319.81	128.48	110	0	0	487	186.97	96.10	14
			9.0	30	13	0	24	1177	451.88	135.35	1	0	0	85	32.63	20.28	14
			11.0	40	75	0	4	1443	554.01	286.07	0	0	0	10	3.84	2.84	14
			Upstream	60	123	0	496	420	161.25	108.67	0	0	0	0	.00	.00	14
			Total Intertidal		396	0	29	3453	441.90	112.04	111	0	0	582	74.48	34.32	42
			Total Upstream		123	0	496	420	161.25	108.67	0	0	0	0	.00	.00	14
265	Unakwik Creek	4 3 90	7.0	20	0	0	0	1	.38	.38	0	0	0	0	.00	.00	14
			9.0	32	1	0	0	836	641.93	384.43	0	0	0	0	.00	.00	7
			9.0	31	0	0	0	467	358.59	347.86	0	0	0	0	.00	.00	7
			11.0	42	0	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			11.0	41	0	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			Upstream	61	0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
			Upstream	62	0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
			Total Intertidal		1	0	0	1304	166.88	89.86	0	0	0	0	.00	.00	42
			Total Upstream		0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
276	Black Bear Creek	4 2 90	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	34	0	0	206	79.09	35.58	0	0	0	0	.00	.00	14
			11.0	40	778	0	1	1089	418.10	155.75	85	0	0	209	80.24	47.31	14
			Upstream	60	0	0	0	12	9.21	6.71	0	0	0	0	.00	.00	7
			Upstream	63	0	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			Total Intertidal		812	0	1	1295	165.73	59.16	85	0	0	209	26.75	16.48	42
			Total Upstream		0	0	0	12	4.61	3.47	0	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
322	Coghill River	4 2 90	5.0	10	8	0	2	60	23.04	13.59	0	0	0	0	.00	.00	14
			Upstream	120	15	0	1	267	71.76	37.83	0	0	0	0	.00	.00	20
			Upstream	123	325	0	72	3823	1027.43	170.65	0	0	0	0	.00	.00	20
			Upstream	124	286	0	44	6793	1825.62	266.44	0	0	0	0	.00	.00	20
		Total Intertidal			8	0	2	60	23.04	13.59	0	0	0	0	.00	.00	14
		Total Upstream			626	0	117	10883	974.94	140.05	0	0	0	0	.00	.00	60
421	Mill Creek	4 1 90	7.0	20	0	0	0	0	.00	.00	0	0	0	54	20.73	13.75	14
			9.0	30	0	0	0	0	.00	.00	0	0	0	1	.38	.38	14
			11.0	40	2	0	2	810	310.98	114.11	0	0	5	263	100.97	54.73	14
			Upstream	60	0	0	700	34	13.05	8.02	0	0	0	83	31.87	23.79	14
		Total Intertidal			2	0	2	810	103.66	43.59	0	0	5	318	40.70	19.56	42
		Total Upstream			0	0	700	34	13.05	8.02	0	0	0	83	31.87	23.79	14
430	Meacham Creek	4 1 90	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	59	0	0	81	31.10	20.32	0	0	0	0	.00	.00	14
			11.0	40	161	0	0	820	314.82	141.24	165	0	0	300	115.18	98.35	14
			Upstream	60	362	0	6	1675	643.08	197.92	0	0	0	0	.00	.00	14
		Total Intertidal			220	0	0	901	115.31	51.39	165	0	0	300	38.39	33.08	42
		Total Upstream			362	0	6	1675	643.08	197.92	0	0	0	0	.00	.00	14
455	Paulson Creek	4 1 90	7.0	20	0	0	0	51	19.58	18.76	0	0	0	1	.38	.38	14
			9.0	30	0	0	0	3	1.15	.61	0	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
			11.0	40	9	0	2	243	186.59	61.59	9	0	0	302	231.89	103.41	7
			11.0	43	7	0	1	11	8.45	3.49	0	0	1	5	3.84	3.84	7
			Upstream	60	119	0	1	1177	451.88	171.81	1	0	0	104	39.93	24.96	14
			Total Intertidal		16	0	3	308	39.42	15.40	9	0	1	308	39.42	21.02	42
			Total Upstream		119	0	1	1177	451.88	171.81	1	0	0	104	39.93	24.96	14
480	Mink Creek	3 31 90	7.0	20	71	0	0	16	6.14	4.64	6	0	0	82	31.48	26.76	14
			9.0	30	1	0	0	0	.00	.00	48	0	0	0	.00	.00	14
			11.0	40	0	0	3	519	199.26	82.30	0	0	0	245	94.06	41.13	14
			Upstream	60	2	0	0	0	.00	.00	0	0	0	2	.77	.77	14
			Total Intertidal		72	0	3	535	68.47	30.45	54	0	0	327	41.85	17.08	42
			Total Upstream		2	0	0	0	.00	.00	0	0	0	2	.77	.77	14
485	W. Finger Creek	3 31 90	7.0	20	0	0	0	0	.00	.00	0	0	0	142	54.52	41.16	14
			9.0	30	22	0	0	4	1.54	1.19	6	0	0	223	85.62	80.30	14
			11.0	40	143	0	1	311	119.40	77.83	24	0	0	188	72.18	46.34	14
			Upstream	60	4	0	1	1014	389.30	130.11	0	0	0	0	.00	.00	14
			Total Intertidal		165	0	1	315	40.31	26.77	30	0	0	553	70.77	33.04	42
			Total Upstream		4	0	1	1014	389.30	130.11	0	0	0	0	.00	.00	14
498	McClure Creek	5 5 90	7.0	20	14	0	0	238	91.38	43.79	0	0	0	0	.00	.00	14
			9.0	30	483	0	0	931	357.44	113.92	0	0	0	0	.00	.00	14
			11.0	40	15	0	8	2682	1029.70	235.13	0	0	0	0	.00	.00	14
			Upstream	60	2	0	0	5	1.92	1.92	0	0	0	0	.00	.00	14
			Total Intertidal		512	0	8	3851	492.84	105.93	0	0	0	0	.00	.00	42
			Total Upstream		2	0	0	5	1.92	1.92	0	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m²	SE	Dead	Live	Dead	Live	F/m²	SE	
506	Loomis Creek	3 30 90	7.0	20	408	0	3	297	114.03	47.53	35	0	0	30	11.52	7.95	14
			9.0	30	556	0	2	732	281.04	80.19	32	0	0	0	.00	.00	14
			11.0	40	689	0	6	1146	439.98	136.79	5	0	0	0	.00	.00	14
			Upstream	60	57	0	1	28	21.50	14.41	0	0	0	38	29.18	28.29	7
			Total Intertidal		1653	0	11	2175	278.35	57.69	72	0	0	30	3.84	2.72	42
			Total Upstream		57	0	1	28	21.50	14.41	0	0	0	38	29.18	28.29	7
604	Erb Creek	3 22 90	7.0	20	0	0	0	4	1.54	.88	0	0	0	0	.00	.00	14
			9.0	30	0	0	0	2	.77	.52	0	0	0	0	.00	.00	14
			11.0	40	0	0	2	25	9.60	7.58	0	0	0	0	.00	.00	14
			Upstream	60	133	0	0	5	1.92	1.33	0	0	0	0	.00	.00	14
			Total Intertidal		0	0	2	31	3.97	2.56	0	0	0	0	.00	.00	42
			Total Upstream		133	0	0	5	1.92	1.33	0	0	0	0	.00	.00	14
618	Chenega SE	3 29 90	7.0	20	22	0	0	116	51.96	50.98	0	0	0	0	.00	.00	12
			9.0	30	14	0	3	656	293.83	179.44	0	0	0	0	.00	.00	12
			11.0	40	72	0	1	79	35.39	20.98	0	0	0	0	.00	.00	12
			Upstream	60	31	0	0	6	2.69	1.24	0	0	0	0	.00	.00	12
			Total Intertidal		108	0	4	851	127.06	63.96	0	0	0	0	.00	.00	36
			Total Upstream		31	0	0	6	2.69	1.24	0	0	0	0	.00	.00	12
621	Totemoff Creek	3 22 90	7.0	20	68	0	0	401	153.96	79.72	0	0	0	0	.00	.00	14
			9.0	30	134	0	0	1429	548.63	175.21	0	0	0	0	.00	.00	14
			11.0	40	147	0	2	1174	450.73	137.06	0	0	0	0	.00	.00	14
			Upstream	60	5	0	0	76	29.18	23.88	0	0	0	0	.00	.00	14
			Total Intertidal		349	0	2	3004	384.44	81.17	0	0	0	0	.00	.00	42

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
		Total Upstream			5	0	0	76	29.18	23.88	0	0	0	0	.00	.00	14
623	Brizgaloff Creek	4 11 90	7.0	20	1	0	0	4	1.54	.88	0	0	0	1	.38	.38	14
			9.0	30	34	0	0	545	209.24	119.74	5	0	0	39	14.97	14.97	14
			11.0	40	414	0	0	854	327.88	162.06	0	0	0	0	.00	.00	14
			Upstream	60	766	0	2	988	379.32	198.65	0	0	0	0	.00	.00	14
		Total Intertidal			449	0	0	1403	179.55	68.81	5	0	0	40	5.12	4.99	42
		Total Upstream			766	0	2	988	379.32	198.65	0	0	0	0	.00	.00	14
628	Chenega NE	3 29 90	7.0	20	9	0	0	27	10.37	5.39	0	0	0	0	.00	.00	14
			9.0	30	14	0	4	570	218.84	106.76	0	0	0	0	.00	.00	14
			11.0	40	20	6	2	816	313.29	166.00	0	0	0	0	.00	.00	14
			Upstream	63	16	3	0	121	46.46	29.69	0	0	0	0	.00	.00	14
			Upstream	60	408	0	0	0	.00	.00	0	0	0	0	.00	.00	14
		Total Intertidal			43	6	6	1413	180.83	67.16	0	0	0	0	.00	.00	42
		Total Upstream			424	3	0	121	23.23	15.24	0	0	0	0	.00	.00	28
630	Bainbridge Creek	4 11 90	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	2	0	0	5	1.92	.91	0	0	0	0	.00	.00	14
			11.0	40	49	0	0	2831	1086.90	237.50	0	0	0	0	.00	.00	14
			Upstream	60	553	0	109	2364	907.61	266.88	0	0	0	0	.00	.00	14
		Total Intertidal			51	0	0	2836	362.94	111.15	0	0	0	0	.00	.00	42
		Total Upstream			553	0	109	2364	907.61	266.88	0	0	0	0	.00	.00	14
632	Claw Creek	3 28 90	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	33	37	0	0	671	300.55	109.17	0	0	0	0	.00	.00	12

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
			11.0	40	10	0	4	687	263.76	105.30	0	0	0	0	.00	.00	14
			Upstream	60	21	0	1	131	50.29	41.33	0	0	0	0	.00	.00	14
			Total Intertidal		47	0	4	1358	135.17	40.36	0	0	0	0	.00	.00	54
			Total Upstream		21	0	1	131	50.29	41.33	0	0	0	0	.00	.00	14
637	Pt. Countess	3 21 90	7.0	20	69	0	0	2	.77	.52	0	0	0	0	.00	.00	14
			9.0	30	29	0	1	1088	417.71	219.43	0	0	0	0	.00	.00	14
			11.0	41	197	0	1	604	463.79	210.64	0	0	0	0	.00	.00	7
			11.0	42	410	0	0	627	481.45	274.20	0	0	0	0	.00	.00	7
			Upstream	62	79	0	0	7	5.38	2.35	0	0	0	0	.00	.00	7
			Upstream	61	136	0	0	905	694.91	339.55	0	0	0	0	.00	.00	7
			Total Intertidal		705	0	2	2321	297.03	95.33	0	0	0	0	.00	.00	42
			Total Upstream		215	0	0	912	350.14	189.08	0	0	0	0	.00	.00	14
653	Hogg Creek	3 21 90	7.0	20	3	0	0	170	65.27	44.62	0	0	0	0	.00	.00	14
			9.0	31	0	0	0	1	.77	.77	0	0	0	0	.00	.00	7
			9.0	32	0	0	2	398	305.61	215.44	0	0	0	0	.00	.00	7
			11.0	40	0	0	0	20	7.68	6.47	0	0	0	0	.00	.00	14
			Upstream	60	38	0	0	798	306.38	165.42	0	0	0	0	.00	.00	14
			Total Intertidal		3	0	2	589	75.38	40.29	0	0	0	0	.00	.00	42
			Total Upstream		38	0	0	798	306.38	165.42	0	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
656	Halverson Creek	4 26 90	7.0	20	19	0	0	59	22.65	14.52	0	0	0	0	.00	.00	14
			9.0	30	68	0	0	498	191.20	82.42	0	0	0	0	.00	.00	14
			11.0	40	63	0	1	2786	1069.63	296.18	0	0	0	0	.00	.00	14
			Upstream	60	995	0	0	1388	532.89	173.99	0	0	0	0	.00	.00	14
			Total Intertidal		150	0	1	3343	427.82	123.09	0	0	0	0	.00	.00	42
			Total Upstream		995	0	0	1388	532.89	173.99	0	0	0	0	.00	.00	14
663	Shelter Bay	3 27 90	7.0	20	0	0	0	42	16.13	13.84	0	0	0	0	.00	.00	14
			9.0	30	6	0	0	100	38.39	32.36	0	0	0	0	.00	.00	14
			11.0	40	412	0	8	3826	1468.91	433.70	0	0	0	0	.00	.00	14
			Upstream	60	446	0	0	6	2.69	1.40	0	0	0	0	.00	.00	12
			Total Intertidal		418	0	8	3968	507.81	176.86	0	0	0	0	.00	.00	42
			Total Upstream		446	0	0	6	2.69	1.40	0	0	0	0	.00	.00	12
665	Bjorne Creek	3 20 90	7.0	20	2	0	0	2	.77	.52	0	0	0	0	.00	.00	14
			9.0	30	465	0	1	215	82.54	49.52	0	0	0	0	.00	.00	14
			11.0	42	64	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			11.0	41	288	0	0	4	3.07	3.07	0	0	0	0	.00	.00	7
			11.0	43	2	0	0	28	12.54	11.58	0	0	0	0	.00	.00	12
			Upstream	60	1523	0	0	60	23.04	22.21	0	0	0	0	.00	.00	14
			Total Intertidal		821	0	1	249	24.78	13.59	0	0	0	0	.00	.00	54
			Total Upstream		1523	0	0	60	23.04	22.21	0	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
666	O'Brien Creek	3 20 90	7.0	23	2	0	0	0	.00	.00	0	0	0	0	.00	.00	12
			7.0	20	5	0	0	53	20.35	17.97	0	0	0	0	.00	.00	14
			9.0	30	388	0	5	588	225.75	106.49	0	0	0	0	.00	.00	14
			11.0	40	528	0	2	1322	507.55	274.30	0	0	0	0	.00	.00	14
			Upstream	60	333	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			Upstream	63	480	0	0	6	4.61	2.47	0	0	0	0	.00	.00	7
			Total Intertidal		923	0	7	1963	195.39	79.48	0	0	0	0	.00	.00	54
			Total Upstream		813	0	0	6	2.30	1.35	0	0	0	0	.00	.00	14
673	Falls Creek	3 20 90	7.0	22	103	0	3	161	61.81	39.30	0	0	0	0	.00	.00	14
			7.0	21	0	0	0	4	3.07	1.60	0	0	0	0	.00	.00	7
			9.0	30	52	0	4	2384	915.29	230.66	0	0	0	0	.00	.00	14
			11.0	40	22	0	19	366	140.52	97.16	0	0	0	0	.00	.00	14
			Upstream	60	342	0	0	146	56.05	34.51	0	0	0	0	.00	.00	14
			Total Intertidal		177	0	26	2915	319.76	89.24	0	0	0	0	.00	.00	49
			Total Upstream		342	0	0	146	56.05	34.51	0	0	0	0	.00	.00	14
677	Hayden Creek	3 19 90	7.0	22	16	0	0	122	93.68	28.92	0	0	0	0	.00	.00	7
			7.0	21	1	0	0	4	3.07	1.60	0	0	0	0	.00	.00	7
			9.0	31	3	0	2	231	177.38	120.74	0	0	0	0	.00	.00	7
			9.0	32	7	0	5	282	216.54	97.92	0	0	0	0	.00	.00	7
			11.0	41	0	0	1	29	22.27	17.05	0	0	0	0	.00	.00	7
			11.0	42	6	0	3	283	217.30	135.70	0	0	0	0	.00	.00	7

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m²	SE	Dead	Live	Dead	Live	F/m²	SE	
			Upstream	62	0	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			Upstream	61	0	0	0	1	.77	.77	0	0	0	0	.00	.00	7
			Total Intertidal		33	0	11	951	121.71	35.40	0	0	0	0	.00	.00	42
			Total Upstream		0	0	0	1	.38	.38	0	0	0	0	.00	.00	14
678	Sleepy Bay	3 19 90	7.0	20	1	0	0	4	1.79	1.01	0	0	0	0	.00	.00	12
			9.0	30	13	0	8	445	199.32	109.23	0	0	0	0	.00	.00	12
			11.0	40	23	0	2	60	26.88	11.44	0	0	0	0	.00	.00	12
			Upstream	60	29	0	0	4	1.54	.88	0	0	0	0	.00	.00	14
			Total Intertidal		37	0	10	509	76.00	38.52	0	0	0	0	.00	.00	36
			Total Upstream		29	0	0	4	1.54	.88	0	0	0	0	.00	.00	14
681	Hogan Bay	3 27 90	7.0	20	143	0	0	296	113.64	46.47	0	0	0	0	.00	.00	14
			9.0	31	200	0	0	2	1.54	1.54	0	0	0	0	.00	.00	7
			9.0	32	226	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			11.0	40	1232	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Upstream	60	459	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		1801	0	0	298	38.14	17.26	0	0	0	0	.00	.00	42
			Total Upstream		459	0	0	0	.00	.00	0	0	0	0	.00	.00	14
682	Snug Harbor	3 19 90	7.0	20	46	0	0	115	44.15	21.68	0	0	0	0	.00	.00	14
			9.0	30	114	0	4	1181	453.42	217.50	0	0	0	0	.00	.00	14
			11.0	40	192	0	39	3153	1210.53	386.69	0	0	0	0	.00	.00	14
			Upstream	60	38	0	27	2139	821.22	339.27	0	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
			Total Intertidal		352	0	43	4449	569.37	162.93	0	0	0	0	.00	.00	42
			Total Upstream		38	0	27	2139	821.22	339.27	0	0	0	0	.00	.00	14
692	Herring Bay	3 30 90	7.0	20	4	0	1	64	24.57	16.48	0	0	0	0	.00	.00	14
			9.0	30	212	0	5	351	134.76	52.55	0	0	0	0	.00	.00	14
			11.0	40	700	0	9	1749	671.49	189.22	0	0	0	0	.00	.00	14
			Upstream	60	183	0	16	2390	917.59	353.42	0	0	0	0	.00	.00	14
			Total Intertidal		916	0	15	2164	276.94	77.80	0	0	0	0	.00	.00	42
			Total Upstream		183	0	16	2390	917.59	353.42	0	0	0	0	.00	.00	14
695	Port Audrey	3 29 90	7.0	21	1	0	0	20	15.36	8.73	0	0	0	0	.00	.00	7
			7.0	22	51	0	0	523	401.59	240.19	0	0	0	0	.00	.00	7
			9.0	31	5	0	1	187	143.59	68.23	0	0	0	0	.00	.00	7
			9.0	32	1	0	0	118	90.61	60.56	0	0	0	0	.00	.00	7
			11.0	40	32	0	3	707	271.44	182.42	0	0	0	0	.00	.00	14
			Upstream	60	129	0	0	535	205.40	151.15	0	0	0	0	.00	.00	14
			Total Intertidal		90	0	4	1555	199.00	74.40	0	0	0	0	.00	.00	42
			Total Upstream		129	0	0	535	205.40	151.15	0	0	0	0	.00	.00	14
699	Cathead Bay	3 30 90	7.0	20	0	0	0	21	8.06	4.94	0	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
			9.0	30	30	0	0	469	180.06	95.28	0	0	0	0	.00	.00	14
			11.0	40	11	0	0	474	181.98	61.04	0	0	0	0	.00	.00	14
			Upstream	60	232	0	1	512	196.57	185.58	0	0	0	0	.00	.00	14
			Total Intertidal		41	0	0	964	123.37	38.96	0	0	0	0	.00	.00	42
			Total Upstream		232	0	1	512	196.57	185.58	0	0	0	0	.00	.00	14
740	Kelez Creek	3 18 90	7.0	20	1	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	64	0	2	917	352.06	179.75	0	0	0	0	.00	.00	14
			11.0	40	75	0	2	37	14.21	13.40	0	0	0	0	.00	.00	14
			Upstream	60	69	0	17	23	8.83	6.14	0	0	0	0	.00	.00	14
			Total Intertidal		140	0	4	954	122.09	63.87	0	0	0	0	.00	.00	42
			Total Upstream		69	0	17	23	8.83	6.14	0	0	0	0	.00	.00	14
744	Wilby Creek	3 18 90	7.0	20	27	0	0	2	.77	.77	0	0	0	0	.00	.00	14
			9.0	30	1	0	0	47	18.04	11.16	0	0	0	0	.00	.00	14
			11.0	40	2	0	0	102	39.16	36.31	0	0	0	0	.00	.00	14
			Upstream	60	2	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		30	0	0	151	19.32	12.59	0	0	0	0	.00	.00	42
			Total Upstream		2	0	0	0	.00	.00	0	0	0	0	.00	.00	14
747	Cabin Creek	3 17 90	7.0	20	17	0	1	10	3.84	1.43	0	0	0	0	.00	.00	14
			9.0	30	313	0	2	362	138.98	38.84	0	0	0	0	.00	.00	14
			11.0	40	1353	0	66	387	148.58	71.86	0	0	0	0	.00	.00	14
			Upstream	60	134	0	61	126	48.38	23.12	0	0	0	0	.00	.00	14
			Total Intertidal		1683	0	69	759	97.13	28.50	0	0	0	0	.00	.00	42
			Total Upstream		134	0	61	126	48.38	23.12	0	0	0	0	.00	.00	14
749	Shad Creek	3 17 90	7.0	20	1	0	1	298	114.41	79.97	0	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
			9.0	30	117	0	0	123	47.22	47.22	0	0	0	0	.00	.00	14
			11.0	40	0	0	1	2	.77	.52	0	0	0	0	.00	.00	14
			Upstream	60	381	0	8	543	208.47	113.30	0	0	0	0	.00	.00	14
			Total Intertidal		118	0	2	423	54.13	31.06	0	0	0	0	.00	.00	42
			Total Upstream		381	0	8	543	208.47	113.30	0	0	0	0	.00	.00	14
775	Pautze Creek	3 16 90	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	1	0	0	1	.38	.38	0	0	0	0	.00	.00	14
			11.0	40	6	0	190	155	59.51	27.83	0	0	0	0	.00	.00	14
			Upstream	60	15	0	5	1660	637.32	279.67	0	0	0	0	.00	.00	14
			Total Intertidal		7	0	190	156	19.96	10.05	0	0	0	0	.00	.00	42
			Total Upstream		15	0	5	1660	637.32	279.67	0	0	0	0	.00	.00	14
815	Constantine Creek	3 23 90	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			8.0	23	62	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	64	0	0	165	63.35	58.89	4	0	0	15	5.76	4.99	14
			10.0	33	149	0	0	2	.77	.77	47	0	1	99	38.01	19.09	14
			11.0	40	261	0	0	2	.77	.52	0	0	0	0	.00	.00	14
			Upstream	80	160	0	0	712	273.36	122.92	0	0	0	0	.00	.00	14
			Upstream	90	19	0	0	112	43.00	40.95	0	0	0	0	.00	.00	14
			Upstream	100	100	0	0	678	260.30	106.95	0	0	0	0	.00	.00	14

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
			Upstream	120	42	0	0	50	19.20	19.20	0	0	0	0	.00	.00	14
			Total Intertidal		536	0	0	169	12.98	11.83	51	0	1	114	8.75	4.22	70
			Total Upstream		321	0	0	1552	148.96	44.09	0	0	0	0	.00	.00	56
828	Cook Creek	4 9 90	7.0	20	0	0	0	1	.38	.38	0	0	0	0	.00	.00	14
			9.0	30	273	0	0	520	199.64	90.10	0	0	0	0	.00	.00	14
			11.0	43	24	0	0	74	66.29	65.22	0	0	0	0	.00	.00	6
			11.0	42	1	0	0	31	23.80	13.47	0	0	0	0	.00	.00	7
			11.0	41	0	0	0	20	15.36	6.58	0	0	0	1	.77	.77	7
			Upstream	60	390	0	0	178	68.34	43.56	0	0	7	0	.00	.00	14
			Upstream	100	68	0	4	1033	396.60	179.94	0	0	0	50	19.20	16.52	14
			Total Intertidal		298	0	0	646	72.34	29.43	0	0	0	1	.11	.11	48
			Total Upstream		458	0	4	1211	232.47	96.17	0	0	7	50	9.60	8.31	28
850	Canoe Creek	3 16 90	7.0	20	7	0	1	5	1.92	1.21	0	0	0	0	.00	.00	14
			9.0	30	87	0	1	354	135.91	83.99	0	0	0	0	.00	.00	14
			11.0	40	657	0	2	1151	441.90	165.44	0	0	0	0	.00	.00	14
			Upstream	60	256	0	16	2844	1091.89	446.27	0	0	0	0	.00	.00	14
			Total Intertidal		751	0	4	1510	193.24	66.82	0	0	0	0	.00	.00	42
			Total Upstream		256	0	16	2844	1091.89	446.27	0	0	0	0	.00	.00	14
861	Bernard Creek	3 16 90	7.0	20	0	0	1	1	.38	.38	0	0	0	0	.00	.00	14
			9.0	30	77	0	0	475	182.37	90.89	0	0	0	0	.00	.00	14
			11.0	40	194	0	7	1550	595.09	180.12	0	0	0	0	.00	.00	14
			Upstream	60	780	0	34	1280	491.43	132.04	0	0	0	0	.00	.00	14
			Total Intertidal		271	0	8	2026	259.28	76.24	0	0	0	0	.00	.00	42

Appendix A.4

1990 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m²	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m²	Chum Salmon Fry SE	No. of Digs
		Total Upstream			780	0	34	1280	491.43	132.04	0	0	0	0	.00	.00	14
Prince William Sound Summary																	
		Total Intertidal			20153	6	827	67400	176.72	10.72	738	0	10	4325	11.34	11.40	2050
		Total Upstream			15071	3	2008	43968	297.64	24.85	158	0	161	888	6.01	27.00	794

APPENDIX A.5

Numbers of live and dead pink and chum salmon eggs and fry by tide zone for the 1991 preemergent fry survey

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
11	Humpy Creek	3 14 91	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	1	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			11.0	40	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Upstream	60	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		1	0	0	0	.00	.00	0	0	0	0	.00	.00	42
			Total Upstream		0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
35	Koppen Creek	4 7 91	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
			9.0	30	243	0	27	3344	1283.86	243.00	16	0	0	59	22.65	13.41	14
			11.0	40	420	0	31	3669	1408.63	242.52	5	0	0	23	8.83	6.80	14
			Upstream	60	1404	0	0	34	13.05	13.05	66	0	0	0	.00	.00	14
			Total Intertidal		663	0	58	7013	1346.25	168.88	21	0	0	82	15.74	7.49	28
			Total Upstream		1404	0	0	34	13.05	13.05	66	0	0	0	.00	.00	14
52	Control Creek	3 15 91	7.0	20	12	0	0	10	3.84	1.64	0	0	0	0	.00	.00	14
			9.0	30	947	0	1	94	36.09	19.36	0	0	0	1	.38	.38	14
			11.0	40	158	0	0	449	172.38	109.99	0	0	0	2	.77	.52	14
			Upstream	60	1302	0	100	586	224.98	61.96	4	0	0	4	1.54	1.54	14
			Total Intertidal		1117	0	1	553	70.77	38.06	0	0	0	3	.38	.22	42
			Total Upstream		1302	0	100	586	224.98	61.96	4	0	0	4	1.54	1.54	14
80	Whalen Creek	3 27 91	7.0	20	168	0	0	176	67.57	25.55	0	0	0	0	.00	.00	14
			9.0	30	154	0	0	74	28.41	9.15	0	0	0	0	.00	.00	14
			11.0	40	2436	0	0	61	23.42	12.83	52	0	0	0	.00	.00	14
			Upstream	60	619	0	0	1	.38	.38	272	0	0	0	.00	.00	14
			Total Intertidal		2758	0	0	311	39.80	10.23	52	0	0	0	.00	.00	42
			Total Upstream		619	0	0	1	.38	.38	272	0	0	0	.00	.00	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
89	Fish Creek	3 26 91	7.0	20	13	0	0	191	73.33	36.71	0	0	0	0	.00	.00	14
			9.0	30	356	0	2	540	207.32	59.33	15	0	0	179	68.72	51.50	14
			11.0	40	424	0	0	61	23.42	12.93	27	0	0	5	1.92	1.92	14
			Upstream	60	109	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		793	0	2	792	101.36	26.06	42	0	0	184	23.55	17.48	42
			Total Upstream		109	0	0	0	.00	.00	0	0	0	0	.00	.00	14
117	Indian Creek	4 23 91	7.0	20	6	0	0	3	1.15	.61	0	0	0	3	1.15	.83	14
			9.0	30	31	0	0	1688	648.07	374.28	4	0	0	260	99.82	75.67	14
			11.0	40	254	0	0	71	27.26	20.33	19	0	0	2	.77	.52	14
			Upstream	60	13	0	0	533	204.63	98.69	54	0	0	650	249.55	102.76	14
			Total Intertidal		291	0	0	1762	225.49	130.50	23	0	0	265	33.91	25.66	42
			Total Upstream		13	0	0	533	204.63	98.69	54	0	0	650	249.55	102.76	14
123	Gregorieff Creek	3 27 91	7.0	21	9	0	0	61	23.42	13.70	1	0	0	0	.00	.00	14
			9.0	31	118	0	0	0	.00	.00	5	0	0	0	.00	.00	14
			11.0	41	371	0	58	201	77.17	44.24	0	0	0	53	20.35	10.86	14
			Upstream	61	38	0	2	1062	407.73	189.14	6	0	2	525	201.56	88.25	14
			Total Intertidal		498	0	58	262	33.53	15.88	6	0	0	53	6.78	3.83	42
			Total Upstream		38	0	2	1062	407.73	189.14	6	0	2	525	201.56	88.25	14
153	Stellar Creek	3 28 91	7.0	20	29	0	0	42	16.13	6.60	0	0	0	1	.38	.38	14
			9.0	30	46	0	0	261	100.21	66.36	20	0	0	17	6.53	5.72	14
			11.0	40	19	0	0	1186	455.34	181.03	51	0	0	1248	479.14	245.19	14
			11.0	43	118	0	1	357	137.06	34.01	283	0	24	927	355.90	92.53	14
			Upstream	60	7	0	10	457	175.46	38.52	0	0	25	440	168.93	47.46	14
			Total Intertidal		212	0	1	1846	177.18	52.64	354	0	24	2193	210.49	69.82	56
			Total Upstream		7	0	10	457	175.46	38.52	0	0	25	440	168.93	47.46	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
265	Unakwik Creek	3 28 91	7.0	20	0	0	0	1255	481.83	166.85	0	0	0	0	.00	.00	14
			9.0	31	9	0	0	402	308.68	249.80	0	0	0	0	.00	.00	7
			9.0	32	4	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			11.0	41	0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
			11.0	42	43	0	0	0	.00	.00	0	0	0	0	.00	.00	2
			Upstream	61	0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
			Upstream	62	0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
		Total Intertidal			56	0	0	1657	296.88	101.49	0	0	0	0	.00	.00	30
		Total Upstream			0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
276	Black Bear Creek	3 29 91	7.0	20	0	0	0	1	.38	.38	0	0	0	0	.00	.00	14
			9.0	30	398	0	0	324	124.39	36.16	12	0	0	52	19.96	19.96	14
			11.0	40	882	0	0	1267	486.44	111.74	129	0	0	34	13.05	9.05	14
			Upstream	60	4	0	1	971	372.79	169.54	0	0	0	483	185.44	138.55	14
		Total Intertidal			1280	0	0	1592	203.74	49.95	141	0	0	86	11.01	7.24	42
		Total Upstream			4	0	1	971	372.79	169.54	0	0	0	483	185.44	138.55	14
322	Coghill River	3 29 91	5.0	10	0	0	0	0	.00	.00	0	0	0	16	6.14	4.94	14
		Total Intertidal			0	0	0	0	.00	.00	0	0	0	16	6.14	4.94	14
		Total Upstream			0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
421	Mill Creek	3 29 91	7.0	20	0	0	0	109	41.85	41.85	0	0	0	0	.00	.00	14
			9.0	30	51	0	0	497	190.81	79.24	1	0	0	277	106.35	94.63	14
			11.0	40	0	0	0	401	153.96	78.32	0	0	0	479	183.90	62.28	14
			Upstream	60	1	0	3	3	1.15	.83	0	0	0	0	.00	.00	14
		Total Intertidal			51	0	0	1007	128.87	39.93	1	0	0	756	96.75	38.67	42
		Total Upstream			1	0	3	3	1.15	.83	0	0	0	0	.00	.00	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
430	Meacham Creek	3 30 91	7.0	20	6	0	0	74	28.41	19.14	0	0	0	0	.00	.00	14
			9.0	30	748	0	0	136	52.21	49.34	1	0	0	0	.00	.00	14
			11.0	40	212	0	0	3018	1158.70	174.74	0	0	0	6	2.30	2.30	14
			Upstream	60	437	0	0	893	342.85	103.63	0	0	0	0	.00	.00	14
			Total Intertidal		966	0	0	3228	413.11	101.51	1	0	0	6	.77	.77	42
			Total Upstream		437	0	0	893	342.85	103.63	0	0	0	0	.00	.00	14
455	Paulson Creek	3 31 91	7.0	20	1	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	0	0	0	218	83.70	51.13	0	0	0	206	79.09	46.31	14
			11.0	40	6	0	0	435	334.02	72.28	0	0	0	76	58.36	54.86	7
			11.0	43	0	0	0	0	.00	.00	0	0	0	0	.00	.00	0
			Upstream	60	50	0	0	558	214.23	119.96	2	0	0	261	100.21	99.38	14
			Total Intertidal		7	0	0	653	100.28	32.05	0	0	0	282	43.31	21.74	35
			Total Upstream		50	0	0	558	214.23	119.96	2	0	0	261	100.21	99.38	14
480	Mink Creek	3 22 91	7.0	20	462	0	0	422	162.02	44.55	5	0	0	15	5.76	5.76	14
			9.0	30	369	0	1	501	192.35	97.75	19	0	0	58	22.27	20.63	14
			11.0	40	20	0	0	12	4.61	1.68	0	0	0	0	.00	.00	14
			Upstream	60	21	0	0	1	.38	.38	0	0	0	0	.00	.00	14
			Total Intertidal		851	0	1	935	119.66	37.22	24	0	0	73	9.34	7.12	42
			Total Upstream		21	0	0	1	.38	.38	0	0	0	0	.00	.00	14
485	W. Finger Creek	3 22 91	7.0	20	2	0	0	98	37.63	20.55	0	0	0	8	3.07	1.76	14
			9.0	30	79	0	7	1862	714.88	277.51	5	0	13	106	40.70	27.52	14
			11.0	40	20	0	0	753	289.10	78.14	485	0	0	0	.00	.00	14
			Upstream	60	0	0	0	1397	536.35	212.73	0	0	0	33	12.67	10.77	14
			Total Intertidal		101	0	7	2713	347.20	103.61	490	0	13	114	14.59	9.42	42
			Total Upstream		0	0	0	1397	536.35	212.73	0	0	0	33	12.67	10.77	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
498	McClure Creek	4 30 91	7.0	20	76	0	1	256	98.29	43.43	0	0	0	0	.00	.00	14
			9.0	30	639	0	2	1348	517.54	249.34	0	0	0	0	.00	.00	14
			11.0	40	417	0	0	3341	1282.71	296.30	0	0	0	0	.00	.00	14
			Upstream	60	18	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		1132	0	3	4945	632.84	148.03	0	0	0	0	.00	.00	42
			Total Upstream		18	0	0	0	.00	.00	0	0	0	0	.00	.00	14
506	Loomis Creek	3 22 91	7.0	20	119	0	0	256	98.29	51.33	0	0	0	0	.00	.00	14
			9.0	30	906	0	22	1014	389.30	76.96	9	0	0	0	.00	.00	14
			11.0	40	1077	0	1	122	46.84	22.16	0	0	0	0	.00	.00	14
			Upstream	60	1513	0	1	55	21.12	7.27	0	0	0	0	.00	.00	14
			Total Intertidal		2102	0	23	1392	178.14	38.87	9	0	0	0	.00	.00	42
			Total Upstream		1513	0	1	55	21.12	7.27	0	0	0	0	.00	.00	14
604	Erb Creek	4 1 91	7.0	20	139	0	0	72	55.29	27.20	0	0	0	0	.00	.00	7
			7.0	23	17	0	0	42	32.25	14.51	0	0	0	0	.00	.00	7
			9.0	30	66	0	0	247	94.83	69.00	0	0	0	0	.00	.00	14
			11.0	40	0	0	0	33	12.67	4.28	0	0	0	0	.00	.00	14
			Upstream	60	61	0	0	4	1.54	1.19	0	0	0	0	.00	.00	14
			Total Intertidal		222	0	0	394	50.42	23.61	0	0	0	0	.00	.00	42
			Total Upstream		61	0	0	4	1.54	1.19	0	0	0	0	.00	.00	14
618	Junction Creek	3 20 91	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	12
			9.0	30	35	0	0	38	17.02	10.87	0	0	0	0	.00	.00	12
			11.0	40	62	0	0	868	388.79	195.46	0	0	0	0	.00	.00	12
			Upstream	60	26	0	0	71	31.80	21.29	0	0	0	0	.00	.00	12
			Total Intertidal		97	0	0	906	135.27	70.24	0	0	0	0	.00	.00	36
			Total Upstream		26	0	0	71	31.80	21.29	0	0	0	0	.00	.00	12

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
621	Totemoff Creek	3 21 91	7.0	20	138	0	0	216	82.93	37.97	0	0	0	0	.00	.00	14
			9.0	30	75	0	1	1077	413.49	157.14	0	0	0	0	.00	.00	14
			11.0	40	649	0	80	4040	1551.07	294.11	0	0	0	0	.00	.00	14
			Upstream	60	407	0	0	4	1.54	1.19	0	0	0	0	.00	.00	14
			Total Intertidal		862	0	81	5333	682.50	146.80	0	0	0	0	.00	.00	42
			Total Upstream		407	0	0	4	1.54	1.19	0	0	0	0	.00	.00	14
623	Brizgaloff Creek	4 17 91	7.0	20	400	0	0	79	30.33	13.28	0	0	0	0	.00	.00	14
			9.0	30	469	0	0	541	207.71	74.31	0	0	0	0	.00	.00	14
			11.0	40	805	0	0	1256	482.21	142.57	0	0	0	0	.00	.00	14
			Upstream	60	5415	0	1	367	140.90	49.32	0	0	0	0	.00	.00	14
			Total Intertidal		1674	0	0	1876	240.08	59.95	0	0	0	0	.00	.00	42
			Total Upstream		5415	0	1	367	140.90	49.32	0	0	0	0	.00	.00	14
628	Chenega Creek	3 19 91	7.0	20	18	0	0	8	3.07	2.30	0	0	0	0	.00	.00	14
			9.0	30	133	0	1	988	379.32	185.93	0	0	0	0	.00	.00	14
			11.0	40	121	2	5	422	162.02	73.94	0	0	0	0	.00	.00	14
			Upstream	60	1759	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		272	2	6	1418	181.47	69.37	0	0	0	0	.00	.00	42
			Total Upstream		1759	0	0	0	.00	.00	0	0	0	0	.00	.00	14
630	Bainbridge Creek	4 1 91	7.0	20	56	0	0	35	13.44	10.29	0	0	0	0	.00	.00	14
			9.0	30	310	0	0	427	163.94	62.63	0	0	0	0	.00	.00	14
			11.0	40	1137	0	28	295	113.26	54.25	0	0	0	0	.00	.00	14
			Upstream	60	616	0	36	3982	1528.80	316.73	0	0	0	0	.00	.00	14
			Total Intertidal		1503	0	28	757	96.88	28.85	0	0	0	0	.00	.00	42
			Total Upstream		616	0	36	3982	1528.80	316.73	0	0	0	0	.00	.00	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
632	Claw Creek	4 11 91	7.0	20	4	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	118	0	7	2354	903.77	414.65	3	0	0	0	.00	.00	14
			11.0	40	163	0	15	3203	1229.72	257.93	0	0	0	0	.00	.00	14
			Upstream	60	161	0	0	92	70.64	47.24	0	0	0	0	.00	.00	7
			Total Intertidal		285	0	22	5557	711.16	178.33	3	0	0	0	.00	.00	42
			Total Upstream		161	0	0	92	70.64	47.24	0	0	0	0	.00	.00	7
637	Pt. Countess	3 19 91	7.0	20	34	0	0	12	4.61	2.69	0	0	0	0	.00	.00	14
			9.0	30	68	0	0	1490	572.05	184.22	0	0	0	0	.00	.00	14
			11.0	41	584	0	0	1216	466.86	162.99	0	0	0	0	.00	.00	14
			Upstream	61	304	0	0	2	1.54	1.54	0	0	0	0	.00	.00	7
			Upstream	62	375	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			Total Intertidal		686	0	0	2718	347.84	88.75	0	0	0	0	.00	.00	42
			Total Upstream		679	0	0	2	.77	.77	0	0	0	0	.00	.00	14
653	Hogg Creek	4 10 91	7.0	20	22	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	31	16	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			9.0	32	0	0	0	0	.00	.00	0	0	0	0	.00	.00	7
			11.0	40	107	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Upstream	60	427	0	2	431	165.47	151.17	0	0	0	0	.00	.00	14
			Total Intertidal		145	0	0	0	.00	.00	0	0	0	0	.00	.00	42
			Total Upstream		427	0	2	431	165.47	151.17	0	0	0	0	.00	.00	14
656	Halverson Creek	4 10 91	7.0	20	14	0	0	246	94.45	78.37	0	0	0	0	.00	.00	14
			9.0	30	28	0	0	607	233.04	110.77	0	0	0	0	.00	.00	14
			11.0	40	167	0	12	2790	1071.16	370.80	0	0	0	0	.00	.00	14
			Upstream	60	1287	0	0	1330	510.63	200.66	0	0	0	0	.00	.00	14
			Total Intertidal		209	0	12	3643	466.22	144.98	0	0	0	0	.00	.00	42
			Total Upstream		1287	0	0	1330	510.63	200.66	0	0	0	0	.00	.00	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
663	Shelter Bay	4 10 91	7.0	20	0	0	0	10	4.48	4.48	0	0	0	0	.00	.00	12
			9.0	30	0	0	0	0	.00	.00	0	0	0	0	.00	.00	12
			11.0	40	230	0	2	128	57.33	46.06	0	0	0	0	.00	.00	12
			Upstream	60	177	0	0	0	.00	.00	0	0	0	0	.00	.00	12
			Total Intertidal		230	0	2	138	20.60	15.61	0	0	0	0	.00	.00	36
			Total Upstream		177	0	0	0	.00	.00	0	0	0	0	.00	.00	12
665	Bjorne Creek	3 18 91	7.0	20	5	0	0	4	1.54	.88	0	0	0	0	.00	.00	14
			9.0	30	351	0	0	37	14.21	9.99	0	0	0	0	.00	.00	14
			11.0	40	240	0	0	1	.38	.38	0	0	0	0	.00	.00	14
			Upstream	60	904	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		596	0	0	42	5.38	3.41	0	0	0	0	.00	.00	42
			Total Upstream		904	0	0	0	.00	.00	0	0	0	0	.00	.00	14
666	O'Brien Creek	3 19 91	7.0	20	5	1	0	3	1.15	.83	0	0	0	0	.00	.00	14
			9.0	30	1	1	0	836	320.96	121.96	0	0	0	0	.00	.00	14
			11.0	40	90	0	1	34	13.05	12.24	0	0	0	0	.00	.00	14
			Upstream	60	350	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		96	2	1	873	111.72	46.07	0	0	0	0	.00	.00	42
			Total Upstream		350	0	0	0	.00	.00	0	0	0	0	.00	.00	14
673	Falls Creek	3 18 91	7.0	20	3	0	0	143	54.90	22.36	0	0	0	0	.00	.00	14
			9.0	30	34	0	1	1941	745.21	152.30	0	0	0	0	.00	.00	14
			11.0	40	301	0	0	1359	521.76	209.52	0	0	0	0	.00	.00	14
			Upstream	60	63	0	0	3	1.15	.83	0	0	0	0	.00	.00	14
			Total Intertidal		338	0	1	3443	440.62	95.71	0	0	0	0	.00	.00	42
			Total Upstream		63	0	0	3	1.15	.83	0	0	0	0	.00	.00	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
677	Hayden Creek	3 18 91	7.0	21	19	0	1	591	453.80	130.84	0	0	0	0	.00	.00	7
			7.0	22	2	0	0	61	46.84	46.84	0	0	0	0	.00	.00	7
			9.0	31	0	0	0	542	416.18	177.38	0	0	0	0	.00	.00	7
			9.0	32	17	198	0	526	403.89	107.60	0	0	0	0	.00	.00	7
			11.0	41	2	7	0	103	79.09	39.46	0	0	0	0	.00	.00	7
			11.0	42	39	0	7	1068	820.07	338.50	0	0	0	0	.00	.00	7
			Upstream	61	162	0	0	172	132.07	105.58	0	0	0	0	.00	.00	7
			Upstream	62	15	0	0	1	.77	.77	0	0	0	0	.00	.00	7
		Total Intertidal			79	205	8	2891	369.98	77.38	0	0	0	0	.00	.00	42
		Total Upstream			177	0	0	173	66.42	53.89	0	0	0	0	.00	.00	14
678	Sleepy Bay	3 17 91	7.0	20	3	0	0	42	18.81	12.15	0	0	0	0	.00	.00	12
			9.0	30	2	0	0	70	31.35	21.78	0	0	0	0	.00	.00	12
			11.0	40	109	0	0	42	18.81	12.01	0	0	0	0	.00	.00	12
			Upstream	60	50	0	0	0	.00	.00	0	0	0	0	.00	.00	14
		Total Intertidal			114	0	0	154	22.99	9.02	0	0	0	0	.00	.00	36
		Total Upstream			50	0	0	0	.00	.00	0	0	0	0	.00	.00	14
681	Hogan Bay	4 9 91	7.0	20	0	0	1	7	2.69	1.09	0	0	0	0	.00	.00	14
			9.0	30	2	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			11.0	40	50	0	0	0	.00	.00	5	0	0	0	.00	.00	14
			Upstream	60	314	0	0	0	.00	.00	0	0	0	0	.00	.00	14
		Total Intertidal			52	0	1	7	.90	.41	5	0	0	0	.00	.00	42
		Total Upstream			314	0	0	0	.00	.00	0	0	0	0	.00	.00	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
682	Snug Harbor	3 16 91	7.0	20	151	0	0	288	110.57	37.66	0	0	0	0	.00	.00	14
			9.0	30	812	0	6	1288	494.50	193.60	0	0	0	0	.00	.00	14
			11.0	40	212	0	8	2022	776.30	257.42	0	0	0	0	.00	.00	14
			Upstream	60	3	0	1	2413	926.42	322.81	0	0	0	0	.00	.00	14
			Total Intertidal		1175	0	14	3598	460.46	113.71	0	0	0	0	.00	.00	42
			Total Upstream		3	0	1	2413	926.42	322.81	0	0	0	0	.00	.00	14
692	Herring Bay	3 21 91	7.0	20	18	0	0	913	350.53	132.14	0	0	0	0	.00	.00	14
			9.0	30	42	1	2	913	350.53	172.08	0	0	0	0	.00	.00	14
			11.0	40	204	0	0	346	132.84	90.86	0	0	0	0	.00	.00	14
			Upstream	60	258	0	27	1202	461.48	117.71	0	0	0	0	.00	.00	14
			Total Intertidal		264	1	2	2172	277.96	78.13	0	0	0	0	.00	.00	42
			Total Upstream		258	0	27	1202	461.48	117.71	0	0	0	0	.00	.00	14
695	Port Audrey	4 11 91	7.0	21	0	0	0	48	36.86	35.97	0	0	0	0	.00	.00	7
			7.0	22	0	0	0	108	82.93	28.46	0	0	0	0	.00	.00	7
			9.0	30	286	0	0	641	246.10	82.50	0	0	0	0	.00	.00	14
			11.0	40	52	0	8	616	236.50	161.99	0	0	0	0	.00	.00	14
			Upstream	60	45	0	2	537	206.17	161.66	0	0	0	0	.00	.00	14
			Total Intertidal		338	0	8	1413	180.83	61.05	0	0	0	0	.00	.00	42
			Total Upstream		45	0	2	537	206.17	161.66	0	0	0	0	.00	.00	14
699	Cathead Bay	3 31 91	7.0	20	124	0	0	164	62.96	23.86	0	0	0	0	.00	.00	14
			9.0	30	108	0	0	1179	452.65	201.27	0	0	0	0	.00	.00	14
			11.0	40	5	0	3	1500	575.89	134.66	0	0	0	0	.00	.00	14
			Upstream	60	11	0	0	248	95.21	65.44	0	0	0	0	.00	.00	14
			Total Intertidal		237	0	3	2843	363.84	86.16	0	0	0	0	.00	.00	42
			Total Upstream		11	0	0	248	95.21	65.44	0	0	0	0	.00	.00	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m^2	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m^2	Chum Salmon Fry SE	No. of Digs
740	Kelez Creek	4 2 91	7.0	20	45	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	6	0	0	326	125.16	58.87	0	0	0	0	.00	.00	14
			11.0	40	116	0	0	177	67.96	46.70	0	0	0	0	.00	.00	14
			Upstream	60	301	0	0	582	223.45	130.05	0	0	0	0	.00	.00	14
			Total Intertidal		167	0	0	503	64.37	25.70	0	0	0	0	.00	.00	42
			Total Upstream		301	0	0	582	223.45	130.05	0	0	0	0	.00	.00	14
744	Wilby Creek	4 2 91	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	31	1	0	0	162	62.20	27.64	0	0	0	0	.00	.00	14
			11.0	40	27	0	0	160	61.43	52.25	0	0	0	0	.00	.00	14
			Upstream	60	5	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		28	0	0	322	41.21	19.75	0	0	0	0	.00	.00	42
			Total Upstream		5	0	0	0	.00	.00	0	0	0	0	.00	.00	14
747	Cabin Creek	4 3 91	7.0	20	9	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	444	0	0	166	63.73	30.57	0	0	0	0	.00	.00	14
			11.0	40	1525	0	35	515	197.72	70.94	0	35	0	0	.00	.00	14
			Upstream	60	455	0	7	249	95.60	32.17	0	0	0	0	.00	.00	14
			Total Intertidal		1978	0	35	681	87.15	28.22	0	35	0	0	.00	.00	42
			Total Upstream		455	0	7	249	95.60	32.17	0	0	0	0	.00	.00	14
749	Shad Creek	3 23 91	7.0	20	32	0	0	163	62.58	39.16	0	0	0	0	.00	.00	14
			9.0	30	82	0	0	61	23.42	21.41	0	0	0	0	.00	.00	14
			11.0	40	137	0	0	2	.77	.52	0	0	0	0	.00	.00	14
			Upstream	60	622	0	48	2846	1092.66	261.54	0	0	0	0	.00	.00	14
			Total Intertidal		251	0	0	226	28.92	15.05	0	0	0	0	.00	.00	42
			Total Upstream		622	0	48	2846	1092.66	261.54	0	0	0	0	.00	.00	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon						Chum Salmon						No. of Digs
					Eggs		Fry				Eggs		Fry				
					Dead	Live	Dead	Live	F/m^2	SE	Dead	Live	Dead	Live	F/m^2	SE	
775	Pautze Creek	4 3 91	7.0	20	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	2	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			11.0	40	0	0	0	2	.77	.77	0	0	0	0	.00	.00	14
			Upstream	60	0	0	0	704	270.29	183.45	0	0	0	0	.00	.00	14
			Total Intertidal		2	0	0	2	.26	.26	0	0	0	0	.00	.00	42
			Total Upstream		0	0	0	704	270.29	183.45	0	0	0	0	.00	.00	14
815	Constantine Creek	4 3 91	7.0	20	80	0	0	100	38.39	25.58	0	0	0	0	.00	.00	14
			8.0	23	51	0	0	452	173.54	122.51	0	0	0	1	.38	.38	14
			9.0	30	35	0	1	401	153.96	53.38	0	0	0	0	.00	.00	14
			10.0	33	101	0	6	232	89.07	28.40	32	0	0	144	55.29	47.55	14
			11.0	40	358	0	0	3	1.15	.61	0	0	0	0	.00	.00	14
			Upstream	80	0	0	0	14	5.38	5.38	27	0	1	338	129.77	82.50	14
			Upstream	90	0	0	7	0	.00	.00	2	0	0	0	.00	.00	14
			Upstream	100	21	0	0	0	.00	.00	8	0	0	26	9.98	9.58	14
			Upstream	120	0	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		625	0	7	1188	91.22	28.12	32	0	0	145	11.13	9.61	70
			Total Upstream		21	0	7	14	1.34	1.34	37	0	1	364	34.94	21.50	56
828	Cook Creek	4 18 91	7.0	20	0	0	0	1	.38	.38	0	0	0	0	.00	.00	14
			9.0	30	328	0	0	361	138.60	50.63	0	0	0	0	.00	.00	14
			11.0	41	0	0	0	1	.77	.77	0	0	0	0	.00	.00	7
			11.0	42	57	0	0	1	.77	.77	0	0	0	0	.00	.00	7
			Upstream	60	442	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			Total Intertidal		385	0	0	364	46.58	19.35	0	0	0	0	.00	.00	42
			Total Upstream		442	0	0	0	.00	.00	0	0	0	0	.00	.00	14

Appendix A.5

1991 Prince William Sound Pink and Chum Salmon Fry Dig

Stream #	Stream Name	Date	Height in Tidal Zone	Loc	Pink Salmon Eggs Dead	Pink Salmon Eggs Live	Pink Salmon Fry Dead	Pink Salmon Fry Live	Pink Salmon Fry F/m^2	Pink Salmon Fry SE	Chum Salmon Eggs Dead	Chum Salmon Eggs Live	Chum Salmon Fry Dead	Chum Salmon Fry Live	Chum Salmon Fry F/m^2	Chum Salmon Fry SE	No. of Digs
850	Canoe Creek	4 8 91	7.0	20	65	0	1	580	222.68	95.77	0	0	0	0	.00	.00	14
			9.0	30	1492	0	14	1925	739.06	189.31	0	0	0	0	.00	.00	14
			11.0	40	2392	0	1	1476	566.68	110.63	0	0	0	0	.00	.00	14
			Upstream	60	850	0	3	264	101.36	66.52	0	0	0	0	.00	.00	14
			Total Intertidal		3949	0	16	3981	509.47	84.70	0	0	0	0	.00	.00	42
			Total Upstream		850	0	3	264	101.36	66.52	0	0	0	0	.00	.00	14
861	Bernard Creek	3 14 91	7.0	20	117	0	0	0	.00	.00	0	0	0	0	.00	.00	14
			9.0	30	807	0	3	144	55.29	38.88	0	0	0	0	.00	.00	14
			11.0	40	125	0	0	6	2.30	1.22	0	0	0	0	.00	.00	14
			Upstream	60	103	0	20	295	113.26	107.12	0	0	0	0	.00	.00	14
			Total Intertidal		1049	0	3	150	19.20	13.26	0	0	0	0	.00	.00	42
			Total Upstream		103	0	20	295	113.26	107.12	0	0	0	0	.00	.00	14
Prince William Sound Summary																	
			Total Intertidal		30787	210	404	78254	212.54	11.95	1204	35	37	4258	11.56	12.87	1979
			Total Upstream		21525	0	271	22364	178.08	20.20	441	0	28	2760	21.98	21.32	675