

October 1983

GENETIC STOCK IDENTIFICATION STUDY

Final Report 1983



DOE/BP-0002



This report was funded by the Bonneville Power Administration (BPA), U.S. Department of Energy, as part of BPA's program to protect, mitigate, and enhance fish and wildlife affected by the development and operation of hydroelectric facilities on the Columbia River and its tributaries. The views of this report are the author's and do not necessarily represent the views of BPA.

This document should be cited as follows:

Milner, George B., David J. Teel, Fred M. Utter, Bonneville Power Administration, (Agreement DE-A179-82BP28044MOOI), Coastal Zone and Estuarine Studies Division, Northwest and Alaska Fisheries Center, National Marine Fisheries Service, National Oceanic and Atmospheric Administration, 101 electronic pages (BPA Report DOE/BP-I0002)

This report and other BPA Fish and Wildlife Publications are available on the Internet at:

<http://www.efw.bpa.gov/cgi-bin/efw/FW/publications.cgi>

For other information on electronic documents or other printed media, contact or write to:

Bonneville Power Administration
Environment, Fish and Wildlife Division
P.O. Box 3621
905 N.E. 11th Avenue
Portland, OR 97208-3621

Please include title, author, and DOE/BP number in the request.

GENETIC STOCK IDENTIFICATION STUDY

by
George B. Milner
David J. Teel
and
Fred M. Utter

Final Report of Research
Financed by
Bonneville Power Administration
(Agreement DE-A179-82BP28044MOO1)

and

Coastal Zone and Estuarine Studies Division
Northwest and Alaska Fisheries Center
National Marine Fisheries Service
National Oceanic and Atmospheric Administration
2725 Montlake Boulevard East
Seattle, Washington 98112

October 1983

EXECUTIVE SUMMARY

Project title: Genetic Stock Identification Study

Project Number: 79-1

Organization and address: National Marine Fisheries Service, 2725 Montlake Boulevard East., Seattle, Washington 98112

Project Leader: George B. Milner (206) 842-5832

Administrative Officer: Gerald E. Monan (206) 442-4445

Project Period: 1 October 1981 - 30 June 1983

Cost FY82: \$141,683

The contributions of wild and hatchery stocks to the May 1982 troll fishery of chinook salmon off the Washington coast were estimated by the genetic stock identification (GSI) method. A description of the GSI method was presented including the model and statistical procedure for obtaining maximum likelihood estimates of stock contributions. A final data base for analysis of this fishery (derived by identifying genetic variants expressed in liver and heart tissues, and eliminating populations estimated to be non-contributors) included 14 polymorphic loci from 49 stocks and 17 stock groups from California through southern British Columbia. GSI estimates from approximately 2,000 mixed fishery samples indicated that about 90% of the catch originated from the Columbia River including a 76.5% total contribution returning to the stock group of the Lower Columbia River and Bonneville Pool areas. Separate analyses of catches from the northern and southern areas indicated a much higher northern area representation of Canadian (increasing from 1 to 22%) and Puget Sound (increasing from 1 to 9%) stock groups, and a substantially reduced contribution of the Lower Columbia River and Bonneville Pool stock group (decreasing to 45.6% from 78.9%). Accuracy of GSI estimates compare favorably with average estimates of previous years based on such information as abundances in terminal areas, and analyses of scale, fin clipping, and coded wire tag data; the data base was therefore regarded as adequate for analysis of this fishery. Possible improvements in the procedure included more efficient sampling by collecting tissues at landing sites rather than on shipboard and more efficient analyses through a continual search to increase the number of polymorphic loci.

CONTENTS

	PAGE
INTRODUCTION	1
METHODS AND MATERIALS.	3
Baseline Sampling	3
Mixed Fishery Sampling.	3
Electrophoresis	8
Mixed Fishery Model	10
The EM Algorithm.	11
Variances of ML Estimates	13
RESULTS.....	15
Baseline Data	15
Estimates of Stock Group Contributions.	18
Northern and Southern Fishing Areas	22
DISCUSSION.....	23
Evaluation of GSI Estimates	23
Improvement of the GSI Method	25
ACKNOWLEDGMENTS.	30
LITERATURE CITED.	31
APPENDIX A	

INTRODUCTION

Information on the stock composition of salmon fisheries is important to many research and resource management efforts. Most notable are the need to protect depressed wild and hatchery stocks from over-harvest while maximizing the harvest of abundant ones, and the desire for equitable allocation of catches among users. These objectives require knowledge of stock contributions to specific fisheries, segments of these fisheries, and ultimately to a large aggregate of fisheries. While standard stock monitoring tools such as coded-wire tags (CWT) have resulted in considerable data, the cost of a program to representatively tag all the natural and hatchery stocks contributing to a large number of fisheries is prohibitive.

A process that uses genetic differences among contributing populations to identify compositions of stock mixtures has been envisioned for decades (e.g. | Ridgway 1957). However, this vision has only recently been fulfilled through two necessary developments. First, a reliable set of measurable genetic variants was needed to characterize populations; this requirement was fulfilled through the application of electrophoretic methods (Utter et al. 1974; Allendorf and Utter 1979). The second was development of statistical and data processing methods to estimate individual stock contributions in mixed populations. Such a procedure, the genetic stock identification (GSI) method, has recently been developed and tested (Milner et al. 1981), and provides the first practical means of gathering stock composition information on fisheries that harvest mixtures of stocks of hatchery and wild origins.

The GSI method was developed and tested by the National Marine Fisheries Service (NNFS) with Bonneville Power Administration (BPA) funding. The method is based on electrophoretically detected differences of genotypic frequencies between stocks (Milner 1977; Milner and Teel 1979; Milner et al. 1980 and 1981). Genotype frequency estimates are made (1) for all major stocks expected to contribute to a fishery (referred to as baseline data) and (2) for samples taken from the mixed fishery. Then these two sets of genotype frequencies are used to obtain maximum likelihood estimates of proportional stock contributions to the mixed fishery catch (Milner et al. 1981).

Studies have resulted in the collection of an extensive genetic data base on chinook salmon stocks of the Columbia River and its tributaries, and for the first time, provided the capability for timely and accurate estimates of stock composition in the chinook salmon fisheries of the Columbia River. Fisheries agencies subsequently applied the GSI method to several mixed stock problems in the management of Pacific salmon (Grant et al. 1980; Milner et al. 1980, 1981; Wishard 1980).

Quantifying the in-river harvest of depleted upriver chinook salmon stocks for conservation purposes is only part of the information necessary for their adequate protection. Comprehensive strategies to ensure the continued visibility of such stocks also require knowledge of their harvest in various ocean fisheries (WDF 81, PFMC 81, N.W. Power Planning Council 82).

Thus, genetic profiles of non-Columbia River stocks were needed to make the GSI method applicable to coastal chinook salmon fisheries. Therefore, the objectives of the studies reported here were to: (1) extend

the genetic data base to include major coastal stocks which contribute to ocean fisheries harvesting Columbia River fish and (2) to apply the GSI method to the May 1982 Washington troll fisheries and obtain comprehensive estimates of its stock composition.

METHODS AND MATERIALS

Baseline Sampling

The baseline sample collection ranged from California through British Columbia. Samples (81), grouped by geographical area and run time, i.e., summer (SU), fall (F), and spring (SP), are given in Tables 1 (Columbia River) and 2 (non-Columbia River). Both hatchery and wild fish were sampled for eye, liver, heart, and skeletal muscle tissues. Tissue samples were immediately frozen on dry ice and shipped to the NMFS genetics laboratory at the Marine Experimental Station, Manchester, Washington, where they were stored for 1-12 weeks at -90°C prior to electrophoretic analysis.

Mixed Fishery Sampling

Sampling of the Washington May troll fishery covered the range of the fishery, from Cape Falcon, Oregon, to the Strait of Juan de Fuca (Figure 1). The fishery was sampled with the aid of 15 commercial troll vessels chosen to provide representative sampling of the four fishing areas, and on the basis of the skipper's willingness to collect the tissue samples.

Heart and liver samples were collected from 2508 fish on board the vessels. Individual bagging and labeling of the samples allowed the

Table I.--Baseline sampling locations by stock group for wild and hatchery populations of Columbia and Snake River chinook salmon.

Stock group		Sampling data	
Area	Run time	Location	Wild or ^{a/} hatchery
Upper Columbia & Snake Rivers	Summer	Wells Dam	W/H
		McCall-South Fork Salmon	W
		Johnson Creek-South Fork Salmon	w
Lower Columbia River (Cowlitz/Kalama)	Spring	Cowlitz	H
		Kalama	H
Lower Columbia River (Willamette)	Spring	Eagle Creek - Willamette	H
		McKenzie - Willamette	H
Upper Columbia River	Spring	Wind	H
		Little White Salmon	H
		Klickitat	H
		Warm Springs - Deschutes	W
		Round Butte - Deschutes	H
		Icicle - Wenatchee	H
		Methow (Winthrop)	H
Snake River	Spring	Red River-South Fork Clearwater	W
		Sawtooth-Upper Salmon	W
		Rapid River - Little Salmon	H
		Valley Creek-Upper Salmon	W
Lower Columbia River & Bonneville Pool	Fall	Big Creek	H
		Cowlitz	H
		Kalama	H
		Lewis	H
		Washoqal	H
		Little White Salmon	H
Upper Columbia & Snake Rivers	Fall	Deschutes	w
		Priest Rapids Dam & Hanford Reach	W/H
		Ice Harbor Dam	W

a/ W = wild or naturally spawning stock, H = established hatchery stock, W/H = includes both wild and hatchery fish.

Table 2.--Baseline sampling locations by stock group for wild and hatchery populations of non-Columbia River chinook salmon.

Stock group		Sampling data	
Area	Run time	Location	Wild or ^{a/} hatchery
California	Fall	Coleman (late) - Sacramento	W
		Mokelumne - Sacramento	H
		Nimbus - Sacramento	H
		Feather - Sacramento	H
		Coleman (Battle Creek) - Sacramento	H
		Iron Gate - Klamath	H
		Trinity - Klamath	H
California	Spring	Feather - Sacramento	H
		Trinity - Klamath	H
Oregon coastal	Fall	Chetco	W
		Elk	H
		Sixes estuary	w
		Coquille estuary	W
		Suislaw Bay	W
		Alsea Bay	W
		Fall Creek - Alsea	H
		Siletz estuary	W
		Salmon	H
		Nestucca Bay	w
		Cedar Creek - Nestucca	H
		Trask	H
Oregon coastal	Spring	Tillamook Bay	W
		Nehalem estuary	w
		Cole Rivers - Rogue	H
		Rock Creek - Umpqua	H
		Cedar Creek - Nestucca	H
Washington coastal	Fall	Trask	H
		Naselle	H
		Nemah	H
		Humptulips	H
		Quinault	H
		Queets	W
		Hoh	w
Washington coastal	Spring & summer	Soleduck	H
		Soleduck	H

^{a/} W = wild or naturally spawning stock, H = established hatchery stock, W/H = includes both wild and hatchery fish.

Table 2.--cont.

Stock group		Sampling data	
Area	Run time	Location	Wild or ^{a/} hatchery
Puget Sound	Fall	Elwha	H
		Hood Canal (Hoodsport)	H
		Deschutes	H
		Green River	H
		Samish	H
Puget Sound	Spring & summer	Skykomish	H
		Skagit	H
		Nooksack	H
British Columbia	Fall	Big Qualicum	H
		Puntledge	H
		Quinsam	H
		Robertson Creek	H
		San Juan	W
		Capilano	H
Fraser River	Summer	Clearwater	W
		Chilco	W
		Stuart	W

a/ W = wild or naturally spawning stock, H = established hatchery stock, W/H = includes both wild and hatchery fish.

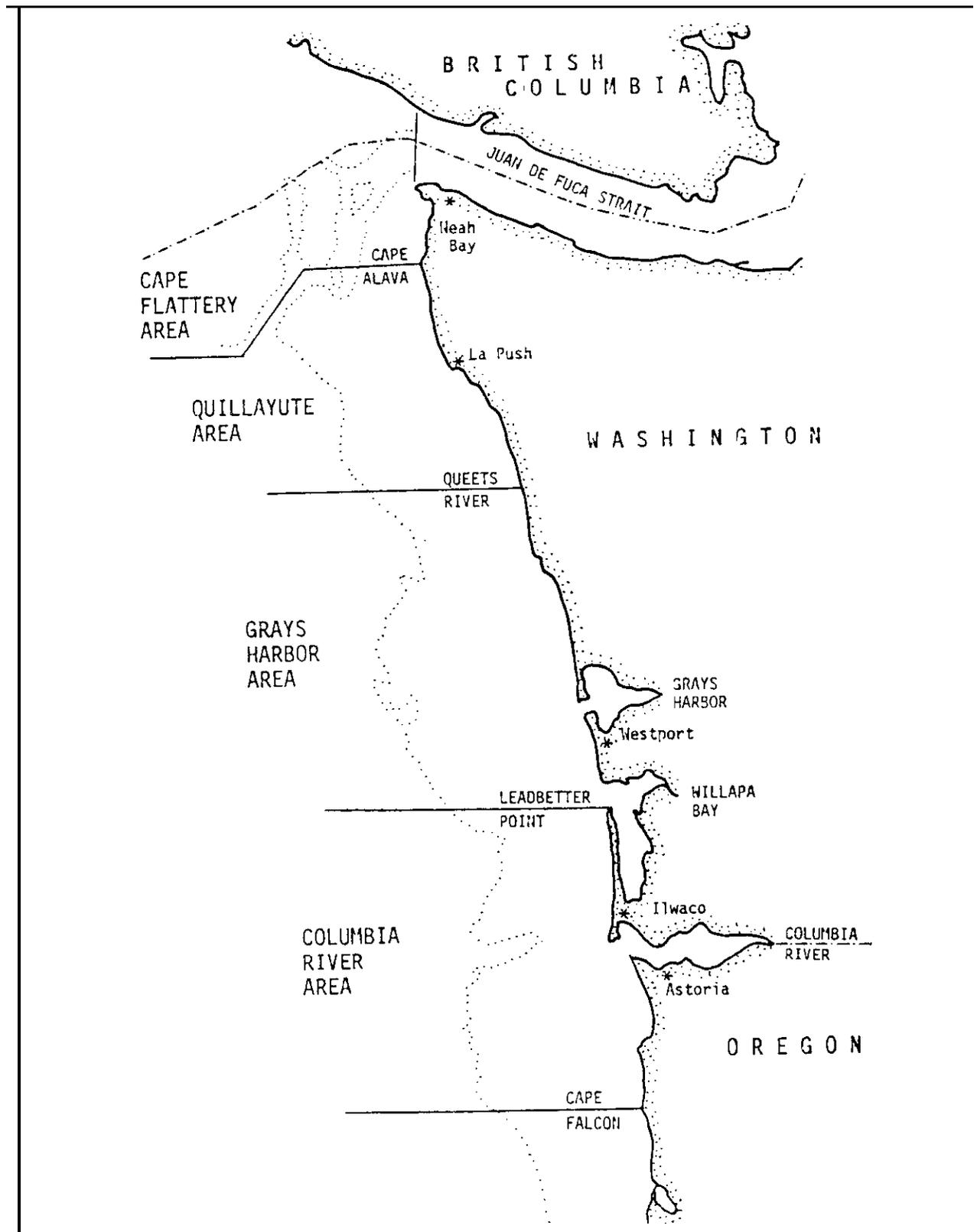


Figure 1.--Commercial troll ocean salmon catch reporting areas north of Cape Falcon (from Miller et al. 1983).

identification of the fishing area in which each fish was caught. The tissues were placed on ice immediately upon collection and frozen and stored on dry ice at the end of each day to prevent denaturing of proteins during on board storage. Fishing trips lasted from one to several days. When the vessels returned to port, Washington Department of Fisheries (WDF) personnel collected the bagged samples and stored them in port freezer facilities until they were packed on dry ice and shipped weekly to the Manchester laboratory for storage.

Electrophoresis

Protein extraction procedures and electrophoretic methods followed May et al. (1979). Three buffer systems were used: (1) gel, 1:4 dilution of electrode solution, electrode, TRIS (0.18 m), boric acid (0.1 m) with EDTA (0.004 m). pH 8.5 (Markert and Faulhaber 1965); (2) gel, 1:20 dilution of electrode solution, electrode, citric acid (0.04 m), adjusted to pH 6.5 with N-(3-aminopropyl)-morpholine (Clayton and Tretiak, 1972) with EDTA (0.01 m); and (3) gel, TRIS (0.03 m), citric acid (0.005 m). pH 8.5, electrode, lithium hydroxide (0.06 m), boric acid (0.3 m) (Ridgway et al. 1970) with EDTA (0.01 m). Gels consisted of a mix of the appropriate buffers and 13% hydrolyzed potato starch (Electrostarch, Madison, Wisconsin, Lot 307)^{1/}. Histochemical staining methods for enzymes followed Harris and Hopkinson (1976).

The intensity of electrophoretic examination differed for baseline and mixed fishery samples, Baseline samples were screened for genetic variation in all 4 tissues including 17 protein systems representing 31 loci (Table 3). This screening resulted in the identification of 14

^{1/} Reference to trade name does not imply endorsement by the National Marine Fisheries Service, NOAA.

Table 3.--Proteins (Enzyme Commission number), loci and variants alleles, tissues, and buffers used in the study. Tissues: E, eye; L, liver; H, heart; and M, skeletal muscle. Buffer designation numbers correspond with those in the text.

Protein (E.C. number)	Locus (variant alleles)	Tissue	Buffer
Acid phosphatase (3.1.3.2)	ACP	L	2
Aconitase (4.2.1.3)	ACON-1(69,86,108,116)	L	2
Adenosine deaminase (3.5.4.4)	ADA-1 (83)	E,H,M	1
	ADA-2 (105)	E,H,M	
Alcohol dehydrogenase (1./1.1)	ADH (-52)	L	2
Creatine kinase (2.7.3.2)	CK-1 (113)	M	3
	CK-2 (69)	M	
Glucose phosphate isomerase (5.3.1.9)	GPI-1 (60)	M	3
	GPI-2 (30,60,105)	M	
	GPI-3 (93,105)	E,M	
Glutamate-oxalacetate transaminase (2.6.1.1)	GOT-1.2 (85,105)	H,M	1
	GOT-3 (90)	E	
Glycerol-3-phosphate dehydrogenase (1.1.1.8)	GPD-1	H,M	2
	GPD-2	H,M	
	GPD-3	H,M	
	GPD-4	H,M	
Isocitrate dehydrogenase (1.1.1.42)	ICD-3,4 (50,74,127,142)	E,L,H,M	2
Lactate dehydrogenase (1.1.1.27)	LDH-3	E,H,M	1
	LDH-4 (71,120,153)	E,L,M	
	LDH-5 (70.90)	E	
Malate dehydrogenase (1.1.1.37)	MDH-1.2 (27,- 45,120)	L,H,M	2
	MDH-3,4 (70,83,121)	E,H,M	
Mannose phosphate isomerase (5.3.1.8)	MPI (95,109,113)	E,L,H,M	1
Peptidase (3.4.11)	PEP-1 (90)	E,H,M	173
	PEP-2 (70,105)	E	
	PEP-3 (45,130)	E,H,M	
Phosphoglucomutase (2.7.5.1)	PGM (-60,-75)	E,L,H,M	2
Phosphogluconate dehydrogenase (1.1.1.44)	PGD (90)	L,H,M	2
Phosphoglycerate kinase (2.7.2.3)	PGK-2 (90)	E,L,M	2
Superoxide dismutase (1.15.1.1)	SOD-1 (-260,560,1250)	L	1
	SOD-2 (142)	H	

polymorphic loci expressed in the liver and heart that provided the basis of the mixed fishery analyses. The system of locus and allelic nomenclature followed Allendorf and Utter (1979) and May (1980).

Mixed Fishery Model

A mixed stock fishery consists of some number of fish, N , with a number of genotypes, g , distributed among the N fish such that there is Y_i ($i=1,2,\dots,g$) fish with the i th genotype and $\sum_i Y_i = N$. Each of s stocks contribute n_{ij} ($j=1,2,\dots,s$) fish with the i th genotype to the fishery. The number of fish with the i th genotype (y_i) is equal to the sum of the contributions of i th genotype fish from all of the stocks, and, by summing over the genotypes, the mixed fishery model is described by the following:

$$N = \sum_i y_i = \sum_i \sum_j n_{ij}.$$

In the following discussion, it should be obvious whether actual or estimated parameters are being considered, and, therefore, no distinction in symbolism is made.

In using the model to estimate the contribution of each population to a mixed fishery, both the mixed fishery and each of the contributing populations are sampled. The number of fish in the mixed fishery with each genotype (y_i) is estimated by observing the number of fish having each of the g genotypes in the fishery sample. The proportion of fish having the i th genotype in each of the s stocks, x_{ij} , is estimated by observing this proportion in a sample from each of the stocks. The latter data set is referred to as baseline data. The remaining parameter, which is the one

we wish to estimate, is the number of fish contributed by each stock. A well known technique in the discipline of population genetics, referred to as the gene-counting method (Ceppellini et al. 1955; Elandt-Johnson 1971) and more generally as the EM algorithm (Dempster et al. 1977) was adapted and used to obtain maximum likelihood (ML) estimates of the contributions of stocks to a fishery.

The EM Algorithm

The EM algorithm is a general and broadly applicable iterative procedure for obtaining ML estimates (Dempster et al. 1977). The name EM algorithm is derived from the two steps, expectation (E) and maximization (M), used in each iteration of the algorithm to finally arrive at the desired maximum likelihood estimates. In a generalized example of the procedure (Table 4) y_i and x_{ij} are values respectively observed in samples from the mixed fishery and the baseline populations. These values are used to estimate the θ_j , i.e., the proportional contributions of each of the contributing stocks. Suppose that each y_i set of fish is composed of n_{ij} fish from the j th stock and having the i th genotype. Then if one knew the n_{ij} , the estimates of the θ_j would be

$$\theta_j = \frac{n_{1j} + n_{2j} + \dots + n_{gj}}{N}$$

But the n_{ij} are not known separately, i.e., we can not distinguish between these groups of fish. If the θ_j were known, then one would expect on the average a proportion $x_{ij} \theta_j / \sum_j x_{ij} \theta_j$ of the y_i fish to be from the j th stock, but the θ_j are not known either.

Table 4.--Generalized notation for values used with the EM algorithm.

Number of fish with the <i>i</i> th genotype observed in mixed fishery sample	Number of fish with the <i>i</i> th genotype from the <i>j</i> th stock in mixed fishery sample	Expected proportion of fish with <i>i</i> th genotype from the <i>j</i> th stock
y_1	$n_{11}, n_{1j}, \dots, n_{1s}$	$x_{11}^{\theta_1}, \dots, x_{1j}^{\theta_j}, \dots, x_{1s}^{\theta_s}$
y_2	$n_{21}, n_{2j}, \dots, n_{2s}$	$x_{21}^{\theta_1}, \dots, x_{2j}^{\theta_j}, \dots, x_{2s}^{\theta_s}$
.	.	.
.	.	.
y_i	n_{ij}, \dots, n_{is}	$x_{i1}^{\theta_1}, \dots, x_{ij}^{\theta_j}, \dots, x_{is}^{\theta_s}$
.	.	.
y_g	$n_{g1}, n_{gj}, \dots, n_{gs}$	$x_{g1}^{\theta_1}, \dots, x_{gj}^{\theta_j}, \dots, x_{gs}^{\theta_s}$
$\sum y_i = N$	$\sum_{ij} n_{ij} = \sum_i y_i = N$	$\sum_{ij} x_{ij}^{\theta_j} = 1$

In fact, this is what we wish to estimate. The algorithm takes the approach of dividing the observed data values (y_i) into their underlying numbers of fish from each contributing stock (n_{ij}) according to their expected proportions (the expectation step),

$$n_{ij} = y_i \frac{x_{ij}^{\theta_j}}{\sum_j x_{ij}^{\theta_j}}$$

Then, by counting these numbers, new estimates ($t+1$) of the θ_j can be obtained (maximization step):

$$\theta_j^{t+1} = \frac{1}{N} \sum_i \left(y_i \frac{x_{ij}^{\theta_j^t}}{\sum_j x_{ij}^{\theta_j^t}} \right)$$

where $t=1,2,\dots$, iterations. This process is repeated until the absolute difference between successive estimates converge, i.e., $\left| \theta_j^{t+1} - \theta_j^t \right|$ approach zero. Figure 2 is summary of the flow of events used to program the EM algorithm for computer application.

Variations of ML Estimates

It was shown by R.A. Fisher that the asymptotic variances and covariances of ML estimates are given by:

$$-1/E \left(\frac{\partial^2 \text{LOG } L}{\partial \theta_i \partial \theta_k} \right) \quad (\text{Kempthorne 1973}).$$

In this formula, L is the likelihood function, $f(y, \theta) = \frac{(N! / \prod_i y_i!)}{\prod_i (\sum_j x_{ij}^{\theta_j})^{y_i}}$ and E represents the expected values obtained by using the ML estimates. With sufficiently large sample sizes, the resulting variances represent their lower bounds.

In this study, the baseline genotypic frequencies were considered fixed constants. Therefore, variances calculated by the above method did not include variation associated with the estimates of the baseline genotypic frequencies.

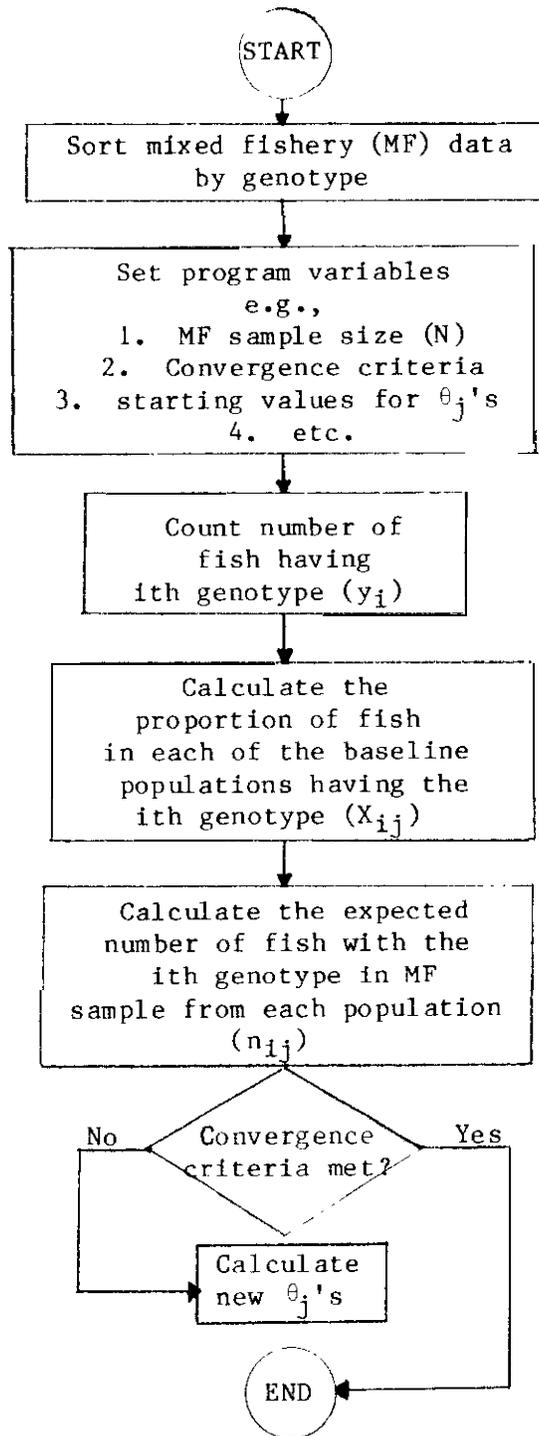


Figure 2.--Summary of the flow of events used to program the EM algorithm for computer application.

Methods for including this component of variation (e.g., Pella and Robertson 1979). would greatly increase storage and processing time requirements for computer analysis to the extent of making it impractical for routine use--particularly for applications on the scale of this study. Thus, a better strategy is to minimize this source of variation by using sufficiently large baseline sample sizes.

RESULTS

Baseline Data

Allelic frequencies for 31 loci and 81 stocks are given in Appendix A. The subset of 14 polymorphic loci used in the mixed fishery analysis included: ACON; ADA-1; GOT-1,2; GPI-3; ICD-3.4; LDH-4; MDH-1,2; MDH-3,4; MPI; PEP-1; PEP-3; PGM; PGK-2; and SOD-1.

The existence of genetic variation among stocks is necessary for analysis of mixed stock fisheries using the GSI method. We have chosen Nei's (1972) genetic distance to describe the between and within group genetic variation based on the loci listed above. Between group genetic distances for 17 stock groups are given in Table 5.

The between group statistic is a measure of the genetic distance between pairs of groups. These distances ranged from 0.0000 to 0.0737 and averaged 0.0205. The average between group value for each of the 17 stock groups is given in Table 6. Five groups were in the low range (0.0082 - 0.0151) for this value relative to the other groups: upper Columbia River (SU), Washington coastal (F), Washington coastal (SP & SU), Oregon coastal

Table 5.--Between group genetic distances using data from 14 polymorphic loci.

Stock group	Run ^a	Up. Col. SU	Puget Sd. SU	Low. Col. (Cow/Kal) SP	Low. Col. 'Willamette' SP	Up. Col. SP	Snake SP	Low Col. ?	Up. Col. and Snake ?	Calif. F	Calif. SP	Oreg. Coast F	Oreg. Coast SP	Wa. Coast F	Wa. Coast SP/SU	Puget Sd. F	B.C. F	Fraser SU
Up. Col.	SU																	
Puget Sd.	SU	0.0318																
Low. Col. (Cow/Kal)	SP	0.0427	0.0145															
Willamette	SP	0.0685	0.0241	0.0065														
Up. Col.	SP	0.0197	0.0158	0.0324	0.0547													
Snake	SP	0.0156	0.0209	0.0501	0.0737	0.0121												
Low. Col.	F	0.0589	0.0227	0.0064	0.0121	0.0419	0.0646											
Up. Col. and Snake	F	0.0290	0.0120	0.0091	0.0198	0.0170	0.0287	0.0128										
Calif.	F	0.0304	0.0211	0.0170	0.0290	0.0213	0.0255	0.0257	0.0122									
Calif.	SP	0.0282	0.0180	0.0251	0.0404	0.0189	0.0222	0.0000	0.0000	0.0000								
Oreg. Coast	F	0.0294	0.0230	0.0212	0.0366	0.0216	0.0241	0.0304	0.0145	0.0148	0.0179							
Oreg. Coast	SP	0.0228	0.0112	0.0210	0.0370	0.0149	0.0172	0.0000	0.0000	0.0000	0.0148	0.0000						
Wa. Coast	F	0.0257	0.0175	0.0151	0.0283	0.0161	0.0211	0.0222	0.0081	0.0118	0.0151	0.0089	0.0074					
Wa. Coast	SP/SU	0.0252	0.0019	0.0051	0.0128	0.0079	0.0132	0.0000	0.0000	0.0000	0.0087	0.0000	0.0053	0.0000				
Puget Sd.	F	0.0404	0.0094	0.0200	0.0313	0.0314	0.0418	0.0180	0.0140	0.0235	0.0324	0.0244	0.0206	0.0187	0.0127			
B.C.	F	0.0314	0.0243	0.0334	0.0518	0.0280	0.0253	0.0484	0.0249	0.0250	0.0271	0.0234	0.0217	0.0250	0.0197	0.0333		
Fraser	SU	0.0238	0.0299	0.0278	0.0472	0.0174	0.0137	0.0000	0.0000	0.0000	0.0182	0.0000	0.0163	0.0000	0.0191	0.0000	0.0000	

^a SP = Spring
SU = Summer
F = Fall

Table 6.--Within group and average between group genetic distances using data from 14 polymorphic loci.

Stock Group	Run <u>a/</u>	Genetic distance	
		Within group	Average between group
Up. Columbia River	SU	0.0380	0.0330
Puget Sound	SU	0.0067	0.0186
Low. Columbia River (COW/Kal)	SP	0.0015	0.0220
Low. Columbia River (Willamette)	SP	0.0017	0.0358
Up. Columbia River	SP	0.0115	0.0232
Snake River	SP	0.0019	0.0294
Low. Columbia River	F	0.0051	0.0228
Up. Columbia and Snake Rivers	F	0.0044	0.0128
California	F	0.0182	0.0161
California	SP	0.0382	0.0179
Oregon Coastal	F	0.0050	0.0181
Oregon Coastal	SP	0.0077	0.0132
Washington Coastal	F	0.0070	0.0151
Washington Coastal	SP & SU	0.0095	0.0082
Puget Sound	F	0.0100	0.0232
British Columbia	F	0.0154	0.0278
Fraser River	SU	0.0008	0.0134

a/ SP = spring, SU = summer, and F = fall.

(SF), and Fraser River (SU). Three Columbia River drainage and the British Columbia groups were in the high range (> 0.0275): upper Columbia River (SU), lower Columbia River (Willamette SP), Snake River (SU), and British Columbia (F). The remaining stock groups were intermediate (0.0161 - 0.0232).

The within group statistic is a measure of the genetic distance between stocks within groups. This measure gives a rough indication of the amount of genetic heterogeneity due to stock differences within groups. Values ranged from 0.0015 to 0.0382 and averaged 0.0112. Two groups, upper Columbia River (SU) and California (SP), displayed noticeably higher values (0.0380 and 0.0382) relative to the other groups. By contrast the lowest within group distances ranged from 0.0015 to 0.0019 for three spring run groups: the lower Columbia River (Willamette and Cowlitz/Kalama) and the Snake River. The rest of the groups ranged from 0.0044 to 0.0184.

The results presented here give some idea of the amount of genetic variation and its structure that is necessary to obtain estimates of stock group composition with a similar level of precision. In general, given proper sample sizes, estimates with the highest levels of precision are obtained for groups with high between group combined with low within group genetic distances.

Estimates of Stock Group Contributions

The inclusion of baseline stocks that do not contribute to the mixed fishery complicates the analysis and leads to inflated variances of the estimates. To deal with this problem, we first obtained estimates for each of the four fishing areas and for the entire fishery using 81 stocks. Then stocks having estimates of zero (0.0000) contributions to all individual areas as well as to the total catch were removed from the baseline data

set. This resulted in 49 stocks representing the 17 groups.

Each group was represented by at least one stock, e.g., upper Columbia River (SU), and some were represented by as many as five stocks, e.g., lower Columbia River/Bonneville Pool (F), California (F), and Washington coastal (F). The results presented below are based on the reduced set of baseline stocks.

Tissue samples were collected from 2,508 fish caught in the troll fishery. However, the distribution of these samples by fishing areas was not proportionate to the actual numbers of fish caught by areas. Therefore, a proportionate random subsampling was made from each area which resulted in an adjusted total sample size of 1,857 fish.

The seven stock groups from the Columbia River drainage were estimated to account for 90.9% of the catch (Table 7). Among these groups, the lower Columbia River/Bonneville Pool (F) group was by far the major contributor (76.5%) to the fishery. The three spring run groups (excluding the Snake River) and the fall run group from the upper Columbia and Snake Rivers individually contributed an estimated 2-5% for a combined contribution of 13.7%. The summer run group from the upper Columbia River and the spring run from the Snake River contributed negligibly (less than 0.5% each) to the total catch.

A comparison was made of the contributions of the three stocks of bright fall run fish comprising the upper Columbia and Snake Rivers stock group because of the interest this group generates due to the high quality of its fish in-river and to the diminishing run strength of the Snake River component. The results were surprising: the Snake River component was the predominant contributor, 3.5% (sd = 0.4), and the two other stocks,

Table 7.--Estimated stock group contribution to the chinook salmon catch of the 1982 May troll fishery for the southern areas, northern area, and total fishery.

Stock group	Run	Southern areas		Northern areas		Total	
		Percent ^a / contribution (standard deviation)		Percent ^b / contribution (standard deviation)		Percent ^c / contribution (standard deviation)	
Lower Columbia River & Bonneville Pool	Fall	78.2	(0.4)	45.6	(8.1)	76.5	(0.5)
Lower Columbia River (Willamette)	Spring	2.3	(0.2)	0.1	(3.8)	1.9	(0.2)
Lower Columbia River (Cowlitz & Kalama)	Spring	3.2	(0.8)	2.1	(11.3)	5.1	(0.8)
Upper Columbia River (including Snake River component)	Fall	3.4	(0.8)	6.3	(10.3)	4.3	(1.1)
Upper Columbia River	Spring	1.2	(0.4)	0.2	(11.5)	2.4	(0.4)
Upper Columbia River	Summer	0.6	(0.7)	2.3	(4.1)	0.3	(0.3)
Snake River	Spring	0.0	(0.2)	0.1	(1.8)	0.4	(0.2)
Total Columbia River		88.9	(0.9)	56.7	(12.3)	90.9	(2.0)
California	Fall	4.2	(0.9)	4.3	(14.1)	2.5	(1.4)
California	Spring	1.1	(0.3)	0.2	(7.3)	0.3	(0.3)
Oregon Coastal	Fall	0.3	(1.0)	2.1	(8.5)	0.2	(0.7)
Oregon Coastal	Spring	2.5	(1.3)	2.6	(18.1)	1.4	(1.0)
Washington Coastal	Fall	0.2	(2.0)	1.7	(6.0)	0.3	(1.4)
Washington Coastal	Spring and Summer	0.8	(1.0)	1.8	(12.7)	1.0	(0.8)
Puget Sound	Fall	0.5	(0.9)	6.0	(4.5)	1.6	(0.9)
Puget Sound	Summer	0.1	(0.6)	2.7	(6.2)	0.2	(0.5)

Table 7.--cont.

Stock group	Run	<u>Southern areas</u>		<u>Northern areas</u>		<u>Total</u>	
		<u>Percent^{a/}</u> contribution (standard deviation)		<u>Percent^{b/}</u> contribution (standard deviation)		<u>Percent^{c/}</u> contribution (standard deviation)	
Southern British Columbia	Fall	1.3	(0.6)	15.1	(6.2)	1.4	(0.6)
Fraser River	Summer	0.0	(0.4)	6.9	(2.3)	0.2	(0.3)
Total non-Columbia River		11.0	(1.3)	43.4	(12.7)	9.1	(2.0)

a/ Based on total samples from Columbia River and Grays Harbor areas (N=1917).

b/ Based on total samples from Cape Flattery area (N=448).

c/ Based on proportionate subsampling of fish from all areas (N=1857).

Deschutes (Oregon) and upper Columbia Rivers, accounted for only 0.2% (sd = 0.6) and 0.6% (sd = 0.5) of the total catch, respectively.

Only a very minor proportion of the catch (9.1%) was attributable to groups from non-Columbia River drainages. Among these, the California (F) group was most heavily represented providing an estimated 2.5% of the total catch. The contributions of the remaining nine groups ranged from 0.3 to 1.6%.

Northern and Southern Fishing Areas

The nonrepresentative distribution of GSI samples relative to the total catch required the omission of the small Quillayute sample (N=143) and the use of only the Cape Flattery sample (N=448) to estimate the stock group composition of the catch of the northern part of the fishery. Estimates for the southern area were obtained from the combined samples (N=1,917) taken from the Columbia River and Grays Harbor fishing areas.

The percentage contribution of stock groups from the Columbia River drainage was much higher in the southern (88.9%) than in the northern (56.7%) catch (Table 7). This difference was due mainly to a 71.5% increased contribution of the Columbia River/Bonneville Pool (F) group to the southern than to the northern area. The reduced catch of Columbia River fish in the north was accompanied by higher representation of Canadian (increasing from 1.39 to 22.00%) and Puget Sound (increasing from 0.69 to 8.69%) stock groups. No other major differences between the two areas were identified.

The individual contributions to northern or southern catches of stocks from non-Columbia River drainage (excluding Puget Sound and Canada) were small ranging from 0.20 to 4.30%.

DISCUSSION

This study provided the most thorough estimate of the stock composition of any salmonid ocean fishery to date. The baseline data were comprehensive and provided good resolution of stock contributions. However, areas for improvement were revealed during the study which would increase the potential value of future applications of the GSI not only for this fishery but also for a wide range of other stock estimation problems.

Evaluation of GSI Estimates

Evaluation of the GSI estimates is based on precision and accuracy. Precision is the expected degree of agreement among estimates that would be obtained by repeated sampling of the same population, whereas accuracy describes the closeness of an estimate to its true value.

Estimated standard deviations presented are generally conservative measures of precision of the GSI estimates of contribution. In previous Monte Carlo tests (Milner et al. 1981), actual standard deviations were smaller than those calculated with the statistic used in these study results, particularly when associated with small sample sizes and/or very small contributions. Standard deviations for the estimated contributions to the total catch range from less than 1% of the estimate for the major contributing (76.5%) stock group to over 100% for groups contributing at very low levels (< 0.3%). The standard deviations of the three stock groups with 4% or more contribution range from 1 to 26% of their estimates.

Accuracy of estimates of stock contribution is more difficult to evaluate quantitatively than precision. However, a generalized qualitative evaluation may be made through comparison of the GSI estimates with the general conception of stock composition of the ocean troll catch based upon various sources of stock specific information including relative abundance in terminal areas, scale analysis, and information provided by fin clipping and CWT experiments. Wright (1976) has estimated on a composite, average seasonal basis, the contribution of major stock groups to the total Washington troll catch. These estimates along with those of this study are tabulated below:

<u>Stock group</u>	<u>Estimated contribution (%)</u>	
	<u>Wright</u>	<u>GSI</u>
Columbia River (F)	70	81
Columbia River (SP & SU)	10	10
Washington & Oregon coastal	10	3
Puget Sound & Canadian	5	3
California	5	3

Comparison of the two sets of estimates shows that they are in good general agreement. Results from CWT experiments have established that the Columbia River (F) groups' contributions to the 1982 fishery and to terminal returns was above average. Consequently, it is not surprising that the Columbia River (F) groups contributed above the seasonal average to the 1982 harvest.

Comprehensive and representative sampling is a critical factor that determines the reliability of the information obtained using the GSI

method. The set of baseline data used for this study has been scrutinized for its adequacy in representing all major stock groups that are potential contributors. The dependability of these estimates is supported by the Columbia River stock group being both the most comprehensively sampled of all groups included in the set of baseline data and the principal component of the May troll chinook salmon harvest. Baseline data for stock groups outside the Columbia River drainage appeared adequate in representation for their apparently small contribution, but additional sampling of critical management stocks (e.g., Washington coastal) would be desirable for future analysis.

Improvement of the GSI Method

In the future, applications of the GSI method will extend to many new fisheries and to in-season use of the estimates for making regulatory decisions. It is important that this challenging future be met with continued improvement in the method's implementation. Following is a consideration of several recommended improvements.

The method used in this study to sample the mixed fishery was not flexible enough to permit adjustments when unanticipated changes in the fishery occurred during the season. We depended on a limited, pre-arranged set of volunteer vessels to collect hearts and livers at sea. When poor weather and fishing caused much of the fleet to shift to the south, desired sample sizes from the northern areas could not be obtained. The sampling of only a portion of the fleet also resulted in a total sample that was not representative of the area distribution of the catch. Correcting for this deficiency resulted in a reduced sample size.

A more effective method of sampling is to collect tissues in the ports as the fish are sold to buyers. Port sampling allows for greater flexibility in study design and a much better opportunity to reach sample size goals. Sampling rates can be set for the specific segments of the fishery for which estimates are desired (for example, fishing area or gear type), and sampling effort can be adjusted in season in response to fishery dynamics to reach these goals. Proper deployment of samplers would result in a larger sample and one that is more representative of the actual harvest. Tissue collections could also be integrated with ongoing programs of harvest monitoring in the ports.

Application of the GSI method requires selection of the tissue or tissues best suited to the specific circumstances. Because fish caught in coastal commercial fisheries are dressed at sea, port sampling would preclude the use of heart or liver tissues. Those available would include eye, kidney, and muscle. A" example of a very different situation is the harvest of spring chinook salmon in the winter gillnet fishery in the lower Columbia River. Fish caught are dressed in processing plants making visceral tissues the most accessible for sampling. I" planning applications, computer simulations should be used to evaluate the stock identification information provided by protein variants in various tissue combinations in the context of sampling practicality. It follows that the examination of additional tissues beyond those used in this study is important to make the GSI method more versatile.

Another extremely effective improvement is the addition of new genetic loci to the data base. New loci are added by adapting histochemical staining procedures used in biochemical and genetic research involving

other species. The increase in detectable genetic variation through the addition of new loci results in more accurate and precise GSI estimates. This gain is illustrated by the results of a simulation using actual data from Columbia River chinook salmon (Figures 3 and 4). A 60% increase in accuracy was realized by increasing the number of loci from 10 to 25 (Figure 3). Similarly, a 90% increase in precision was obtained by increasing the number of loci from 15 to 25 (Figure 4). The latter result is significant because increased precision means increased reliability of stock composition estimates and/or reduced mixed fishery sample sizes. Smaller sample sizes not only reduces cost but are particularly important when fast information retrieval is required.

The addition of new loci requires much less effort if high quality baseline tissue samples are on hand. Therefore, improved techniques for long term sample storage would greatly reduce the need for repeated baseline sampling, a major initial cost of the GSI method. Other technical achievements relevant to in-season use of the data include more efficient methods for the entry and handling of large quantities of data.

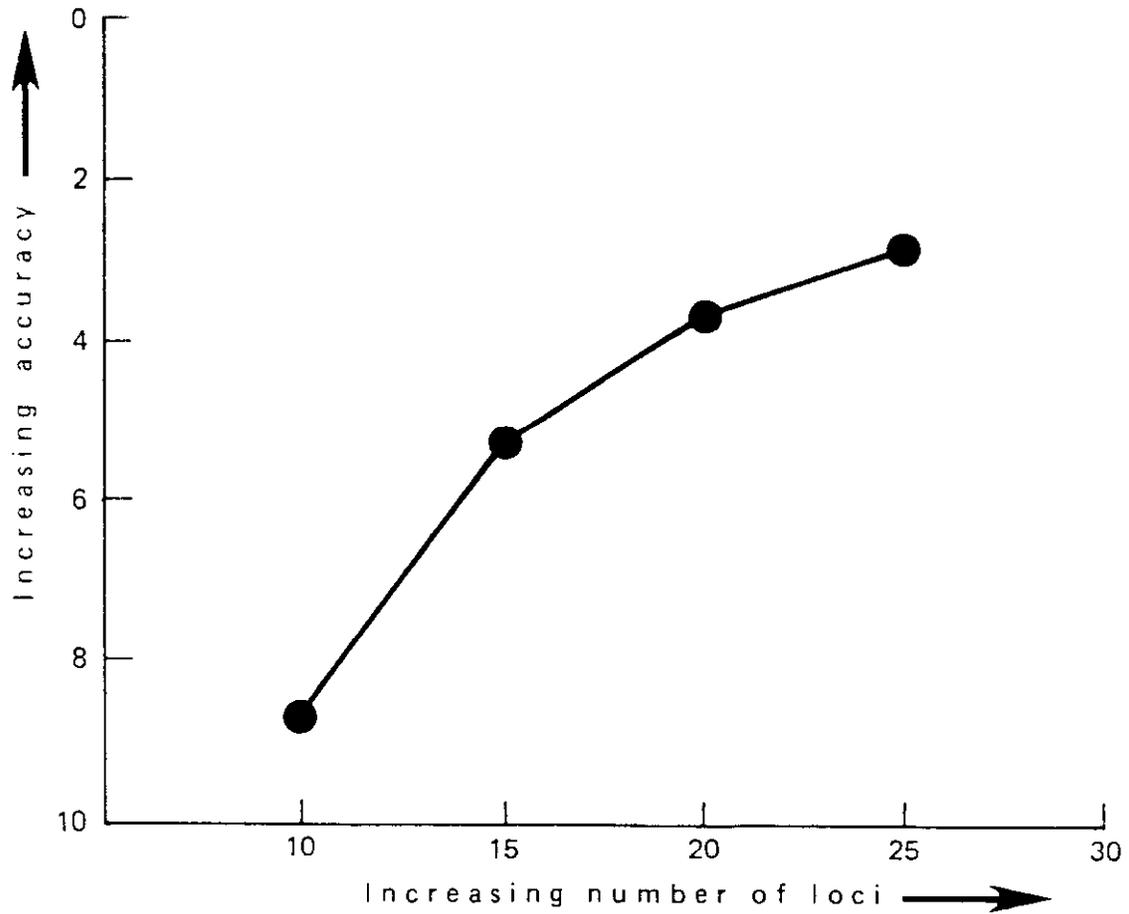


Figure 3.--The relationship between number of loci and accuracy of GSI estimates. Accuracy increases as the number of loci used with the GSI method is increased. Simulation was based on baseline data for 14 stocks and a mixed fishery sample from the 1980 BPA funded test demonstration (Milner et al. 1981). Points represent the deviation (percent) of estimated from actual contribution averaged over stocks and 10 replications.

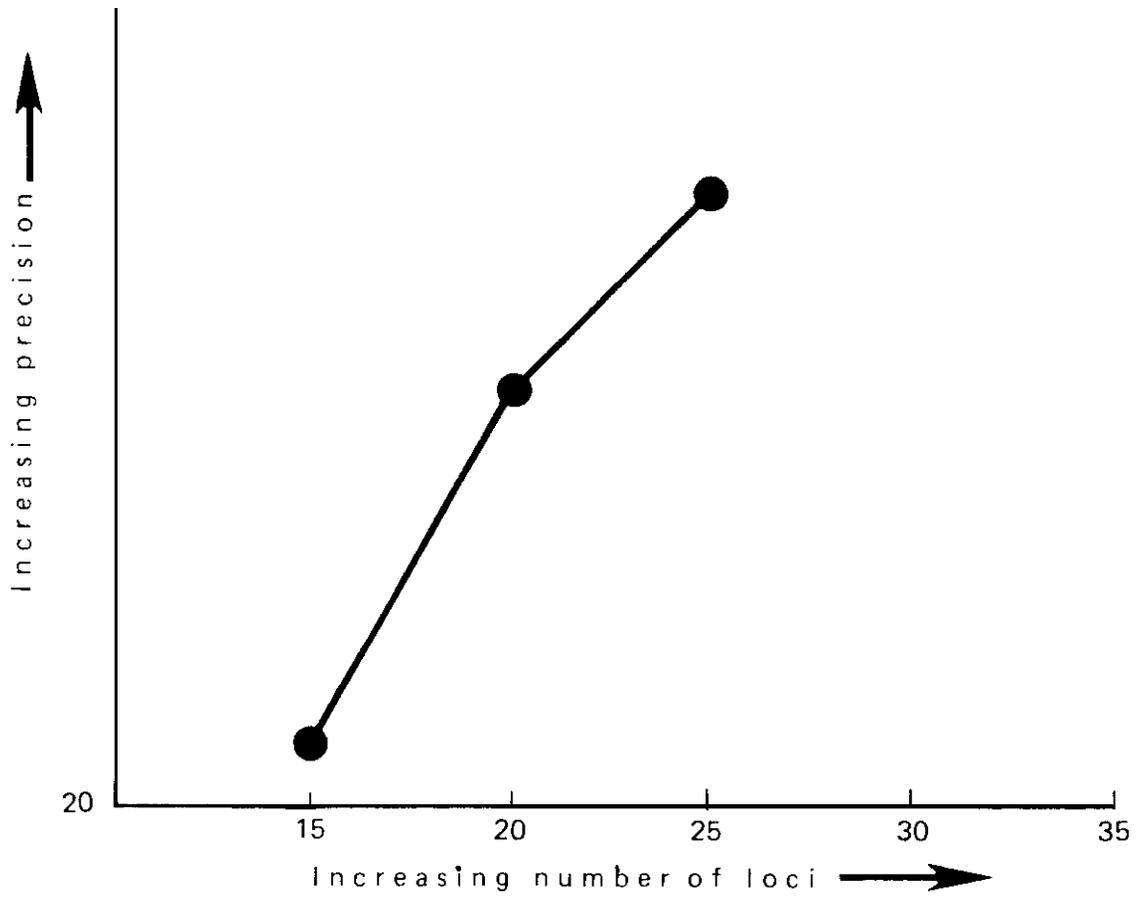


Figure 4.--The relationship between number of loci and precision of GSI estimates.
Source of data is the same as Figure 3.

ACKNOWLEDGMENTS

The authors thank the individuals and agencies who contributed to this study. Agencies which contributed samples for baseline data include: California Department of Fish and Game, Oregon Department of Fish and Wildlife, Washington Department of Fisheries, Idaho Department of Fish and Game, Confederated Tribes of the Warm Springs Reservation of Oregon, U.S. Fish and Wildlife Service, and Fisheries and Oceans of Canada.

Support for this research came from the regions electrical ratepayers through the Bonneville Power Administration.

The mixed fishery samples were collected by volunteer commercial trollers and personnel of the Washington Department of Fisheries ocean sampling program. John Linth and Randy McIntosh of that agency coordinated the collections.

Tissue samples were processed for electrophoresis by Beth Maughlin. Genetic data were collected and processed by Carol Ranck, Paul Aebersold and Stew Grant.

We thank Rich Lincoln, Mark Miller, and Pat Pattillo of the Washington Department of Fisheries for the opportunity to apply the GSI Method to an ocean fishery. They were instrumental in the planning, execution and reporting of the applied phase of this study.

Finally, we thank Dr. Joseph Felsenstein of the University of Washington Department of Genetics for his knowledge, insight and encouragement that were essential for developing the GSI method.

LITERATURE CITED

- Allendorf, F.W. and F.M. Utter.
1979. Population genetics, pp. 407-454. In W.S. Hoar, D.J. Randall, and R. Brett (eds), *Fish Physiology*, Vol.8, Academic Press, New York, N.Y.
- Ceppellini, R., M. Siniscaleo, and C.A.B. Smith.
1955. The estimation of gene frequencies in a random mating population. *Human Genetics*, 20: 97-115.
- Clayton, J. and D.N. Tretiak.
1972. Amino citrate buffer for pH control starch gel eletrophoresis. *J. Fish. Res. Board Can.*, 29: 1169-1172.
- Dempster, A.P., N.M. Laird, and D.B. Rubin.
1977. Maximum likelihood from incomplete data via the EM algorithm. *J. R. Stat. Soc. B. Methodol.*, 39: 1-38.
- Elandt-Johnson, R.C.
1971. Probability models and statistical methods in genetics. John Wiley and Sons, New York, N.Y.
- Grant, W.S., G.B. Milner, P. Kransnowski, and F.M. Utter.
1980. Use of biochemical variants for identification of sockeye salmon (Oncorhynchus nerka) stocks in Cook Inlet, Alaska. *Can. J. Fish. Aquat. Sci.*, 37: 1236-1247.
- Harris, H. and D.A. Hopkinson.
1976. Handbook of enzyme electrophoresis in human genetics. American Elsevier Publ. Co., New York, N.Y.
- Kempthorne, O.
1973. A" introduction to genetic statistics. The Iowa University Press, Ames, Iowa.
- Markert, C.L. and I. Faulhaber.
1965. Lactate dehydrogenase isozyme patterns of fish. *J. Exp. Zool.*, 159: 319-332.
- May, B., J.E. Wright, and M. Stoneking.
1979. Joint segregation of biochemical loci in salmonidae: Results from experiments with Salvelines and review of the literature on other species. *J. Fish. Res. Board Can.*, 36: 1114-1128.
- May, B.P.
1980. The Salmonid Genome: Evolutionary restructuring following a tetraploid event. Pennsylvania State University, PhD thesis.

- Miller, M.P., P. Pattillo, G.B. Milner, and D.J. Teel.
1983. Analysis of chinook stock composition in the May, 1982 troll fishery off the Washington coast: An application of the genetic stock identification method. WDF Technical Report No. 74.
- Milner, G.B.
1977. Biochemical variation: Its use in mixed fishery analysis. Proc. of the Genetic Implications of Steelhead Management Symposium, May 20-21, 1977. Published by Calif. Coop. Fish. Res. Unit, Special Report 77-1. Dec., 1977.
- Milner, G.B. and D.J. Teel.
1979. Columbia River stock identification study: Annual report of research (FY78). NOAA, NWAFC, Seattle, WA 98112.
- Milner, G.B., D.J. Teel and F.M. Utter.
1980. Columbia River stock identification study: Annual report of research (FY79). NOAA, NWAFC, Seattle, WA 98112.
- Milner, G.B., D.J. Teel, F.M. Utter and C.L. Burley.
1981. Columbia River stock identification study: Validation of genetic method: Annual report of research (FY80). NOAA, NWAFC, Seattle, WA 98112.
- Nei, M.
1972. Genetic distance between populations. Amer. Natur., 106: 283-292.
- Northwest Power Planning Council.
1982. Columbia River Basin Fish and Wildlife Program. Northwest Power Planning Council, 700 S.W. Taylor, Portland, OR 97205. November 15, 1982.
- Pacific Fishery Management Council.
1981. Proposed plan for managing the 1981 salmon fisheries off the coast of California, Oregon, and Washington. Pacific Fishery Management Council, Portland, OR 97201.
- Pella, J.J. and T.L. Robertson.
1979. Assessment of composition of stock mixtures. Fishery Bulletin 77(Z): 387-398.
- Ridgway, G.J.
1957. The use of immunological techniques in racial studies. U.S.F.W.S. Spec. sci. Rept.- Fisheries No. 208: 39-43.
- Ridgway, G.J., G.W. Klontz, and R.D. Lewis.
1970. Polymorphisms in the esterases of Atlantic herring. Trans. Amer. Fish. Soc. 99: 147-151.

Utter, F.M., H.O. Hodgins and F.W. Allendorf.

1974. Biochemical Genetic Studies of Fishes: Potentialities and limitations, pp. 213-237. In D.C. Malins and J.R. Sargent (eds), Biochemical and Biophysical Perspectives in Marine Biology, Vol. II, Academic Press, London, New York, and San Francisco.

Washington Department of Fisheries.

1981. Review of 1981 NPFMC preferred options and refinements to the analysis of upper Columbia River "bright" fall chinook salmon management needs and opportunities for 1981. Washington Department of Fisheries, Salmon Harvest Management Division, Olympia, WA 98504.

Wishard, L.N.

1980. Stock identification of Pacific salmon in Western Washington using biochemical genetics. Final report to Washington Department of Fisheries, service contract #1176 and 1276 for the period of 7/79 to 6/80.

Wright, S/G.

1976. Status of Washington's commercial troll fishery in the mid-1970's. Wash. Dept. Fish. Tech. Report No. 21. 50p.

APPENDIX A

CHINOOK SALMON ALLELE FREQUENCIES

LOCUS: ACP

POPULATION	RUN	N	ALLELE FREQUENCIES				
			-100				
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	100	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	100	1.00	0.00	0.00	0.00	0.00
SKAGIT	SU	0	0.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	96	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	0	0.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	0	0.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	0	0.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	194	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	100	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	100	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	100	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	0	0.00	0.00	0.00	0.00	0.00
TRASK	SP	0	0.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	100	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	100	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	300	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	100	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	90	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	100	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	100	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	98	1.00	0.00	0.00	0.00	0.00

LOCUS: ACP

CONTINUED

TRINITY	F	100	1.00	0.00	0.00	0.00	0.00
CHETCO	F	100	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	0	0.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	0	0.00	0.00	0.00	0.00	0.00
FALL CREEK	F	100	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	100	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	94	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	100	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	182	1.00	0.00	0.00	0.00	0.00
NASELLE	F	100	1.00	0.00	0.00	0.00	0.00
NEMAH	F	0	0.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	100	1.00	0.00	0.00	0.00	0.00
QUEETS	F	100	1.00	0.00	0.00	0.00	0.00
HON	F	0	0.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	0	0.00	0.00	0.00	0.00	0.00
ELWHA	F	0	0.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	0	0.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	100	1.00	0.00	0.00	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	0	0.00	0.00	0.00	0.00	0.00
QUINSAM	F	0	0.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	80	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: ACON 2

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	86	116	108	69
WELLS	SU	100	0.80	0.20	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	106	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	194	0.96	0.04	0.01	0.00	0.00
SKYKOMISH	SU	200	0.86	0.14	0.01	0.00	0.00
SKAGIT	SU	198	0.84	0.16	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	96	0.84	0.15	0.01	0.00	0.00
CHILCO RIV FRASER	SP	72	0.85	0.15	0.00	0.00	0.00
STUART RIV FRASER	SP	100	0.81	0.17	0.02	0.00	0.00
COWLITZ	SP	74	0.74	0.22	0.04	0.00	0.00
KALAMA	SP	98	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	96	0.99	0.01	0.00	0.00	0.00
MCKENZIE	SP	100	0.93	0.07	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	114	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	0.97	0.02	0.01	0.00	0.00
WARMSPRINGS	SP	100	0.92	0.07	0.01	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	0.98	0.02	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	0.72	0.24	0.04	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	0.95	0.05	0.00	0.00	0.00
FEATHER	SP	200	0.89	0.11	0.01	0.00	0.00
TRINITY	SP	196	0.76	0.09	0.04	0.01	0.11
COLE RIVERS	SP	200	0.74	0.11	0.02	0.02	0.12
ROCK CREEK	SP	198	0.85	0.15	0.00	0.00	0.00
CEDAR CREEK	SP	182	0.81	0.17	0.02	0.01	0.00
TRASK	SP	84	0.79	0.21	0.00	0.00	0.00
SOLEDUCK	SP	90	0.92	0.08	0.00	0.00	0.00
NOOKSACK	SP	100	0.96	0.04	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	182	0.82	0.17	0.02	0.00	0.00
KALAMA	F	100	0.92	0.07	0.01	0.00	0.00
LEWIS	F	100	0.80	0.20	0.00	0.00	0.00
WASHOUGAL	F	100	0.85	0.12	0.03	0.00	0.00
LITTLE WHITE SALMON	F	100	0.98	0.02	0.00	0.00	0.00
SPRING CREEK	F	100	0.99	0.01	0.00	0.00	0.00
DESCHUTES	F	98	0.87	0.10	0.03	0.00	0.00
PRIEST RAPIDS	F	194	0.83	0.17	0.00	0.00	0.00
ICE HARBOR	F	398	0.87	0.11	0.00	0.01	0.00
COLEMAN LATE	F	198	0.84	0.15	0.02	0.00	0.00
MOKELUMNE	F	184	0.82	0.18	0.00	0.01	0.00
NIMBUS	F	192	0.81	0.18	0.00	0.02	0.00
FEATHER	F	200	0.78	0.21	0.01	0.00	0.00
COLEMAN BATTLE	F	200	0.80	0.20	0.01	0.00	0.00
IRON GATE	F	194	1.00	0.00	0.00	0.01	0.00

LOCUS: ACON 2 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	0.89	0.11	0.00	0.00	0.00
ELK	F	200	0.80	0.19	0.02	0.00	0.00
SIXES ESTUARY	F	200	0.85	0.11	0.04	0.01	0.00
COQUILLE ESTUARY	F	230	0.88	0.11	0.00	0.00	0.00
SUISLAW BAY	F	162	0.79	0.14	0.05	0.01	0.02
ALSEA BAY	F	188	0.77	0.11	0.11	0.00	0.02
FALL CREEK	F	200	0.83	0.02	0.16	0.00	0.00
SILETZ ESTUARY	F	184	0.83	0.04	0.10	0.01	0.01
SALMON	F	198	0.74	0.08	0.15	0.04	0.00
NESTUCCA BAY	F	120	0.83	0.08	0.08	0.00	0.03
CEDAR CREEK	F	200	0.61	0.22	0.12	0.00	0.06
TRASK	F	194	0.70	0.18	0.11	0.00	0.01
TILLAMOOK BAY	F	176	0.76	0.10	0.12	0.01	0.02
NEHALEM ESTUARY	F	254	0.69	0.24	0.08	0.00	0.00
NASELLE	F	196	0.91	0.09	0.00	0.00	0.00
NEMAH	F	196	0.93	0.07	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	0.92	0.08	0.00	0.00	0.00
QUINAULT	F	200	0.92	0.08	0.00	0.00	0.00
QUEETS	F	218	0.96	0.03	0.01	0.00	0.00
HOH	F	200	0.93	0.04	0.03	0.00	0.00
SOLEDUCK	F	98	0.84	0.13	0.03	0.00	0.00
ELWHA	F	200	0.92	0.08	0.00	0.00	0.00
HOOD CANAL	F	194	0.92	0.08	0.01	0.00	0.00
DESCHUTES	F	298	0.84	0.16	0.00	0.00	0.00
GREEN RIVER	F	198	0.89	0.11	0.00	0.00	0.00
SAMISH	F	100	0.93	0.07	0.00	0.00	0.00
BIG QUALICUM	F	142	0.84	0.16	0.00	0.00	0.00
PUNTLIDGE	F	200	0.61	0.39	0.00	0.00	0.00
QUINSAM	F	194	0.37	0.63	0.01	0.00	0.00
ROBERTSON CREEK	F	196	0.81	0.19	0.00	0.00	0.00
SAN JUAN	F	100	0.82	0.16	0.00	0.02	0.00
CAPILANO	F	186	0.76	0.24	0.00	0.00	0.00

LOCUS: ADA 1

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	83			
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	0.90	0.10	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	200	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	0.87	0.14	0.00	0.00	0.00
SKAGIT	SU	194	0.96	0.04	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	0.96	0.04	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	0.99	0.01	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	0.97	0.03	0.00	0.00	0.00
EAGLE CRK	SP	94	0.97	0.03	0.00	0.00	0.00
MCKENZIE	SP	100	0.98	0.02	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	96	0.97	0.03	0.00	0.00	0.00
WARMSPRINGS	SP	258	0.97	0.03	0.00	0.00	0.00
ROUND BUTTE	SP	80	0.98	0.03	0.00	0.00	0.00
ICICLE	SP	96	0.97	0.03	0.00	0.00	0.00
METHOW	SP	100	0.98	0.02	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	0.93	0.07	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	198	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	200	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.01	0.00	0.00	0.00
CEDAR CREEK	SP	0	0.00	0.00	0.00	0.00	0.00
TRASK	SP	90	0.90	0.10	0.00	0.00	0.00
SOLEDUCK	SP	98	0.97	0.03	0.00	0.00	0.00
NOOKSACK	SP	100	0.90	0.10	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	0.99	0.01	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	0.98	0.02	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	0.99	0.01	0.00	0.00	0.00
PRIEST RAPIDS	F	200	0.99	0.02	0.00	0.00	0.00
ICE HARBOR	F	400	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	178	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	200	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	196	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: ADA 1 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	0.99	0.01	0.00	0.00	0.00
ELK	F	200	0.95	0.05	0.00	0.00	0.00
SIXES ESTUARY	F	200	0.99	0.02	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	0.97	0.04	0.00	0.00	0.00
SUISLAW BAY	F	164	0.98	0.02	0.00	0.00	0.00
ALSEA BAY	F	188	0.99	0.01	0.00	0.00	0.00
FALL CREEK	F	200	0.99	0.02	0.00	0.00	0.00
SILETZ ESTUARY	F	184	0.94	0.06	0.00	0.00	0.00
SALMON	F	198	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	0.96	0.04	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.01	0.00	0.00	0.00
TRASK	F	192	0.95	0.05	0.00	0.00	0.00
TILLAMOOK BAY	F	176	0.99	0.01	0.00	0.00	0.00
NEHALEM ESTUARY	F	254	0.98	0.02	0.00	0.00	0.00
NASELLE	F	198	0.98	0.02	0.00	0.00	0.00
NEMAH	F	350	0.98	0.02	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	200	0.99	0.02	0.00	0.00	0.00
QUEETS	F	200	0.99	0.02	0.00	0.00	0.00
HOH	F	200	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	200	0.98	0.02	0.00	0.00	0.00
HOOD CANAL	F	196	0.90	0.10	0.00	0.00	0.00
DESCHUTES	F	300	0.95	0.05	0.00	0.00	0.00
GREEN RIVER	F	196	0.98	0.02	0.00	0.00	0.00
SAMISH	F	100	0.96	0.04	0.00	0.00	0.00
BIG QUALICUM	F	170	0.95	0.05	0.00	0.00	0.00
PUNTLEDGE	F	200	0.98	0.03	0.00	0.00	0.00
QUINSAM	F	194	1.00	0.01	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	0.91	0.09	0.00	0.00	0.00

LOCUS: ADA 2

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	105			
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	0	0.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	0	0.00	0.00	0.00	0.00	0.00
SKAGIT	SU	0	0.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	92	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	0	0.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	0	0.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	0	0.00	0.00	0.00	0.00	0.00
FEATHER	SP	0	0.00	0.00	0.00	0.00	0.00
TRINITY	SP	0	0.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	0	0.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	0	0.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	0	0.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	400	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	0	0.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	0	0.00	0.00	0.00	0.00	0.00
NIMBUS	F	0	0.00	0.00	0.00	0.00	0.00
FEATHER	F	0	0.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	0	0.00	0.00	0.00	0.00	0.00
IRON GATE	F	0	0.00	0.00	0.00	0.00	0.00

LOCUS: ADA 2 CONTINUED

TRINITY	F	0	0.00	0.00	0.00	0.00	0.00
CHETCO	F	0	0.00	0.00	0.00	0.00	0.00
ELK	F	0	0.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	0	0.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	0	0.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	0	0.00	0.00	0.00	0.00	0.00
TRASK	F	0	0.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	260	1.00	0.00	0.00	0.00	0.00
NASELLE	F	0	0.00	0.00	0.00	0.00	0.00
NEMAH	F	0	0.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	0.99	0.01	0.00	0.00	0.00
QUINAULT	F	0	0.00	0.00	0.00	0.00	0.00
QUEETS	F	0	0.00	0.00	0.00	0.00	0.00
HOH	F	100	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	100	0.99	0.01	0.00	0.00	0.00
ELWHA	F	0	0.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	0	0.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	0	0.00	0.00	0.00	0.00	0.00
SAMISH	F	100	0.96	0.04	0.00	0.00	0.00
BIG QUALICUM	F	0	0.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	0	0.00	0.00	0.00	0.00	0.00
QUINSAM	F	0	0.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	0	0.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	0	0.00	0.00	0.00	0.00	0.00

LOCUS: ADH

POPULATION	RUN	N	ALLELE FREQUENCIES				
			-100	-52			
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	200	0.97	0.03	0.00	0.00	0.00
SKYKOMISH	SU	200	1.00	0.00	0.00	0.00	0.00
SKAGIT	SU	196	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	0	0.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	0	0.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	96	0.99	0.01	0.00	0.00	0.00
COWLITZ	SP	0	0.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	0	0.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	0	0.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	0	0.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	0	0.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	258	0.98	0.02	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	198	0.98	0.03	0.00	0.00	0.00
TRINITY	SP	198	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	200	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	0.99	0.02	0.00	0.00	0.00
CEDAR CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
TRASK	SP	0	0.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	0	0.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	0	0.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	0.86	0.14	0.00	0.00	0.00
COWLITZ	F	98	0.97	0.03	0.00	0.00	0.00
KALAMA	F	100	0.86	0.14	0.00	0.00	0.00
LEWIS	F	100	0.99	0.01	0.00	0.00	0.00
WASHOUGAL	F	100	0.94	0.06	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	0.87	0.13	0.00	0.00	0.00
SPRING CREEK	F	100	0.80	0.20	0.00	0.00	0.00
DESCHUTES	F	82	0.84	0.16	0.00	0.00	0.00
PRIEST RAPIDS	F	0	0.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	0	0.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	200	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	200	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: ADH

CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	0.99	0.01	0.00	0.00	0.00
SUISLAW BAY	F	164	0.99	0.01	0.00	0.00	0.00
ALSEA BAY	F	188	0.98	0.02	0.00	0.00	0.00
FALL CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	0.98	0.02	0.00	0.00	0.00
SALMON	F	198	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	194	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	0.99	0.01	0.00	0.00	0.00
NEHALEM ESTUARY	F	254	1.00	0.00	0.00	0.00	0.00
NASELLE	F	198	1.00	0.00	0.00	0.00	0.00
NEMAH	F	350	0.99	0.01	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	194	0.98	0.02	0.00	0.00	0.00
QUEETS	F	240	0.96	0.04	0.00	0.00	0.00
H0H	F	200	0.96	0.04	0.00	0.00	0.00
SOLEDUCK	F	100	0.99	0.01	0.00	0.00	0.00
ELWHA	F	200	0.99	0.02	0.00	0.00	0.00
HOOD CANAL	F	196	0.99	0.01	0.00	0.00	0.00
DESCHUTES	F	280	0.99	0.01	0.00	0.00	0.00
GREEN RIVER	F	198	1.00	0.01	0.00	0.00	0.00
SAMISH	F	100	0.99	0.01	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	100	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	140	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	196	0.99	0.01	0.00	0.00	0.00

LOCUS: CK 1

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100				113
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	100	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	0	0.00	0.00	0.00	0.00	0.00
SKAGIT	SU	100	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	98	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	0	0.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	0.99	0.00	0.00	0.00	0.01
KLICKITAT	SP	94	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	100	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	0.95	0.00	0.00	0.00	0.05
ICICLE	SP	100	0.97	0.00	0.00	0.00	0.03
METHOW	SP	100	0.89	0.00	0.00	0.00	0.11
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	94	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	100	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	100	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	100	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	0	0.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	300	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	100	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	100	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	100	1.00	0.00	0.00	0.00	0.00
FEATHER	F	100	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	98	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	98	1.00	0.00	0.00	0.00	0.00

LOCUS: CK 1

CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	100	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	100	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	100	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	0.99	0.00	0.00	0.01	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	94	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	208	1.00	0.00	0.00	0.00	0.00
NASELLE	F	100	1.00	0.00	0.00	0.00	0.00
NEMAH	F	300	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	0	0.00	0.00	0.00	0.00	0.00
QUEETS	F	236	1.00	0.00	0.00	0.00	0.00
HOH	F	100	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	100	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	300	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	100	1.00	0.00	0.00	0.00	0.00
SAMISH	F	0	0.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	0	0.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	100	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	0	0.00	0.00	0.00	0.00	0.00

LOCUS: CK 2

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	69			
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	100	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	0	0.00	0.00	0.00	0.00	0.00
SKAGIT	SU	100	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	98	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	0	0.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	94	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	100	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	94	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	100	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	100	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	100	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	0	0.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	300	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	100	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	100	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	100	1.00	0.00	0.00	0.00	0.00
FEATHER	F	100	0.98	0.02	0.00	0.00	0.00
COLEMAN BATTLE	F	98	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	98	1.00	0.00	0.00	0.00	0.00

LOCUS: CK 2

CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	100	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	0.99	0.01	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	100	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	100	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	94	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	208	1.00	0.00	0.00	0.00	0.00
NASELLE	F	100	1.00	0.00	0.00	0.00	0.00
NEMAH	F	300	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	0	0.00	0.00	0.00	0.00	0.00
QUEETS	F	236	1.00	0.00	0.00	0.00	0.00
HOH	F	100	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	100	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	300	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	100	0.98	0.02	0.00	0.00	0.00
SAMISH	F	0	0.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	0	0.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	100	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	0	0.00	0.00	0.00	0.00	0.00

LOCUS: GPI 1

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	60			
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	200	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	1.00	0.00	0.00	0.00	0.00
SKAGIT	SU	200	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	96	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	98	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	0	0.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	98	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	106	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	98	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	258	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	198	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	200	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	190	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
FRIEST RAPIDS	F	194	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	396	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	200	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	198	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: GPI 1 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	198	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	194	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	254	1.00	0.00	0.00	0.00	0.00
NASELLE	F	198	1.00	0.00	0.00	0.00	0.00
NEMAH	F	350	0.99	0.01	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	200	1.00	0.01	0.00	0.00	0.00
QUEETS	F	240	1.00	0.00	0.00	0.00	0.00
HØH	F	200	0.98	0.02	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	200	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	300	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	198	1.00	0.00	0.00	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	194	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: GPI 2

POPULATION	RUN	N	ALLELE FREQUENCIES			
			100	60	105	30
WELLS	SU	100	1.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00
SOLEDUCK	SU	200	0.85	0.15	0.00	0.00
SKYKOMISH	SU	200	1.00	0.00	0.00	0.00
SKAGIT	SU	200	1.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	74	1.00	0.00	0.00	0.00
STUART RIV FRASER	SP	98	1.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00
EAGLE CRK	SP	0	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00
WIND	SP	98	1.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	106	1.00	0.00	0.00	0.00
KLICKITAT	SP	98	1.00	0.00	0.00	0.00
WARMSPRINGS	SP	258	1.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00
RAPID RIVER	SP	100	0.98	0.02	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	0.98	0.02	0.00	0.00
FEATHER	SP	200	0.94	0.06	0.00	0.00
TRINITY	SP	198	0.91	0.09	0.00	0.00
COLE RIVERS	SP	200	0.80	0.20	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00
CEDAR CREEK	SP	192	1.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00
COWLITZ	F	198	1.00	0.00	0.00	0.00
KALAMA	F	100	0.98	0.02	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00
PRIEST RAPIDS	F	194	1.00	0.00	0.00	0.00
ICE HARBOR	F	396	1.00	0.01	0.00	0.00
COLEMAN LATE	F	200	0.99	0.01	0.00	0.00
MOKELUMNE	F	190	0.97	0.02	0.01	0.00
NIMBUS	F	200	1.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00
COLEMAN BATTLE	F	198	1.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00

LOCUS: GPI 2 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	0.96	0.03	0.02	0.00	0.00
ELK	F	200	0.77	0.23	0.00	0.00	0.00
SIXES ESTUARY	F	200	0.68	0.32	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	0.69	0.31	0.00	0.00	0.00
SUISLAW BAY	F	164	0.79	0.21	0.00	0.00	0.00
ALSEA BAY	F	188	0.75	0.25	0.00	0.00	0.00
FALL CREEK	F	200	0.77	0.23	0.00	0.00	0.00
SILETZ ESTUARY	F	184	0.79	0.21	0.00	0.00	0.00
SALMON	F	198	0.90	0.10	0.00	0.00	0.00
NESTUCCA BAY	F	118	0.80	0.20	0.00	0.00	0.00
CEDAR CREEK	F	198	0.68	0.32	0.00	0.00	0.00
TRASK	F	194	0.66	0.34	0.00	0.00	0.00
TILLAMOOK BAY	F	176	0.71	0.30	0.00	0.00	0.00
NEHALEM ESTUARY	F	254	0.95	0.05	0.00	0.00	0.00
NASELLE	F	198	0.94	0.05	0.00	0.02	0.00
NEMAH	F	350	0.89	0.11	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	0.93	0.06	0.00	0.01	0.00
QUINAULT	F	200	0.91	0.09	0.00	0.00	0.00
QUEETS	F	240	0.89	0.11	0.00	0.00	0.00
HOH	F	200	0.79	0.21	0.00	0.00	0.00
SOLEDUCK	F	100	0.80	0.20	0.00	0.00	0.00
ELWHA	F	200	0.90	0.10	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	300	0.99	0.01	0.00	0.00	0.00
GREEN RIVER	F	198	1.00	0.00	0.00	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
FUNTLEDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	194	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	0.71	0.29	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: GPI 3

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	105	93		
WELLS	SU	100	0.97	0.03	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	200	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	0.96	0.05	0.00	0.00	0.00
SKAGIT	SU	200	1.00	0.01	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	80	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	98	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	88	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	98	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	98	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	258	0.98	0.02	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	198	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	200	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	200	0.91	0.09	0.00	0.00	0.00
TRASK	SP	90	0.99	0.01	0.00	0.00	0.00
SOLEDUCK	SP	96	0.88	0.13	0.00	0.00	0.00
NOOKSACK	SP	100	0.92	0.08	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	96	0.99	0.00	0.01	0.00	0.00
PRIEST RAPIDS	F	194	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	394	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	200	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	198	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: GPI 3 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	0.99	0.01	0.00	0.00	0.00
SUISLAW BAY	F	164	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.01	0.00	0.00	0.00
FALL CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.01	0.00	0.00	0.00
SALMON	F	198	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	194	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	254	1.00	0.00	0.00	0.00	0.00
NASELLE	F	198	1.00	0.00	0.00	0.00	0.00
NEMAH	F	350	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	0.97	0.00	0.03	0.00	0.00
QUINAULT	F	200	0.98	0.02	0.00	0.00	0.00
QUEETS	F	240	1.00	0.00	0.00	0.00	0.00
HOH	F	200	1.00	0.01	0.00	0.00	0.00
SOLEDUCK	F	100	0.98	0.02	0.00	0.00	0.00
ELWHA	F	200	0.98	0.03	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	300	0.99	0.01	0.00	0.00	0.00
GREEN RIVER	F	198	0.99	0.01	0.01	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	200	1.00	0.01	0.00	0.00	0.00
QUINSAM	F	194	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: 60T1,2

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	85	105		
WELLS	SU	200	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	200	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	224	0.96	0.04	0.00	0.00	0.00
SOLEDUCK	SU	396	0.93	0.07	0.00	0.00	0.00
SKYKOMISH	SU	396	0.98	0.02	0.00	0.00	0.00
SKAGIT	SU	388	0.99	0.02	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	180	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	164	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	124	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	164	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	192	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	184	1.00	0.01	0.00	0.00	0.00
WIND	SP	124	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	132	0.99	0.01	0.00	0.00	0.00
KLICKITAT	SP	188	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	0	0.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	160	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	200	1.00	0.00	0.00	0.00	0.00
METHOW	SP	200	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	88	0.98	0.02	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	200	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	200	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	452	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	400	0.99	0.01	0.00	0.00	0.00
TRINITY	SP	392	0.99	0.01	0.00	0.00	0.00
COLE RIVERS	SP	400	0.98	0.02	0.00	0.00	0.00
ROCK CREEK	SP	400	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	0	0.00	0.00	0.00	0.00	0.00
TRASK	SP	180	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	184	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	200	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	200	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	332	1.00	0.00	0.00	0.00	0.00
KALAMA	F	200	1.00	0.00	0.00	0.00	0.00
LEWIS	F	200	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	200	1.00	0.01	0.00	0.00	0.00
LITTLE WHITE SALMON	F	200	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	200	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	192	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	60	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	604	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	400	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	376	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	400	0.98	0.02	0.00	0.00	0.00
FEATHER	F	400	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	224	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	396	1.00	0.00	0.00	0.00	0.00

LOCUS: GOT1,2 CONTINUED

TRINITY	F	400	1.00	0.00	0.00	0.00	0.00
CHETCO	F	400	0.99	0.01	0.00	0.00	0.00
ELK	F	400	0.95	0.05	0.00	0.00	0.00
SIXES ESTUARY	F	188	0.97	0.03	0.00	0.00	0.00
COQUILLE ESTUARY	F	448	0.95	0.05	0.00	0.00	0.00
SUISLAW BAY	F	268	0.96	0.04	0.00	0.00	0.00
ALSEA BAY	F	176	0.97	0.03	0.00	0.00	0.00
FALL CREEK	F	400	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	368	0.96	0.04	0.00	0.00	0.00
SALMON	F	396	0.99	0.01	0.00	0.00	0.00
NESTUCCA BAY	F	240	0.98	0.03	0.00	0.00	0.00
CEDAR CREEK	F	396	0.94	0.06	0.00	0.00	0.00
TRASK	F	388	0.99	0.01	0.00	0.00	0.00
TILLAMOOK BAY	F	352	0.99	0.01	0.00	0.00	0.00
NEHALEM ESTUARY	F	488	0.99	0.01	0.00	0.00	0.00
NASELLE	F	396	0.97	0.04	0.00	0.00	0.00
NEMAH	F	0	0.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	200	0.98	0.03	0.00	0.00	0.00
QUINAULT	F	280	0.98	0.03	0.00	0.00	0.00
QUEETS	F	352	0.99	0.00	0.01	0.00	0.00
HON	F	340	0.99	0.01	0.00	0.00	0.00
SOLEDUCK	F	200	1.00	0.00	0.00	0.00	0.00
ELWHA	F	380	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	188	0.89	0.11	0.00	0.00	0.00
DESCHUTES	F	400	0.91	0.09	0.00	0.00	0.00
GREEN RIVER	F	392	0.97	0.03	0.00	0.00	0.00
SAMISH	F	200	0.96	0.04	0.00	0.00	0.00
BIG QUALICUM	F	340	1.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	200	0.99	0.01	0.00	0.00	0.00
QUINSAM	F	384	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	324	0.98	0.02	0.00	0.00	0.00
SAN JUAN	F	0	0.00	0.00	0.00	0.00	0.00
CAPILANO	F	396	0.97	0.03	0.00	0.00	0.00

LOCUS: GOT 3

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	90			
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	196	1.00	0.01	0.00	0.00	0.00
SKYKOMISH	SU	184	0.97	0.03	0.00	0.00	0.00
SKAGIT	SU	196	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	80	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	80	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	64	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	70	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	62	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	98	1.00	0.00	0.00	0.00	0.00
WIND	SP	86	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	72	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	100	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	222	0.96	0.04	0.00	0.00	0.00
FEATHER	SP	200	0.96	0.03	0.00	0.00	0.00
TRINITY	SP	198	1.00	0.01	0.00	0.00	0.00
COLE RIVERS	SP	200	1.00	0.01	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.01	0.00	0.00	0.00
CEDAR CREEK	SP	168	0.98	0.02	0.00	0.00	0.00
TRASK	SP	84	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	94	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	94	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	136	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	92	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	94	0.99	0.01	0.00	0.00	0.00
PRIEST RAPIDS	F	30	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	276	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	200	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	100	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: GOT 3 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	198	1.00	0.01	0.00	0.00	0.00
NESTUCCA BAY	F	120	0.99	0.01	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.01	0.00	0.00	0.00
TRASK	F	194	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	252	0.98	0.02	0.00	0.00	0.00
NASELLE	F	198	1.00	0.00	0.00	0.00	0.00
NEMAH	F	0	0.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	196	1.00	0.00	0.00	0.00	0.00
QUEETS	F	240	1.00	0.00	0.00	0.00	0.00
HON	F	196	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	194	0.98	0.02	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.01	0.00	0.00	0.00
DESCHUTES	F	284	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	198	1.00	0.00	0.00	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	0.83	0.17	0.00	0.00	0.00
PUNTLIDGE	F	200	0.74	0.27	0.00	0.00	0.00
QUINSAM	F	148	0.83	0.17	0.00	0.00	0.00
ROBERTSON CREEK	F	148	0.91	0.09	0.00	0.00	0.00
SAN JUAN	F	98	0.99	0.01	0.00	0.00	0.00
CAPILANO	F	198	0.80	0.20	0.00	0.00	0.00

LOCUS: GPD 1

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100				
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	0	0.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	192	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	1.00	0.00	0.00	0.00	0.00
SKAGIT	SU	100	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	90	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	200	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	0	0.00	0.00	0.00	0.00	0.00
ICICLE	SP	0	0.00	0.00	0.00	0.00	0.00
METHOW	SP	0	0.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	100	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	100	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	100	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	0	0.00	0.00	0.00	0.00	0.00
COWLITZ	F	98	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	0	0.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	300	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	100	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	100	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	98	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	98	1.00	0.00	0.00	0.00	0.00

LOCUS: GPD 1 CONTINUED

TRINITY	F	100	1.00	0.00	0.00	0.00	0.00
CHETCO	F	100	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	100	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	100	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	0	0.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	100	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	100	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	100	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	94	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	208	1.00	0.00	0.00	0.00	0.00
NASELLE	F	100	1.00	0.00	0.00	0.00	0.00
NEMAH	F	342	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	0	0.00	0.00	0.00	0.00	0.00
QUINAULT	F	200	1.00	0.00	0.00	0.00	0.00
QUEETS	F	200	1.00	0.00	0.00	0.00	0.00
HOH	F	96	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	0	0.00	0.00	0.00	0.00	0.00
ELWHA	F	200	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	300	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	100	1.00	0.00	0.00	0.00	0.00
SAMISH	F	0	0.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	194	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: GPD 2

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100				
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	0	0.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	192	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	1.00	0.00	0.00	0.00	0.00
SKABIT	SU	100	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	90	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	182	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	0	0.00	0.00	0.00	0.00	0.00
ICICLE	SP	0	0.00	0.00	0.00	0.00	0.00
METHOW	SP	0	0.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	100	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	100	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	100	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	0	0.00	0.00	0.00	0.00	0.00
COWLITZ	F	98	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	0	0.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	300	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	100	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	100	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	98	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	98	1.00	0.00	0.00	0.00	0.00

LOCUS: GPD 2 CONTINUED

TRINITY	F	100	1.00	0.00	0.00	0.00	0.00
CHETCO	F	100	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	100	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	100	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	0	0.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	100	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	100	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	100	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	94	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	208	1.00	0.00	0.00	0.00	0.00
NASELLE	F	100	1.00	0.00	0.00	0.00	0.00
NEMAH	F	330	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	0	0.00	0.00	0.00	0.00	0.00
QUINAULT	F	200	1.00	0.00	0.00	0.00	0.00
QUEETS	F	200	1.00	0.00	0.00	0.00	0.00
HQH	F	94	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	0	0.00	0.00	0.00	0.00	0.00
ELWHA	F	200	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	300	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	100	1.00	0.00	0.00	0.00	0.00
SAMISH	F	0	0.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	194	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: GPD 3

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100				
WELLS	SU	0	0.00	0.00	0.00	0.00	0.00
MCCALL	SU	0	0.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	92	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	0	0.00	0.00	0.00	0.00	0.00
SKAGIT	SU	0	0.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	0	0.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	0	0.00	0.00	0.00	0.00	0.00
COWLITZ	SP	56	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	0	0.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	0	0.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	0	0.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	0	0.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	0	0.00	0.00	0.00	0.00	0.00
ICICLE	SP	0	0.00	0.00	0.00	0.00	0.00
METHOW	SP	0	0.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	0	0.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	0	0.00	0.00	0.00	0.00	0.00
FEATHER	SP	0	0.00	0.00	0.00	0.00	0.00
TRINITY	SP	100	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	100	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
TRASK	SP	0	0.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	0	0.00	0.00	0.00	0.00	0.00
COWLITZ	F	98	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	0	0.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	0	0.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	300	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	100	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	0	0.00	0.00	0.00	0.00	0.00
NIMBUS	F	0	0.00	0.00	0.00	0.00	0.00
FEATHER	F	0	0.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	0	0.00	0.00	0.00	0.00	0.00
IRON GATE	F	98	1.00	0.00	0.00	0.00	0.00

LOCUS: GPD 3 CONTINUED

TRINITY	F	100	1.00	0.00	0.00	0.00	0.00
CHETCO	F	100	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	0	0.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	100	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	0	0.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	0	0.00	0.00	0.00	0.00	0.00
FALL CREEK	F	100	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	100	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	100	1.00	0.00	0.00	0.00	0.00
TRASK	F	94	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	208	1.00	0.00	0.00	0.00	0.00
NABELLE	F	100	1.00	0.00	0.00	0.00	0.00
NEMAH	F	0	0.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	0	0.00	0.00	0.00	0.00	0.00
QUINAULT	F	0	0.00	0.00	0.00	0.00	0.00
QUEETS	F	100	1.00	0.00	0.00	0.00	0.00
HOH	F	0	0.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	0	0.00	0.00	0.00	0.00	0.00
ELWHA	F	0	0.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	0	0.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	0	0.00	0.00	0.00	0.00	0.00
SAMISH	F	0	0.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	0	0.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	0	0.00	0.00	0.00	0.00	0.00
QUINSAM	F	100	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	0	0.00	0.00	0.00	0.00	0.00

LOCUS: GPD 4

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100				
WELLS	SU	0	0.00	0.00	0.00	0.00	0.00
MCCALL	SU	0	0.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	92	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	0	0.00	0.00	0.00	0.00	0.00
SKAGIT	SU	0	0.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	0	0.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	0	0.00	0.00	0.00	0.00	0.00
COWLITZ	SP	56	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	0	0.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	0	0.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	0	0.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	0	0.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	0	0.00	0.00	0.00	0.00	0.00
ICICLE	SP	0	0.00	0.00	0.00	0.00	0.00
METHOW	SP	0	0.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	0	0.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	0	0.00	0.00	0.00	0.00	0.00
FEATHER	SP	0	0.00	0.00	0.00	0.00	0.00
TRINITY	SP	100	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	100	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	100	1.00	0.00	0.00	0.00	0.00
TRASK	SP	0	0.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	0	0.00	0.00	0.00	0.00	0.00
COWLITZ	F	98	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	0	0.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	0	0.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	300	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	100	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	0	0.00	0.00	0.00	0.00	0.00
NIMBUS	F	0	0.00	0.00	0.00	0.00	0.00
FEATHER	F	0	0.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	0	0.00	0.00	0.00	0.00	0.00
IRON GATE	F	98	1.00	0.00	0.00	0.00	0.00

LOCUS: GPD 4 CONTINUED

TRINITY	F	100	1.00	0.00	0.00	0.00	0.00
CHETCO	F	100	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	0	0.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	100	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	0	0.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	0	0.00	0.00	0.00	0.00	0.00
FALL CREEK	F	100	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	100	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	100	1.00	0.00	0.00	0.00	0.00
TRASK	F	94	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	208	1.00	0.00	0.00	0.00	0.00
NASELLE	F	100	1.00	0.00	0.00	0.00	0.00
NEMAH	F	0	0.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	0	0.00	0.00	0.00	0.00	0.00
QUINAULT	F	0	0.00	0.00	0.00	0.00	0.00
QUEETS	F	100	1.00	0.00	0.00	0.00	0.00
HON	F	0	0.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	0	0.00	0.00	0.00	0.00	0.00
ELWA	F	0	0.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	0	0.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	0	0.00	0.00	0.00	0.00	0.00
SAMISH	F	0	0.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	0	0.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	0	0.00	0.00	0.00	0.00	0.00
QUINSAM	F	100	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	0	0.00	0.00	0.00	0.00	0.00

LOCUS: ICD3,4

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	127	74	142	50
WELLS	SU	200	0.88	0.13	0.00	0.00	0.00
MCCALL	SU	200	0.87	0.00	0.13	0.00	0.00
JOHNSON CRK-SF SALMON	SU	224	0.95	0.00	0.05	0.00	0.00
SOLEDUCK	SU	388	0.87	0.11	0.00	0.01	0.00
SKYKOMISH	SU	400	0.96	0.01	0.00	0.04	0.00
SKAGIT	SU	400	0.96	0.01	0.01	0.02	0.00
CLEARWATER RIV FRASER	SP	200	0.93	0.04	0.04	0.00	0.00
CHILCO RIV FRASER	SP	200	0.91	0.07	0.03	0.00	0.00
STUART RIV FRASER	SP	200	0.90	0.11	0.00	0.00	0.00
COWLITZ	SP	148	0.83	0.16	0.01	0.00	0.00
KALAMA	SP	200	0.88	0.00	0.12	0.00	0.00
EAGLE CRK	SP	188	0.86	0.00	0.14	0.00	0.00
MCKENZIE	SP	200	0.90	0.07	0.03	0.00	0.00
WIND	SP	200	0.83	0.00	0.17	0.00	0.00
LITTLE WHITE SALMON	SP	236	0.89	0.00	0.11	0.00	0.00
KLICKITAT	SP	200	0.85	0.01	0.15	0.00	0.00
WARMSPRINGS	SP	516	0.97	0.01	0.03	0.00	0.00
ROUND BUTTE	SP	160	0.94	0.00	0.06	0.00	0.00
ICICLE	SP	200	0.92	0.00	0.08	0.00	0.00
METHOW	SP	200	0.97	0.00	0.04	0.00	0.00
RED RIV SF CLEARWATER	SP	88	0.91	0.05	0.05	0.00	0.00
SAWTOOTH UPPER SALMON	SP	200	0.94	0.06	0.00	0.00	0.00
RAPID RIVER	SP	200	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	452	0.96	0.04	0.00	0.00	0.00
FEATHER	SP	396	0.98	0.02	0.00	0.00	0.00
TRINITY	SP	396	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	400	1.00	0.01	0.00	0.00	0.00
ROCK CREEK	SP	400	0.96	0.04	0.01	0.00	0.00
CEDAR CREEK	SP	396	0.91	0.02	0.07	0.00	0.00
TRASK	SP	180	0.97	0.01	0.01	0.00	0.02
SOLEDUCK	SP	196	0.99	0.01	0.00	0.00	0.01
NOOKSACK	SP	200	0.96	0.01	0.01	0.00	0.03
BIG CREEK	F	200	0.99	0.01	0.01	0.00	0.00
COWLITZ	F	388	0.97	0.01	0.02	0.00	0.00
KALAMA	F	200	0.98	0.02	0.01	0.00	0.00
LEWIS	F	180	0.93	0.02	0.04	0.00	0.00
WASHOUGAL	F	200	0.96	0.02	0.03	0.00	0.00
LITTLE WHITE SALMON	F	200	0.99	0.02	0.00	0.00	0.00
SPRING CREEK	F	200	1.00	0.01	0.00	0.00	0.00
DESCHUTES	F	196	0.97	0.03	0.00	0.00	0.00
PRIEST RAPIDS	F	400	0.91	0.09	0.00	0.00	0.00
ICE HARBOR	F	708	0.98	0.02	0.00	0.00	0.00
COLEMAN LATE	F	400	0.94	0.06	0.00	0.00	0.00
MOKELUMNE	F	380	0.93	0.07	0.00	0.00	0.00
NIMBUS	F	400	0.95	0.05	0.00	0.00	0.00
FEATHER	F	400	0.96	0.05	0.00	0.00	0.00
COLEMAN BATTLE	F	400	0.96	0.04	0.00	0.00	0.00
IRON GATE	F	396	1.00	0.00	0.00	0.00	0.00

LOCUS: ICD3,4 CONTINUED

TRINITY	F	400	1.00	0.00	0.00	0.00	0.00
CHETCO	F	400	0.99	0.02	0.00	0.00	0.00
ELK	F	400	0.97	0.03	0.00	0.00	0.00
SIXES ESTUARY	F	392	0.97	0.03	0.00	0.00	0.00
COQUILLE ESTUARY	F	460	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	328	0.99	0.00	0.00	0.00	0.00
ALSEA BAY	F	376	0.99	0.01	0.00	0.00	0.00
FALL CREEK	F	400	0.98	0.02	0.00	0.00	0.00
SILETZ ESTUARY	F	368	0.98	0.02	0.01	0.00	0.00
SALMON	F	396	0.98	0.03	0.00	0.00	0.00
NESTUCCA BAY	F	240	0.98	0.03	0.00	0.00	0.00
CEDAR CREEK	F	396	0.95	0.05	0.00	0.00	0.00
TRASK	F	388	0.97	0.03	0.00	0.00	0.00
TILLAMOOK BAY	F	352	0.96	0.04	0.00	0.00	0.00
NEHALEM ESTUARY	F	508	0.95	0.05	0.00	0.00	0.00
NASELLE	F	396	0.99	0.01	0.00	0.00	0.00
NEMAH	F	688	0.98	0.02	0.00	0.00	0.00
HUMPTULIPS EARLY	F	200	0.99	0.01	0.00	0.01	0.00
QUINAULT	F	400	0.90	0.09	0.00	0.01	0.00
QUEETS	F	480	0.89	0.11	0.00	0.00	0.00
HQH	F	400	0.91	0.09	0.00	0.00	0.00
SOLEDUCK	F	196	0.99	0.01	0.00	0.00	0.00
ELWHA	F	400	0.90	0.10	0.00	0.01	0.00
HOOD CANAL	F	392	0.96	0.00	0.01	0.04	0.00
DESCHUTES	F	600	0.94	0.06	0.00	0.00	0.00
GREEN RIVER	F	392	0.97	0.01	0.00	0.02	0.00
SAMISH	F	200	0.97	0.01	0.00	0.02	0.00
BIG QUALICUM	F	340	1.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	400	1.00	0.01	0.00	0.00	0.00
QUINSM	F	388	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	396	0.98	0.02	0.00	0.00	0.00
SAN JUAN	F	200	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	396	0.97	0.01	0.00	0.02	0.00

LOCUS: LDH 3

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100				
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	200	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	1.00	0.00	0.00	0.00	0.00
SKAGIT	SU	200	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	98	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	96	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	258	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	198	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	200	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	92	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	100	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	398	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	200	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	200	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: LDH 3 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	198	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	194	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	202	1.00	0.00	0.00	0.00	0.00
NASELLE	F	198	1.00	0.00	0.00	0.00	0.00
NEMAH	F	350	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	100	1.00	0.00	0.00	0.00	0.00
QUEETS	F	240	1.00	0.00	0.00	0.00	0.00
H0H	F	196	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	194	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	298	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	198	1.00	0.00	0.00	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	194	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	198	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: LDH 4

POPULATION	SEX	RUN	N	ALLELE FREQUENCIES				
				100	120	153	71	
WELLS	SU	100	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	200	200	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	200	1.00	0.00	0.00	0.00	0.00
SKAGIT	SU	200	200	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	100	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	100	0.98	0.02	0.00	0.00	0.00
EAGLE CRK	SP	96	96	0.97	0.03	0.00	0.00	0.00
MCKENZIE	SP	100	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	100	0.97	0.03	0.00	0.00	0.00
WARMSPRINGS	SP	258	258	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	80	0.95	0.05	0.00	0.00	0.00
ICICLE	SP	100	100	0.98	0.02	0.00	0.00	0.00
METHOW	SP	100	100	0.98	0.02	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	44	0.98	0.02	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	226	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	200	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	198	198	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	200	200	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	200	200	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	90	0.93	0.00	0.00	0.07	0.00
SOLEDUCK	SP	98	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	198	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	396	396	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	200	200	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	198	198	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	198	1.00	0.00	0.00	0.00	0.00

LOCUS: LDH 4 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	1.00	0.00	0.00	0.00	0.00
ELK	F	200	0.99	0.00	0.00	0.01	0.00
SIXES ESTUARY	F	200	0.97	0.01	0.01	0.02	0.00
COQUILLE ESTUARY	F	230	0.96	0.00	0.03	0.01	0.00
SUISLAW BAY	F	164	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.01
SALMON	F	198	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	194	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	254	1.00	0.00	0.00	0.00	0.00
NASELLE	F	198	1.00	0.00	0.00	0.00	0.00
NEMAH	F	350	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	200	1.00	0.00	0.00	0.00	0.00
QUEETS	F	240	1.00	0.00	0.00	0.00	0.00
HOH	F	196	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	200	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	298	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	198	1.00	0.00	0.00	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	194	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: LDH 5

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	90	70		
WELLS	SU	100	0.98	0.02	0.00	0.00	0.00
MCCALL	SU	100	0.97	0.03	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	0.98	0.02	0.00	0.00	0.00
SOLEDUCK	SU	200	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	0.98	0.02	0.00	0.00	0.00
SKAGIT	SU	200	0.99	0.01	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	98	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	98	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	72	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	98	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	70	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	92	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	110	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	88	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	254	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	96	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	98	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	0.99	0.01	0.00	0.00	0.00
FEATHER	SP	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	198	0.98	0.03	0.00	0.00	0.00
COLE RIVERS	SP	200	0.99	0.02	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	98	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	192	1.00	0.01	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	98	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	92	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	196	0.96	0.02	0.02	0.00	0.00
ICE HARBOR	F	390	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	200	1.00	0.00	0.00	0.00	0.00
FEATHER	F	200	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	200	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: LDH 5 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	0.98	0.02	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.01	0.00	0.00	0.00
SALMON	F	198	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	194	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	170	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	248	1.00	0.00	0.00	0.00	0.00
NASELLE	F	198	1.00	0.00	0.00	0.00	0.00
NEMAH	F	350	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	200	1.00	0.00	0.00	0.00	0.00
QUEETS	F	240	1.00	0.00	0.00	0.00	0.00
HOH	F	196	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	200	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	298	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	198	0.99	0.01	0.00	0.00	0.00
SAMISH	F	100	0.99	0.01	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	176	0.97	0.03	0.00	0.00	0.00
ROBERTSON CREEK	F	184	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.01	0.00	0.00	0.00

LOCUS: MDH1,2

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	120	27	-45	
WELLS	SU	200	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	200	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	224	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	400	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	400	1.00	0.00	0.00	0.00	0.00
SKAGIT	SU	400	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SF	200	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SF	200	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SF	200	1.00	0.00	0.00	0.00	0.00
COWLITZ	SF	152	1.00	0.00	0.00	0.00	0.00
KALAMA	SF	200	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SF	192	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SF	200	1.00	0.00	0.00	0.00	0.00
WIND	SF	200	0.99	0.01	0.00	0.00	0.00
LITTLE WHITE SALMON	SF	236	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SF	200	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SF	516	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SF	160	1.00	0.00	0.00	0.00	0.00
ICICLE	SF	200	1.00	0.00	0.00	0.00	0.00
METHOW	SF	200	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SF	88	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SF	200	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SF	200	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SF	452	0.99	0.00	0.00	0.01	0.00
FEATHER	SF	400	1.00	0.00	0.00	0.00	0.00
TRINITY	SF	396	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SF	400	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SF	400	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SF	400	1.00	0.00	0.00	0.00	0.00
TRASK	SF	180	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SF	196	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SF	200	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	200	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	396	1.00	0.00	0.00	0.00	0.00
KALAMA	F	200	1.00	0.00	0.00	0.00	0.00
LEWIS	F	200	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	200	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	200	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	200	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	196	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	400	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	800	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	400	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	380	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	400	1.00	0.00	0.00	0.00	0.00
FEATHER	F	400	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	400	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	396	1.00	0.00	0.00	0.00	0.00

LOCUS: MDH1,2 CONTINUED

TRINITY	F	400	1.00	0.00	0.00	0.00	0.00
CHETCO	F	400	1.00	0.00	0.00	0.00	0.00
ELK	F	400	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	400	0.95	0.00	0.03	0.03	0.00
COQUILLE ESTUARY	F	460	0.99	0.00	0.01	0.00	0.00
SUISLAW BAY	F	328	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	376	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	400	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	368	1.00	0.00	0.00	0.00	0.00
SALMON	F	396	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	240	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	400	1.00	0.00	0.00	0.00	0.00
TRASK	F	388	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	352	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	516	1.00	0.00	0.00	0.00	0.00
NASELLE	F	396	1.00	0.00	0.00	0.00	0.00
NEMAH	F	700	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	200	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	400	1.00	0.00	0.00	0.00	0.00
QUEETS	F	480	1.00	0.00	0.00	0.00	0.00
HQH	F	400	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	200	1.00	0.00	0.00	0.00	0.00
ELWHA	F	400	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	392	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	600	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	396	1.00	0.00	0.00	0.00	0.00
SAMISH	F	200	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	340	1.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	400	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	388	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	400	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	200	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	396	1.00	0.00	0.00	0.00	0.00

LOCUS: MDH3.4

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	121	70		
WELLS	SU	200	0.97	0.01	0.02	0.00	0.00
MCCALL	SU	200	1.00	0.01	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	224	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	400	0.96	0.00	0.04	0.00	0.00
SKYKOMISH	SU	400	0.99	0.00	0.01	0.00	0.00
SKAGIT	SU	400	0.99	0.00	0.01	0.00	0.00
CLEARWATER RIV FRASER	SP	200	0.98	0.02	0.00	0.00	0.00
CHILCO RIV FRASER	SP	200	1.00	0.01	0.00	0.00	0.00
STUART RIV FRASER	SP	200	0.97	0.03	0.00	0.00	0.00
COWLITZ	SP	152	0.95	0.05	0.00	0.00	0.00
KALAMA	SP	200	0.98	0.03	0.00	0.00	0.00
EAGLE CRK	SP	192	0.98	0.02	0.00	0.00	0.00
MCKENZIE	SP	200	0.97	0.03	0.00	0.00	0.00
WIND	SP	196	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	236	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	200	0.98	0.02	0.00	0.00	0.00
WARMSPRINGS	SP	516	0.99	0.01	0.00	0.00	0.00
ROUND BUTTE	SP	156	0.99	0.01	0.00	0.00	0.00
ICICLE	SP	196	1.00	0.00	0.00	0.00	0.00
METHOW	SP	196	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	88	0.99	0.01	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	200	0.95	0.06	0.00	0.00	0.00
RAPID RIVER	SP	200	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	452	0.99	0.01	0.00	0.00	0.00
FEATHER	SP	400	0.97	0.03	0.00	0.00	0.00
TRINITY	SP	396	1.00	0.01	0.00	0.00	0.00
COLE RIVERS	SP	400	0.99	0.01	0.00	0.00	0.00
ROCK CREEK	SP	400	0.98	0.02	0.01	0.00	0.00
CEDAR CREEK	SP	400	1.00	0.00	0.01	0.00	0.00
TRASK	SP	180	0.99	0.01	0.01	0.00	0.00
SOLEDUCK	SP	196	0.99	0.00	0.01	0.00	0.00
NOOKSACK	SP	200	0.94	0.00	0.06	0.00	0.00
BIG CREEK	F	200	0.93	0.08	0.00	0.00	0.00
COWLITZ	F	396	1.00	0.00	0.00	0.00	0.00
KALAMA	F	200	0.96	0.05	0.00	0.00	0.00
LEWIS	F	200	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	200	0.99	0.01	0.00	0.00	0.00
LITTLE WHITE SALMON	F	200	0.95	0.06	0.00	0.00	0.00
SPRING CREEK	F	200	0.97	0.04	0.00	0.00	0.00
DESCHUTES	F	196	0.99	0.01	0.01	0.00	0.00
PRIEST RAPIDS	F	400	0.96	0.03	0.02	0.00	0.00
ICE HARBOR	F	784	0.99	0.01	0.01	0.00	0.00
COLEMAN LATE	F	400	0.97	0.03	0.00	0.00	0.00
MOKELUMNE	F	380	0.97	0.03	0.00	0.00	0.00
NIMBUS	F	392	0.97	0.03	0.00	0.00	0.00
FEATHER	F	400	0.98	0.02	0.00	0.00	0.00
COLEMAN BATTLE	F	400	0.96	0.04	0.00	0.00	0.00
IRON GATE	F	396	1.00	0.00	0.00	0.00	0.00

LOCUS: MDH3.4 CONTINUED

TRINITY	F	400	1.00	0.00	0.00	0.00	0.00
CHETCO	F	400	0.96	0.05	0.00	0.00	0.00
ELK	F	400	0.98	0.02	0.00	0.00	0.00
SIXES ESTUARY	F	400	0.99	0.01	0.00	0.00	0.00
COQUILLE ESTUARY	F	460	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	328	0.98	0.02	0.00	0.00	0.00
ALSEA BAY	F	376	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	400	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	368	1.00	0.00	0.00	0.00	0.00
SALMON	F	396	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	240	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	400	1.00	0.00	0.00	0.00	0.00
TRASK	F	388	1.00	0.01	0.00	0.00	0.00
TILLAMOOK BAY	F	352	0.97	0.03	0.00	0.00	0.00
NEHALEM ESTUARY	F	508	1.00	0.00	0.00	0.00	0.00
NASELLE	F	396	0.94	0.04	0.02	0.00	0.00
NEMAH	F	700	0.98	0.02	0.00	0.00	0.00
HUMPTULIPS EARLY	F	200	0.99	0.02	0.00	0.00	0.00
QUINAULT	F	400	0.99	0.01	0.00	0.00	0.00
QUEETS	F	480	0.96	0.04	0.00	0.00	0.00
HOH	F	400	0.99	0.00	0.00	0.00	0.00
SOLEDUCK	F	196	0.99	0.02	0.00	0.00	0.00
ELWHA	F	400	0.97	0.02	0.02	0.00	0.00
HOOD CANAL	F	392	0.97	0.00	0.03	0.00	0.00
DESCHUTES	F	600	0.99	0.00	0.01	0.00	0.00
GREEN RIVER	F	396	1.00	0.00	0.00	0.00	0.00
SAMISH	F	200	0.98	0.01	0.01	0.00	0.00
BIG QUALICUM	F	340	1.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	400	0.95	0.04	0.02	0.00	0.00
QUINSAM	F	388	0.84	0.10	0.05	0.00	0.00
ROBERTSON CREEK	F	400	0.99	0.01	0.00	0.00	0.00
SAN JUAN	F	200	0.99	0.01	0.00	0.00	0.00
CAPILANO	F	396	1.00	0.00	0.00	0.00	0.00

LOCUS: MPI

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	109	95	113	
WELLS	SU	100	0.67	0.33	0.00	0.00	0.00
MCCALL	SU	100	0.96	0.04	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	0.95	0.05	0.00	0.00	0.00
SOLEDUCK	SU	198	0.65	0.34	0.01	0.00	0.00
SKYKOMISH	SU	200	0.70	0.31	0.00	0.00	0.00
SKAGIT	SU	198	0.77	0.23	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	0.41	0.55	0.04	0.00	0.00
CHILCO RIV FRASER	SP	100	0.51	0.48	0.01	0.00	0.00
STUART RIV FRASER	SP	94	0.46	0.54	0.00	0.00	0.00
COWLITZ	SP	74	0.46	0.54	0.00	0.00	0.00
KALAMA	SP	90	0.89	0.11	0.00	0.00	0.00
EAGLE CRK	SP	96	0.84	0.16	0.00	0.00	0.00
MCKENZIE	SP	100	0.73	0.26	0.01	0.00	0.00
WIND	SP	100	0.84	0.16	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	0.90	0.10	0.00	0.00	0.00
KLICKITAT	SP	100	0.87	0.13	0.00	0.00	0.00
WARMSPRINGS	SP	258	0.70	0.30	0.00	0.00	0.00
ROUND BUTTE	SP	80	0.95	0.05	0.00	0.00	0.00
ICICLE	SP	100	0.89	0.11	0.00	0.00	0.00
METHOW	SP	100	0.95	0.05	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	0.80	0.21	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	0.51	0.49	0.00	0.00	0.00
RAPID RIVER	SP	100	0.98	0.02	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	0.89	0.12	0.00	0.00	0.00
FEATHER	SP	192	0.74	0.26	0.00	0.00	0.00
TRINITY	SP	198	0.72	0.28	0.00	0.00	0.00
COLE RIVERS	SP	200	0.71	0.29	0.00	0.00	0.00
ROCK CREEK	SP	200	0.63	0.37	0.01	0.00	0.00
CEDAR CREEK	SP	200	0.62	0.38	0.00	0.00	0.00
TRASK	SP	86	0.54	0.47	0.00	0.00	0.00
SOLEDUCK	SP	98	0.63	0.37	0.00	0.00	0.00
NOOKSACK	SP	100	0.55	0.45	0.00	0.00	0.00
BIG CREEK	F	100	0.60	0.37	0.03	0.00	0.00
COWLITZ	F	198	0.49	0.48	0.04	0.00	0.00
KALAMA	F	100	0.43	0.54	0.03	0.00	0.00
LEWIS	F	100	0.38	0.49	0.13	0.00	0.00
WASHOUGAL	F	100	0.45	0.55	0.00	0.00	0.00
LITTLE WHITE SALMON	F	92	0.62	0.34	0.04	0.00	0.00
SPRING CREEK	F	100	0.57	0.36	0.07	0.00	0.00
DESCHUTES	F	98	0.70	0.30	0.00	0.00	0.00
PRIEST RAPIDS	F	200	0.71	0.30	0.00	0.00	0.00
ICE HARBOR	F	396	0.79	0.21	0.00	0.00	0.00
COLEMAN LATE	F	198	0.57	0.43	0.00	0.00	0.00
MOKELUMNE	F	184	0.54	0.46	0.00	0.00	0.00
NIMBUS	F	196	0.61	0.39	0.00	0.00	0.00
FEATHER	F	200	0.44	0.56	0.00	0.00	0.00
COLEMAN BATTLE	F	200	0.58	0.42	0.00	0.00	0.00
IRON GATE	F	198	0.98	0.03	0.00	0.00	0.00

LOCUS: MPI

CONTINUED

TRINITY	F	200	0.99	0.01	0.00	0.00	0.00
CHETCO	F	200	0.79	0.21	0.00	0.00	0.00
ELK	F	198	0.77	0.23	0.00	0.00	0.00
SIXES ESTUARY	F	200	0.73	0.28	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	0.59	0.41	0.00	0.00	0.00
SUISLAW BAY	F	162	0.61	0.40	0.00	0.00	0.00
ALSEA BAY	F	188	0.63	0.37	0.00	0.00	0.00
FALL CREEK	F	200	0.65	0.35	0.00	0.00	0.00
SILETZ ESTUARY	F	184	0.62	0.38	0.00	0.00	0.00
SALMON	F	198	0.68	0.32	0.00	0.00	0.00
NESTUCCA BAY	F	120	0.66	0.34	0.00	0.00	0.00
CEDAR CREEK	F	200	0.74	0.27	0.00	0.00	0.00
TRASK	F	194	0.62	0.37	0.00	0.01	0.00
TILLAMOOK BAY	F	176	0.68	0.32	0.00	0.00	0.00
NEHALEM ESTUARY	F	254	0.78	0.22	0.00	0.00	0.00
NASELLE	F	196	0.71	0.25	0.01	0.04	0.00
NEMAH	F	348	0.69	0.26	0.00	0.05	0.00
HUMPTULIPS EARLY	F	98	0.81	0.19	0.00	0.00	0.00
QUINAULT	F	194	0.61	0.33	0.00	0.06	0.00
QUEETS	F	240	0.71	0.28	0.00	0.01	0.00
HOH	F	200	0.61	0.39	0.00	0.00	0.00
SOLEDUCK	F	100	0.81	0.19	0.00	0.00	0.00
ELWHA	F	200	0.68	0.29	0.04	0.00	0.00
HOOD CANAL	F	194	0.61	0.39	0.00	0.00	0.00
DESCHUTES	F	300	0.67	0.32	0.01	0.00	0.00
GREEN RIVER	F	196	0.75	0.25	0.00	0.00	0.00
SAMISH	F	100	0.67	0.33	0.00	0.00	0.00
BIG QUALICUM	F	170	0.40	0.60	0.00	0.00	0.00
PUNTLIDGE	F	200	0.69	0.31	0.00	0.00	0.00
QUINSAM	F	194	0.89	0.11	0.00	0.00	0.00
ROBERTSON CREEK	F	200	0.59	0.41	0.00	0.00	0.00
SAN JUAN	F	100	0.54	0.46	0.00	0.00	0.00
CAPILANO	F	198	0.44	0.56	0.00	0.00	0.00

LOCUS: PEP 1

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	90			
WELLS	SU	100	0.98	0.02	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	200	0.75	0.25	0.00	0.00	0.00
SKYKOMISH	SU	200	0.98	0.02	0.00	0.00	0.00
SKAGIT	SU	200	0.93	0.08	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	0.96	0.04	0.00	0.00	0.00
CHILCO RIV FRASER	SP	96	0.94	0.06	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	176	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	96	0.99	0.01	0.00	0.00	0.00
MCKENZIE	SP	100	0.99	0.01	0.00	0.00	0.00
WIND	SP	100	0.97	0.03	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	116	0.97	0.03	0.00	0.00	0.00
KLICKITAT	SP	100	0.99	0.01	0.00	0.00	0.00
WARMSPRINGS	SP	258	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	0.99	0.01	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	0.98	0.02	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	0.89	0.11	0.00	0.00	0.00
RAPID RIVER	SP	100	0.99	0.01	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	0.89	0.11	0.00	0.00	0.00
FEATHER	SP	200	0.93	0.08	0.00	0.00	0.00
TRINITY	SP	198	0.65	0.35	0.00	0.00	0.00
COLE RIVERS	SP	198	0.78	0.22	0.00	0.00	0.00
ROCK CREEK	SP	200	0.97	0.03	0.00	0.00	0.00
CEDAR CREEK	SP	200	1.00	0.01	0.00	0.00	0.00
TRASK	SP	86	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	96	0.98	0.02	0.00	0.00	0.00
NOOKSACK	SP	100	0.97	0.03	0.00	0.00	0.00
BIG CREEK	F	100	0.99	0.01	0.00	0.00	0.00
COWLITZ	F	198	0.92	0.08	0.00	0.00	0.00
KALAMA	F	100	0.89	0.11	0.00	0.00	0.00
LEWIS	F	100	0.83	0.17	0.00	0.00	0.00
WASHOUGAL	F	100	0.85	0.15	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	0.99	0.01	0.00	0.00	0.00
SPRING CREEK	F	100	0.98	0.02	0.00	0.00	0.00
DESCHUTES	F	98	0.90	0.10	0.00	0.00	0.00
PRIEST RAPIDS	F	198	1.00	0.01	0.00	0.00	0.00
ICE HARBOR	F	396	0.97	0.03	0.00	0.00	0.00
COLEMAN LATE	F	200	0.90	0.10	0.00	0.00	0.00
MOKELUMNE	F	190	0.93	0.07	0.00	0.00	0.00
NIMBUS	F	200	0.86	0.14	0.00	0.00	0.00
FEATHER	F	200	0.89	0.12	0.00	0.00	0.00
COLEMAN BATTLE	F	198	0.85	0.15	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.01	0.00	0.00	0.00

LOCUS: PEP 1 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	0.86	0.15	0.00	0.00	0.00
ELK	F	198	0.73	0.27	0.00	0.00	0.00
SIXES ESTUARY	F	200	0.66	0.34	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	0.65	0.35	0.00	0.00	0.00
SUISLAW BAY	F	164	0.70	0.30	0.00	0.00	0.00
ALSEA BAY	F	188	0.73	0.27	0.00	0.00	0.00
FALL CREEK	F	200	0.74	0.26	0.00	0.00	0.00
SILETZ ESTUARY	F	184	0.70	0.30	0.00	0.00	0.00
SALMON	F	198	0.78	0.22	0.00	0.00	0.00
NESTUCCA BAY	F	120	0.64	0.36	0.00	0.00	0.00
CEDAR CREEK	F	200	0.70	0.30	0.00	0.00	0.00
TRASK	F	194	0.67	0.33	0.00	0.00	0.00
TILLAMOOK BAY	F	174	0.74	0.26	0.00	0.00	0.00
NEHALEM ESTUARY	F	252	0.77	0.23	0.00	0.00	0.00
NASELLE	F	198	0.84	0.16	0.00	0.00	0.00
NEMAH	F	350	0.88	0.12	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	0.84	0.16	0.00	0.00	0.00
QUINAULT	F	200	0.89	0.11	0.00	0.00	0.00
QUEETS	F	240	0.83	0.17	0.00	0.00	0.00
HOH	F	200	0.91	0.10	0.00	0.00	0.00
SOLEDUCK	F	100	0.74	0.26	0.00	0.00	0.00
ELWHA	F	200	0.89	0.11	0.00	0.00	0.00
HOOD CANAL	F	196	0.92	0.08	0.00	0.00	0.00
DESCHUTES	F	300	0.89	0.11	0.00	0.00	0.00
GREEN RIVER	F	198	0.84	0.16	0.00	0.00	0.00
SAMISH	F	100	0.95	0.05	0.00	0.00	0.00
BIG QUALICUM	F	170	0.94	0.07	0.00	0.00	0.00
PUNTLIDGE	F	200	1.00	0.01	0.00	0.00	0.00
QUINSAM	F	194	0.97	0.03	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	0.97	0.03	0.00	0.00	0.00
CAPILANO	F	198	0.99	0.02	0.00	0.00	0.00

LOCUS: FEP 2

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	105	70		
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	200	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	1.00	0.00	0.00	0.00	0.00
SKAGIT	SU	200	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	96	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	70	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	64	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	254	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	0	0.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	198	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	200	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	0	0.00	0.00	0.00	0.00	0.00
TRASK	SP	88	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	0.94	0.00	0.06	0.00	0.00
NOOKSACK	SP	98	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	0.99	0.01	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	96	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	400	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	190	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	200	1.00	0.00	0.00	0.00	0.00
FEATHER	F	100	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	100	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: PEP 2

CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	184	1.00	0.00	0.00	0.00	0.00
SALMON	F	198	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	200	1.00	0.00	0.00	0.00	0.00
TRASK	F	194	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
NASELLE	F	198	1.00	0.00	0.01	0.00	0.00
NEMAH	F	334	1.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	1.00	0.00	0.00	0.00	0.00
QUINAULT	F	186	1.00	0.00	0.00	0.00	0.00
QUEETS	F	240	0.95	0.05	0.00	0.00	0.00
HOH	F	198	1.00	0.01	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	98	1.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	200	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	98	1.00	0.00	0.00	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	70	1.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	200	1.00	0.00	0.00	0.00	0.00
QUINSAM	F	148	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	98	1.00	0.00	0.00	0.00	0.00

LOCUS: PEP 3

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	130	45		
WELLS	SU	100	0.64	0.36	0.00	0.00	0.00
MCCALL	SU	100	0.93	0.07	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	0.99	0.01	0.00	0.00	0.00
SOLEDUCK	SU	198	0.71	0.29	0.00	0.00	0.00
SKYKOMISH	SU	200	0.69	0.31	0.00	0.00	0.00
SKAGIT	SU	200	0.50	0.50	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	0.91	0.09	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	0.95	0.05	0.00	0.00	0.00
STUART RIV FRASER	SP	96	0.92	0.08	0.00	0.00	0.00
COWLITZ	SP	76	0.93	0.07	0.00	0.00	0.00
KALAMA	SP	100	0.89	0.11	0.00	0.00	0.00
EAGLE CRK	SP	96	0.91	0.09	0.00	0.00	0.00
MCKENZIE	SP	100	0.95	0.05	0.00	0.00	0.00
WIND	SP	96	0.97	0.03	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	0.97	0.03	0.00	0.00	0.00
KLICKITAT	SP	100	0.82	0.18	0.00	0.00	0.00
WARMSPRINGS	SP	258	0.99	0.01	0.00	0.00	0.00
ROUND BUTTE	SP	72	0.94	0.06	0.00	0.00	0.00
ICICLE	SP	100	0.86	0.14	0.00	0.00	0.00
METHOW	SP	100	0.90	0.10	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	0.82	0.18	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	0.95	0.05	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	0.94	0.06	0.00	0.00	0.00
FEATHER	SP	200	0.83	0.17	0.00	0.00	0.00
TRINITY	SP	198	0.91	0.09	0.00	0.00	0.00
COLE RIVERS	SP	200	0.80	0.20	0.00	0.00	0.00
ROCK CREEK	SP	200	0.76	0.25	0.00	0.00	0.00
CEDAR CREEK	SP	190	0.68	0.32	0.00	0.00	0.00
TRASK	SP	90	0.97	0.03	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	0.99	0.01	0.00	0.00	0.00
BIG CREEK	F	100	0.79	0.21	0.00	0.00	0.00
COWLITZ	F	198	0.94	0.06	0.00	0.00	0.00
KALAMA	F	100	0.88	0.12	0.00	0.00	0.00
LEWIS	F	100	0.88	0.12	0.00	0.00	0.00
WASHOUGAL	F	100	0.78	0.22	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	0.76	0.24	0.00	0.00	0.00
SPRING CREEK	F	100	0.78	0.22	0.00	0.00	0.00
DESCHUTES	F	98	0.94	0.06	0.00	0.00	0.00
FRIEST RAPIDS	F	198	0.79	0.21	0.00	0.00	0.00
ICE HARBOR	F	388	0.92	0.08	0.00	0.00	0.00
COLEMAN LATE	F	196	0.79	0.21	0.00	0.00	0.00
WOKELUMNE	F	190	0.93	0.07	0.00	0.00	0.00
NIMBUS	F	200	0.88	0.12	0.00	0.00	0.00
FEATHER	F	196	0.85	0.15	0.00	0.00	0.00
COLEMAN BATTLE	F	198	0.85	0.14	0.01	0.00	0.00
IRON GATE	F	196	0.95	0.05	0.00	0.00	0.00

LOCUS: PEP 3 CONTINUED

TRINITY	F	200	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	0.84	0.16	0.00	0.00	0.00
ELK	F	200	0.92	0.08	0.00	0.00	0.00
SIXES ESTUARY	F	200	0.90	0.10	0.00	0.00	0.00
COQUILLE ESTUARY	F	224	0.92	0.08	0.00	0.00	0.00
SUISLAW BAY	F	164	0.87	0.13	0.00	0.00	0.00
ALSEA BAY	F	188	0.90	0.10	0.00	0.00	0.00
FALL CREEK	F	188	0.92	0.09	0.00	0.00	0.00
SILETZ ESTUARY	F	184	0.89	0.11	0.00	0.00	0.00
SALMON	F	198	0.78	0.22	0.00	0.00	0.00
NESTUCCA BAY	F	118	0.92	0.09	0.00	0.00	0.00
CEDAR CREEK	F	200	0.92	0.09	0.00	0.00	0.00
TRASK	F	194	0.92	0.08	0.00	0.00	0.00
TILLAMOOK BAY	F	176	0.84	0.16	0.00	0.00	0.00
NEHALEM ESTUARY	F	254	0.77	0.23	0.00	0.00	0.00
NASELLE	F	198	0.85	0.15	0.00	0.00	0.00
NEMAH	F	350	0.80	0.20	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	0.84	0.16	0.00	0.00	0.00
QUINAULT	F	198	0.90	0.10	0.00	0.00	0.00
QUEETS	F	234	0.94	0.06	0.00	0.00	0.00
HON	F	200	0.94	0.07	0.00	0.00	0.00
SOLEDUCK	F	100	0.97	0.03	0.00	0.00	0.00
ELWHA	F	200	0.88	0.13	0.00	0.00	0.00
HOOD CANAL	F	196	0.56	0.44	0.00	0.00	0.00
DESCHUTES	F	290	0.51	0.49	0.00	0.00	0.00
GREEN RIVER	F	198	0.47	0.53	0.00	0.00	0.00
SAMISH	F	100	0.51	0.49	0.00	0.00	0.00
BIG QUALICUM	F	168	0.57	0.44	0.00	0.00	0.00
PUNTLEDGE	F	198	0.80	0.20	0.00	0.00	0.00
QUINSAM	F	192	0.84	0.16	0.00	0.00	0.00
ROBERTSON CREEK	F	200	0.86	0.15	0.00	0.00	0.00
SAN JUAN	F	100	0.89	0.11	0.00	0.00	0.00
CAPILANO	F	196	0.62	0.38	0.00	0.00	0.00

LOCUS: PGM 1

POPULATION	RUN	N	ALLELE FREQUENCIES				
			-100	-60	-75		
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	200	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	200	1.00	0.00	0.00	0.00	0.00
SKAGIT	SU	200	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	96	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	246	1.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	0.97	0.03	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	0.98	0.02	0.00	0.00	0.00
FEATHER	SP	200	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	198	0.99	0.02	0.00	0.00	0.00
COLE RIVERS	SP	200	0.93	0.08	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	198	0.99	0.01	0.00	0.00	0.00
KALAMA	F	100	0.99	0.01	0.00	0.00	0.00
LEWIS	F	100	0.98	0.01	0.01	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	200	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	400	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	0.98	0.02	0.00	0.00	0.00
MOKELUMNE	F	190	0.98	0.02	0.00	0.00	0.00
NIMBUS	F	200	0.98	0.03	0.00	0.00	0.00
FEATHER	F	200	0.98	0.03	0.00	0.00	0.00
COLEMAN BATTLE	F	200	0.99	0.01	0.00	0.00	0.00
IRON GATE	F	198	0.88	0.12	0.00	0.00	0.00

LOCUS: PGM 1 CONTINUED

TRINITY	F	200	1.00	0.01	0.00	0.00	0.00
CHETCO	F	200	0.96	0.04	0.00	0.00	0.00
ELK	F	200	0.95	0.05	0.01	0.00	0.00
SIXES ESTUARY	F	200	0.88	0.08	0.05	0.00	0.00
COQUILLE ESTUARY	F	230	0.83	0.10	0.07	0.00	0.00
SUISLAW BAY	F	164	0.85	0.15	0.01	0.00	0.00
ALSEA BAY	F	188	0.89	0.10	0.01	0.00	0.00
FALL CREEK	F	200	0.88	0.12	0.00	0.00	0.00
SILETZ ESTUARY	F	184	0.89	0.10	0.01	0.00	0.00
SALMON	F	194	0.84	0.13	0.03	0.00	0.00
NESTUCCA BAY	F	120	0.88	0.11	0.01	0.00	0.00
CEDAR CREEK	F	200	0.81	0.20	0.00	0.00	0.00
TRASK	F	194	0.84	0.16	0.00	0.00	0.00
TILLAMOOK BAY	F	170	0.84	0.15	0.01	0.00	0.00
NEHALEM ESTUARY	F	254	0.84	0.13	0.03	0.00	0.00
WASSELLE	F	198	0.97	0.03	0.01	0.00	0.00
NEMAH	F	346	0.93	0.06	0.02	0.00	0.00
HUMPTULIPS EARLY	F	100	0.90	0.09	0.01	0.00	0.00
QUINAULT	F	200	0.94	0.05	0.02	0.00	0.00
QUEETS	F	198	0.95	0.05	0.00	0.00	0.00
HOH	F	200	0.90	0.09	0.02	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	200	0.97	0.03	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	298	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	198	1.00	0.00	0.00	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	200	0.96	0.04	0.00	0.00	0.00
QUINSAM	F	194	1.00	0.01	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.01	0.00	0.00	0.00
SAN JUAN	F	100	0.99	0.01	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: PGD

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	90			
WELLS	SU	100	1.00	0.00	0.00	0.00	0.00
MCCALL	SU	100	1.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	0	0.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	0	0.00	0.00	0.00	0.00	0.00
SKAGIT	SU	0	0.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	96	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	100	1.00	0.00	0.00	0.00	0.00
WIND	SP	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	1.00	0.00	0.00	0.00	0.00
KLICKITAT	SP	100	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	0	0.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	80	1.00	0.00	0.00	0.00	0.00
ICICLE	SP	100	1.00	0.00	0.00	0.00	0.00
METHOW	SP	100	1.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	1.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	0	0.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	100	1.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	0	0.00	0.00	0.00	0.00	0.00
FEATHER	SP	0	0.00	0.00	0.00	0.00	0.00
TRINITY	SP	0	0.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	0	0.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	0	0.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	F	100	1.00	0.00	0.00	0.00	0.00
KALAMA	F	100	1.00	0.00	0.00	0.00	0.00
LEWIS	F	100	1.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	100	1.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	1.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	100	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	0.99	0.01	0.00	0.00	0.00
PRIEST RAPIDS	F	100	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	92	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	0	0.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	0	0.00	0.00	0.00	0.00	0.00
NIMBUS	F	0	0.00	0.00	0.00	0.00	0.00
FEATHER	F	0	0.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	0	0.00	0.00	0.00	0.00	0.00
IRON GATE	F	0	0.00	0.00	0.00	0.00	0.00

LOCUS: PGD

CONTINUED

TRINITY	F	0	0.00	0.00	0.00	0.00	0.00
CHETCO	F	0	0.00	0.00	0.00	0.00	0.00
ELK	F	0	0.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	200	1.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	1.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	164	0.99	0.01	0.00	0.00	0.00
ALSEA BAY	F	188	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	0	0.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	178	1.00	0.00	0.00	0.00	0.00
SALMON	F	0	0.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	120	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	0	0.00	0.00	0.00	0.00	0.00
TRASK	F	0	0.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	176	1.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	260	1.00	0.00	0.00	0.00	0.00
NABELLE	F	0	0.00	0.00	0.00	0.00	0.00
NEMAH	F	0	0.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	0.97	0.03	0.00	0.00	0.00
QUINAULT	F	0	0.00	0.00	0.00	0.00	0.00
QUEETS	F	0	0.00	0.00	0.00	0.00	0.00
HOH	F	100	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	100	1.00	0.00	0.00	0.00	0.00
ELWHA	F	0	0.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	100	0.97	0.03	0.00	0.00	0.00
GREEN RIVER	F	0	0.00	0.00	0.00	0.00	0.00
SAMISH	F	100	1.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	0	0.00	0.00	0.00	0.00	0.00
PUNTLIDGE	F	0	0.00	0.00	0.00	0.00	0.00
QUINSAM	F	0	0.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	0	0.00	0.00	0.00	0.00	0.00
SAN JUAN	F	100	1.00	0.00	0.00	0.00	0.00
CAPILANO	F	0	0.00	0.00	0.00	0.00	0.00

LOCUS: PGK 2

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	90			
WELLS	SU	100	0.59	0.41	0.00	0.00	0.00
MCCALL	SU	100	0.08	0.92	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	0.05	0.96	0.00	0.00	0.00
SOLEDUCK	SU	200	0.34	0.66	0.00	0.00	0.00
SKYKOMISH	SU	200	0.50	0.50	0.00	0.00	0.00
SKAGIT	SU	188	0.56	0.44	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	94	0.75	0.25	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	0.70	0.30	0.00	0.00	0.00
STUART RIV FRASER	SP	100	0.92	0.08	0.00	0.00	0.00
COWLITZ	SP	74	0.95	0.05	0.00	0.00	0.00
KALAMA	SP	100	0.13	0.87	0.00	0.00	0.00
EAGLE CRK	SP	94	0.06	0.94	0.00	0.00	0.00
MCKENZIE	SP	100	0.57	0.43	0.00	0.00	0.00
WIND	SP	100	0.32	0.68	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	108	0.39	0.61	0.00	0.00	0.00
KLICKITAT	SP	100	0.12	0.88	0.00	0.00	0.00
WARMSPRINGS	SP	196	0.50	0.50	0.00	0.00	0.00
ROUND BUTTE	SP	80	0.15	0.85	0.00	0.00	0.00
ICICLE	SP	100	0.09	0.91	0.00	0.00	0.00
METHOW	SP	100	0.15	0.85	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	0.21	0.80	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	0.54	0.46	0.00	0.00	0.00
RAPID RIVER	SP	100	0.29	0.71	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	192	0.44	0.56	0.00	0.00	0.00
FEATHER	SP	198	0.49	0.52	0.00	0.00	0.00
TRINITY	SP	98	0.38	0.62	0.00	0.00	0.00
COLE RIVERS	SP	198	0.45	0.55	0.00	0.00	0.00
ROCK CREEK	SP	198	0.49	0.51	0.00	0.00	0.00
CEDAR CREEK	SP	200	0.43	0.57	0.00	0.00	0.00
TRASK	SP	90	0.18	0.82	0.00	0.00	0.00
SOLEDUCK	SP	98	0.19	0.81	0.00	0.00	0.00
NOOKSACK	SP	100	0.36	0.64	0.00	0.00	0.00
BIG CREEK	F	100	0.90	0.10	0.00	0.00	0.00
COWLITZ	F	100	0.79	0.21	0.00	0.00	0.00
KALAMA	F	100	0.83	0.17	0.00	0.00	0.00
LEWIS	F	98	0.82	0.18	0.00	0.00	0.00
WASHOUGAL	F	100	0.75	0.25	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	0.83	0.17	0.00	0.00	0.00
SPRING CREEK	F	100	0.86	0.14	0.00	0.00	0.00
DESCHUTES	F	98	0.63	0.37	0.00	0.00	0.00
FRIEST RAPIDS	F	196	0.64	0.36	0.00	0.00	0.00
ICE HARBOR	F	394	0.55	0.45	0.00	0.00	0.00
COLEMAN LATE	F	98	0.53	0.47	0.00	0.00	0.00
MOKELUMNE	F	180	0.59	0.41	0.00	0.00	0.00
NIMBUS	F	200	0.62	0.38	0.00	0.00	0.00
FEATHER	F	198	0.71	0.29	0.00	0.00	0.00
COLEMAN BATTLE	F	192	0.59	0.41	0.00	0.00	0.00
IRON GATE	F	192	0.15	0.85	0.00	0.00	0.00

LOCUS: PGK 2 CONTINUED

TRINITY	F	100	0.35	0.65	0.00	0.00	0.00
CHETCO	F	196	0.39	0.61	0.00	0.00	0.00
ELK	F	184	0.46	0.54	0.00	0.00	0.00
SIXES ESTUARY	F	100	0.48	0.52	0.00	0.00	0.00
COQUILLE ESTUARY	F	228	0.41	0.59	0.00	0.00	0.00
SUISLAW BAY	F	164	0.52	0.48	0.00	0.00	0.00
ALSEA BAY	F	88	0.49	0.51	0.00	0.00	0.00
FALL CREEK	F	198	0.48	0.52	0.00	0.00	0.00
SILETZ ESTUARY	F	184	0.42	0.58	0.00	0.00	0.00
SALMON	F	190	0.28	0.72	0.00	0.00	0.00
NESTUCCA BAY	F	120	0.49	0.51	0.00	0.00	0.00
CEDAR CREEK	F	198	0.55	0.45	0.00	0.00	0.00
TRASK	F	178	0.44	0.56	0.00	0.00	0.00
TILLAMOOK BAY	F	176	0.43	0.57	0.00	0.00	0.00
NEHALEM ESTUARY	F	240	0.44	0.56	0.00	0.00	0.00
NABELLE	F	196	0.64	0.36	0.00	0.00	0.00
NEMAH	F	198	0.62	0.38	0.00	0.00	0.00
HUMPTULIPS EARLY	F	100	0.60	0.40	0.00	0.00	0.00
QUINAULT	F	200	0.58	0.42	0.00	0.00	0.00
QUEETS	F	198	0.33	0.67	0.00	0.00	0.00
HOH	F	188	0.48	0.52	0.00	0.00	0.00
SOLEDUCK	F	96	0.37	0.64	0.00	0.00	0.00
ELWHA	F	198	0.40	0.60	0.00	0.00	0.00
HOOD CANAL	F	190	0.69	0.31	0.00	0.00	0.00
DESCHUTES	F	94	0.65	0.35	0.00	0.00	0.00
GREEN RIVER	F	182	0.61	0.39	0.00	0.00	0.00
SAMISH	F	100	0.76	0.24	0.00	0.00	0.00
BIG QUALICUM	F	168	0.29	0.71	0.00	0.00	0.00
PUNTLEDGE	F	188	0.23	0.77	0.00	0.00	0.00
QUINSAM	F	192	0.15	0.85	0.00	0.00	0.00
ROBERTSON CREEK	F	192	0.31	0.69	0.00	0.00	0.00
SAN JUAN	F	100	0.18	0.82	0.00	0.00	0.00
CAPILANO	F	192	0.48	0.52	0.00	0.00	0.00

LOCUS: SOD 1

POPULATION	RUN	N	ALLELE FREQUENCIES				
			-100	-260	1250		
WELLS	SU	100	0.54	0.46	0.00	0.00	0.00
MCCALL	SU	100	0.98	0.02	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	112	0.97	0.03	0.00	0.00	0.00
SOLEDUCK	SU	200	0.73	0.26	0.02	0.00	0.00
SKYKOMISH	SU	200	0.57	0.42	0.01	0.00	0.00
SKAGIT	SU	198	0.71	0.28	0.01	0.00	0.00
CLEARWATER RIV FRASER	SP	96	0.65	0.35	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	0.71	0.29	0.00	0.00	0.00
STUART RIV FRASER	SP	98	0.74	0.27	0.00	0.00	0.00
COWLITZ	SP	74	0.84	0.15	0.01	0.00	0.00
KALAMA	SP	100	0.83	0.17	0.00	0.00	0.00
EAGLE CRK	SP	96	0.82	0.18	0.00	0.00	0.00
MCKENZIE	SP	100	0.69	0.31	0.00	0.00	0.00
WIND	SP	100	0.54	0.46	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	118	0.56	0.44	0.00	0.00	0.00
KLICKITAT	SP	100	0.81	0.19	0.00	0.00	0.00
WARMSPRINGS	SP	258	0.74	0.26	0.00	0.00	0.00
ROUND BUTTE	SP	80	0.95	0.05	0.00	0.00	0.00
ICICLE	SP	96	0.95	0.05	0.00	0.00	0.00
METHOW	SP	100	0.96	0.04	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	44	0.89	0.11	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	0.62	0.38	0.00	0.00	0.00
RAPID RIVER	SP	100	0.98	0.02	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	226	0.77	0.23	0.00	0.00	0.00
FEATHER	SP	200	0.67	0.33	0.01	0.00	0.00
TRINITY	SP	198	0.83	0.17	0.00	0.00	0.00
COLE RIVERS	SP	200	0.89	0.11	0.00	0.00	0.00
ROCK CREEK	SP	198	0.62	0.38	0.00	0.00	0.00
CEDAR CREEK	SP	194	0.57	0.43	0.01	0.00	0.00
TRASK	SP	90	0.93	0.07	0.00	0.00	0.00
SOLEDUCK	SP	98	0.89	0.11	0.00	0.00	0.00
NOOKSACK	SP	100	0.90	0.10	0.00	0.00	0.00
BIG CREEK	F	100	0.52	0.48	0.00	0.00	0.00
COWLITZ	F	196	0.65	0.35	0.00	0.00	0.00
KALAMA	F	100	0.54	0.46	0.00	0.00	0.00
LEWIS	F	98	0.57	0.43	0.00	0.00	0.00
WASHOUGAL	F	100	0.56	0.44	0.00	0.00	0.00
LITTLE WHITE SALMON	F	100	0.54	0.46	0.00	0.00	0.00
SPRING CREEK	F	100	0.53	0.47	0.00	0.00	0.00
DESCHUTES	F	98	0.74	0.27	0.00	0.00	0.00
PRIEST RAPIDS	F	200	0.55	0.45	0.00	0.00	0.00
ICE HARBOR	F	400	0.71	0.30	0.00	0.00	0.00
COLEMAN LATE	F	198	0.69	0.31	0.00	0.00	0.00
MOKELUMNE	F	190	0.75	0.25	0.00	0.00	0.00
NIMBUS	F	198	0.70	0.28	0.02	0.00	0.00
FEATHER	F	200	0.75	0.25	0.00	0.00	0.00
COLEMAN BATTLE	F	200	0.79	0.21	0.00	0.00	0.00
IRON GATE	F	198	0.99	0.01	0.00	0.00	0.00

LOCUS: SOD 1 CONTINUED

TRINITY	F	200	0.90	0.05	0.04	0.02	0.00
CHEOCO	F	200	0.80	0.20	0.00	0.00	0.00
ELK	F	200	0.66	0.34	0.00	0.00	0.00
SIXES ESTUARY	F	200	0.78	0.22	0.00	0.00	0.00
COQUILLE ESTUARY	F	230	0.79	0.21	0.00	0.00	0.00
SUISLAW BAY	F	164	0.84	0.15	0.01	0.00	0.00
ALSEA BAY	F	188	0.86	0.14	0.00	0.00	0.00
FALL CREEK	F	200	0.79	0.21	0.00	0.00	0.00
SILETZ ESTUARY	F	184	0.79	0.21	0.00	0.00	0.00
SALMON	F	198	0.74	0.26	0.00	0.00	0.00
NESTUCCA BAY	F	120	0.86	0.14	0.00	0.00	0.00
CEDAR CREEK	F	200	0.84	0.16	0.00	0.00	0.00
TRASK	F	194	0.89	0.11	0.00	0.00	0.00
TILLAMOOK BAY	F	176	0.90	0.10	0.00	0.00	0.00
NEHALEM ESTUARY	F	254	0.82	0.18	0.00	0.00	0.00
NASELLE	F	196	0.68	0.32	0.00	0.00	0.00
NEMAH	F	348	0.76	0.22	0.03	0.00	0.00
HUMPTULIPS EARLY	F	100	0.67	0.29	0.04	0.00	0.00
QUINAULT	F	194	0.78	0.21	0.01	0.00	0.00
QUEETS	F	240	0.88	0.12	0.01	0.00	0.00
HOH	F	200	0.91	0.10	0.00	0.00	0.00
SOLEDUCK	F	98	0.80	0.20	0.00	0.00	0.00
ELWHA	F	200	0.64	0.29	0.07	0.00	0.00
HOOD CANAL	F	194	0.62	0.37	0.01	0.00	0.00
DESCHUTES	F	268	0.63	0.32	0.06	0.00	0.00
GREEN RIVER	F	196	0.61	0.38	0.02	0.00	0.00
SAMISH	F	100	0.66	0.34	0.00	0.00	0.00
BIG QUALICUM	F	170	0.79	0.21	0.00	0.00	0.00
PUNTLEDGE	F	188	0.93	0.05	0.02	0.00	0.00
QUINSAM	F	194	0.89	0.10	0.01	0.00	0.00
ROBERTSON CREEK	F	200	0.81	0.20	0.00	0.00	0.00
SAN JUAN	F	100	0.80	0.19	0.01	0.00	0.00
CAPILANO	F	198	0.78	0.16	0.07	0.00	0.00

LOCUS: SOD 2

POPULATION	RUN	N	ALLELE FREQUENCIES				
			100	142			
WELLS	SU	0	0.00	0.00	0.00	0.00	0.00
MCCALL	SU	0	0.00	0.00	0.00	0.00	0.00
JOHNSON CRK-SF SALMON	SU	0	0.00	0.00	0.00	0.00	0.00
SOLEDUCK	SU	100	1.00	0.00	0.00	0.00	0.00
SKYKOMISH	SU	0	0.00	0.00	0.00	0.00	0.00
SKAGIT	SU	100	1.00	0.00	0.00	0.00	0.00
CLEARWATER RIV FRASER	SP	98	1.00	0.00	0.00	0.00	0.00
CHILCO RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
STUART RIV FRASER	SP	100	1.00	0.00	0.00	0.00	0.00
COWLITZ	SP	76	1.00	0.00	0.00	0.00	0.00
KALAMA	SP	100	1.00	0.00	0.00	0.00	0.00
EAGLE CRK	SP	96	1.00	0.00	0.00	0.00	0.00
MCKENZIE	SP	98	1.00	0.00	0.00	0.00	0.00
WIND	SP	96	0.97	0.03	0.00	0.00	0.00
LITTLE WHITE SALMON	SP	116	0.94	0.06	0.00	0.00	0.00
KLICKITAT	SP	94	1.00	0.00	0.00	0.00	0.00
WARMSPRINGS	SP	0	0.00	0.00	0.00	0.00	0.00
ROUND BUTTE	SP	0	0.00	0.00	0.00	0.00	0.00
ICICLE	SP	0	0.00	0.00	0.00	0.00	0.00
METHOW	SP	0	0.00	0.00	0.00	0.00	0.00
RED RIV SF CLEARWATER	SP	0	0.00	0.00	0.00	0.00	0.00
SAWTOOTH UPPER SALMON	SP	100	1.00	0.00	0.00	0.00	0.00
RAPID RIVER	SP	0	0.00	0.00	0.00	0.00	0.00
VALLEY CRK UPPER SAL	SP	32	1.00	0.00	0.00	0.00	0.00
FEATHER	SP	100	1.00	0.00	0.00	0.00	0.00
TRINITY	SP	198	1.00	0.00	0.00	0.00	0.00
COLE RIVERS	SP	200	1.00	0.00	0.00	0.00	0.00
ROCK CREEK	SP	200	1.00	0.00	0.00	0.00	0.00
CEDAR CREEK	SP	0	0.00	0.00	0.00	0.00	0.00
TRASK	SP	90	1.00	0.00	0.00	0.00	0.00
SOLEDUCK	SP	98	1.00	0.00	0.00	0.00	0.00
NOOKSACK	SP	100	1.00	0.00	0.00	0.00	0.00
BIG CREEK	F	0	0.00	0.00	0.00	0.00	0.00
COWLITZ	F	98	1.00	0.00	0.00	0.00	0.00
KALAMA	F	0	0.00	0.00	0.00	0.00	0.00
LEWIS	F	0	0.00	0.00	0.00	0.00	0.00
WASHOUGAL	F	0	0.00	0.00	0.00	0.00	0.00
LITTLE WHITE SALMON	F	0	0.00	0.00	0.00	0.00	0.00
SPRING CREEK	F	0	0.00	0.00	0.00	0.00	0.00
DESCHUTES	F	98	1.00	0.00	0.00	0.00	0.00
PRIEST RAPIDS	F	100	1.00	0.00	0.00	0.00	0.00
ICE HARBOR	F	300	1.00	0.00	0.00	0.00	0.00
COLEMAN LATE	F	200	1.00	0.00	0.00	0.00	0.00
MOKELUMNE	F	100	1.00	0.00	0.00	0.00	0.00
NIMBUS	F	100	1.00	0.00	0.00	0.00	0.00
FEATHER	F	100	1.00	0.00	0.00	0.00	0.00
COLEMAN BATTLE	F	200	1.00	0.00	0.00	0.00	0.00
IRON GATE	F	198	1.00	0.00	0.00	0.00	0.00

LOCUS: SOD 2 CONTINUED

TRINITY	F	100	1.00	0.00	0.00	0.00	0.00
CHETCO	F	200	1.00	0.00	0.00	0.00	0.00
ELK	F	200	1.00	0.00	0.00	0.00	0.00
SIXES ESTUARY	F	0	0.00	0.00	0.00	0.00	0.00
COQUILLE ESTUARY	F	0	0.00	0.00	0.00	0.00	0.00
SUISLAW BAY	F	64	1.00	0.00	0.00	0.00	0.00
ALSEA BAY	F	96	1.00	0.00	0.00	0.00	0.00
FALL CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SILETZ ESTUARY	F	0	0.00	0.00	0.00	0.00	0.00
SALMON	F	198	1.00	0.00	0.00	0.00	0.00
NESTUCCA BAY	F	0	0.00	0.00	0.00	0.00	0.00
CEDAR CREEK	F	100	1.00	0.00	0.00	0.00	0.00
TRASK	F	194	1.00	0.00	0.00	0.00	0.00
TILLAMOOK BAY	F	0	0.00	0.00	0.00	0.00	0.00
NEHALEM ESTUARY	F	172	1.00	0.00	0.00	0.00	0.00
NASELLE	F	198	1.00	0.00	0.00	0.00	0.00
NEMAH	F	0	0.00	0.00	0.00	0.00	0.00
HUMPTULIPS EARLY	F	0	0.00	0.00	0.00	0.00	0.00
QUINAULT	F	100	1.00	0.00	0.00	0.00	0.00
QUEETS	F	100	1.00	0.00	0.00	0.00	0.00
HQH	F	0	0.00	0.00	0.00	0.00	0.00
SOLEDUCK	F	0	0.00	0.00	0.00	0.00	0.00
ELWHA	F	0	0.00	0.00	0.00	0.00	0.00
HOOD CANAL	F	196	1.00	0.00	0.00	0.00	0.00
DESCHUTES	F	100	1.00	0.00	0.00	0.00	0.00
GREEN RIVER	F	198	1.00	0.00	0.00	0.00	0.00
SAMISH	F	0	0.00	0.00	0.00	0.00	0.00
BIG QUALICUM	F	170	1.00	0.00	0.00	0.00	0.00
PUNTLEDGE	F	0	0.00	0.00	0.00	0.00	0.00
QUINSAM	F	100	1.00	0.00	0.00	0.00	0.00
ROBERTSON CREEK	F	200	1.00	0.00	0.00	0.00	0.00
SAN JUAN	F	0	0.00	0.00	0.00	0.00	0.00
CAPILANO	F	198	1.00	0.00	0.00	0.00	0.00