

ALASKA LEGISLATURE SPECIAL COMMITTEE / SUBJECT FILE 8672
1828 SCOMM 74: SEN. SPEC. COMM. ON DOMESTIC & INTL. FISH., 1991-92. ~~45~~

MS. NANCY HILLSTRAND

BOX 674

HOMER, AK 99603

MS. DONNA PARKER

1319 MOUNTAIN VIEW DR.

KODIAK, AK 99615

MR. JACK HELLE

AUKE BAY LAB

NATIONAL MARINE FISHERY SVC

P. O. BOX 210155

AUKE BAY, AK 99821

MR. JERRY McCUTCHEON

121 WEST 11TH

ANCHORAGE, AK 99501

MR. LARRY C. PETERSON

FISHERY RESOURCES

U.S. FISH & WILDLIFE SERVICE

1011 EAST TUDOR ROAD

ANCHORAGE, AK 99503

MR. DAN HULL

BOX 1396

CORDOVA, AK 99574

MR. D. D. "DON" BAILEY

PROGRAM COORDINATION

/ASSESSMENT DIVISION

SALMONID ENHANCEMENT

555 WEST HASTINGS STREET

VANCOUVER, B.C. V6B 5G3

MR. BILL SPENCER, DIR.

ECONOMIC DEVELOPMENT

N.W. ARCTIC BOROUGH

F. BOX 1110

KOTZEBUE, AK 99752

MR. STAN SIMONSON, PRES.

GOLDEN AGE FISHERIES

18 WEST MERCER ST, SUITE 400

SEATTLE, WA 98119

MR. ROSS MULLENS

BOX 436

CORDOVA, AK 99574

MR. DOUG VINCENT-LANG
AK DEPT OF FISH & GAME
SPORT FISH DIVISION
333 RASPBERRY ROAD
ANCHORAGE, AK 99518

MR. KEVIN A. FORD
NATIONAL MARINE
FISHERIES SERVICES
U.S. DEPT OF COMMERCE
7600 SAND POINT WAY NE
SEATTLE, WA 98115

MR. A.W. "BILL" HALL
ALASKA COMMERCIAL FISHING
AND AGRICULTURE BANK
2550 DENALI, SUITE 1201
ANCHORAGE, AK 99503

MR. A. J. GHARRETT
JUNEAU CTR FOR FISHERIES
AND OCEAN SCIENCES
11120 GLACIER HWY
JUNEAU, AK 99801

MS. ADELHEIDE HERRMANN
BOX 263
NAKNEK, AK 99633

ELLEN LOCKYER, REPORTER
KCHU RADIO STATION
P. C. BOX 2504
CORDOVA, AK 99574

MR. JOHN WOODRUFF
C/O ICICLE SEAFOODS
BOX 8
SEWARD, AK 99664

MR. JIM GRIFFIN
LEGISLATIVE AUDIT DIVISION
P. O. BOX W
JUNEAU, AK 99811-3300

MR. PERCY M. WASHINGTON
GAIA NORTHWEST, INC.
10522 LAKE CITY WAY NE
SUITE C-201
SEATTLE, WA 98125

MR. IRVING CARLISLE
BOARD OF FISHERIES
P. O. BOX 2349
SOLDOTNA, AK 99669

MR. LARRY EDFELT
BOARD OF FISHERIES
P. O. BOX 210483
AUKE BAY, AK 99821

MR. JEREMY S. COLLIE
JUNEAU CTR FOR FISHERIES/
OCEAN SCIENCES
11120 GLACIER HIGHWAY
JUNEAU, AK 99801

MR. THOMAS M. ELIAS
BOARD OF FISHERIES
5306 ARCTIC BLVD
ANCHORAGE, AK 99518

MR. MARK L. HERRMANN
DEPT. OF ECONOMICS
UNIV OF ALASKA, FAIRBANKS
FAIRBANKS, AK 99775

MR. JOHN HANSON
BOARD OF FISHERIES
BOX 1
ALAKANUK, AK 99554

MR. JOHN BOYCE
DEPT. OF ECONOMICS
UNIV OF ALASKA, FAIRBANKS
FAIRBANKS, AK 99775

MR. MICHAEL R. MARTIN
BOARD OF FISHERIES
13300 VENUS WAY
ANCHORAGE, AK 99515

MR. CHRIS LUNSFORD
3241 N.W. ORCHARD ST.
CORVALLIS, OR 97330

MR. FRED ANDERSON
DEPT. OF FISH & GAME
DIVISION OF SPORTFISH
1300 COLLEGE ROAD
FAIRBANKS, AK 99701

Dr. Ole Mathisen
UAF - Juneau Center for
Fisheries and Ocean Sciences
11120 Glacier Highway
Juneau, AK 99801-8677

SCOMM

74.37

from Dada Processing

FIRST CLASS MAIL

to Ginnie Jay

Rm 11, Capitol

FLOPPY DISK MAILER

Do not bend or fold. Avoid exposure to all magnetic fields.
For 5 1/4" MINI FLOPPY DISK

FAX TRANSMITTAL SHEET

FROM: Mark Herrmann

SCHOOL OF MANAGEMENT
UNIVERSITY OF ALASKA FAIRBANKS
101 BUNNELL BUILDING
FAIRBANKS, ALASKA 99775-1070

TELEPHONE: (907) 474-7461

FAX: (907) 474-5219

John A. Lehman, Acting Dean

TRANSMITTED TO: Ginny Fay

DATE: Dec 16 TIME: 9:10 AM PAGES (INCLUDING THIS PAGE): 4

MESSAGE: _____

SIMNLIN Procedure
Simultaneous Simulation

Solution Range T = 9 To 43

Descriptive Statistics

Variable	Nobs	N	Actual		Predicted	
			Mean	Std	Mean	Std
NXQUSA Norw exp Q USA			4.0069	2.2509	3.9513	2.1754
NXPUSA Norw exp P USA			21.9871	2.9363	22.2632	3.3385
NXPSEC Norw exp P SEC			19.7802	3.0037	19.7344	3.2799
NXQJAP Norw exp Q JAP			1.2401	1.2306	1.2139	1.2256
NXPJAP Norw exp P JAP			21.5489	2.8177	21.5632	3.1270
NPHX N.A. wh exp P			2.4373	0.6190	2.4815	0.7018
NPHXJ NA P H-V sal-Jpn			2.4657	0.6666	2.5323	0.7713
NXQSEC NA Q H-V sal-SEC			27.4308	23.0370	27.5126	22.7056
NPHXE NA P H-V sal-SEC			2.3924	0.5769	2.4115	0.5574
NHTSUP Tot beg H-V Supp			131.5584	136.7795	131.1849	136.6855
NHZINVE Tot end H-V Inv			23.8234	16.9948	23.8685	17.3264
NQHXJ NA Q H-V sal-Jpn			46.5171	63.6166	46.2489	63.5907
NHEXP Tot NA H-V export			54.5437	68.9716	54.0954	68.8298
NQHXE NA Q H-V sal-Jpn			8.0266	5.9285	7.8465	6.9924
JINVZE Tot end Jpn Inv			103.4069	42.3828	101.6850	42.4151
NPLXE NA P L-V sal-SEC			1.4303	0.3533	1.3727	0.3837
NQLXE NA Q L-V sal-SEC			13.0180	15.9128	13.8160	15.2647
NOLXJ NA Q L-V sal-JPN			5.6120	2.9659	5.7017	2.9031
NPLXJ NA P L-V sal-JPN			1.4748	0.3243	1.4130	0.3325
JINVTTE Tot end Jpn Inv			156.0483	54.1726	158.4135	61.5247
NPLX N.A. wh exp P			1.4190	0.3180	1.3658	0.3627
NLTSUP Tot beg H-V Supp			144.2762	166.1618	145.1019	165.1933
NLZINVE Tot end H-V Inv			29.5918	18.6374	31.0904	21.1642
HCANP H-V NA can exp P			3.0955	0.6937	2.9819	0.2970
LCANQ L-V NA exp can Q			8.8026	4.7669	8.6817	4.4092
LCANP L-V NA exp can P			2.1292	0.6547	2.1778	0.6197
ULBINVE Tot end L-V Inv Can			68.6657	43.6838	67.4633	35.6399
NLTSUPC Tot beg H-V Supp Can			250.6330	147.6046	251.0246	148.4074
NAPHEX Exvessel H-V			1.7297	0.7349	1.7540	0.7582
NAPLEX Exvessel H-V			0.4931	0.2250	0.4858	0.1979

SAS

SIMNLIN Procedure
Simultaneous Simulation

Solution Range T = 9 To 43

Statistics of Fit

Variable	N	Mean Error	Mean % Error	Mean Abs Error	Mean Abs % Error
NXQUSA	35	-0.0556	5.9371	0.4010	17.77905
NXPUSA	35	0.2761	1.5334	1.7103	8.15393
NXPPEC	35	-0.0458	0.1303	1.7233	8.82741
NXQJAP	35	-0.0263	6.0744	0.3336	25.49316
NXPJAP	35	0.0144	0.5542	2.0362	9.74573
NPHX	35	0.0442	3.2964	0.4203	18.86219
NPHXJ	35	0.0665	4.6108	0.4874	21.74561
NXQEEC	35	0.0819	1.2119	0.6366	3.04369
NPHXE	35	0.0191	2.8543	0.3780	16.69246
NETSUP	35	-0.3735	1.1544	5.0035	10.65467
NHZINVE	35	0.0451	3.1679	5.4221	24.51783
NQHXJ	35	-0.2683	7.5652	5.2357	30.81754
NHEXP	35	-0.4483	1.5198	4.6495	20.90141
NQHXE	35	-0.1800	4.3557	2.5536	36.81190
JINVZE	35	-1.7219	2.8167	18.7556	22.76753
NPLXE	35	-0.0577	-3.5583	0.2220	16.60730
NQLXE	35	0.7980	24.8097	4.4942	44.88275
NQLXJ	35	0.0896	9.0240	1.1887	27.80592
NPLXJ	35	-0.0617	-3.7588	0.1601	11.27363
JINVTE	35	2.3652	3.9132	26.3101	18.39993
NPLX	35	-0.0532	-3.8725	0.1901	14.29884
NLTSUP	35	0.8257	2.9972	5.1698	8.93675
NLZINVE	35	1.4986	5.8455	5.8427	19.40417
HCANP	35	-0.1135	0.8122	0.5989	19.77807
LCANQ	35	-0.1209	6.0660	1.6644	24.03509
LCANP	35	0.0486	4.9438	0.4344	20.90294
ULBINVE	35	-1.2024	14.6453	16.1274	33.78358
NLTSUPC	35	0.3916	1.3187	22.2858	11.84294
NAPHEX	35	0.0242	3.4049	0.2241	14.01889
NAPLEX	35	-0.007348	2.0515	0.0813	16.76242

SAS

SIMULIN Procedure
Simultaneous Simulation

Solution Range T = 9 To 43

Statistics of Fit

Variable	RMS Error	RMS % Error
NXQUSA	0.4932	36.3555
NXPUSA	2.2256	10.9613
NXPEEC	2.0516	10.6907
NXQJAP	0.6044	34.3097
NXPJAP	2.4552	11.9235
NPHX	0.5614	26.3001
NPHXJ	0.6344	29.6726
NXQEEC	0.8618	3.9085
NPHXE	0.4840	22.1572
NETSUP	7.2255	17.5745
NHZINVE	7.6381	29.6371
NQHXJ	7.4445	45.0224
NHEXP	6.3986	29.7228
NQHXE	3.8821	51.2270
JINVZE	23.4826	30.8980
NPLXE	0.2819	21.4445
NQLXE	8.4043	62.7209
NQLXJ	1.5310	37.0747
NPLXJ	0.1954	13.8841
JINVTB	33.2171	24.0762
NPLX	0.2253	17.6895
NLTSUP	7.4146	12.9263
NLZINVE	8.4158	23.6761
HCANP	0.7179	24.2040
LCANQ	1.9719	31.8355
LCANP	0.5449	25.8759
ULBINVE	19.3088	47.8222
NLTSUPC	26.3965	15.2242
NAPHEX	0.2997	18.1398
NAPLEX	0.1076	21.0015

**UNIVERSITY OF ALASKA FAIRBANKS**

School of Management
Fairbanks, Alaska 99775-1070

DATE: December 16, 1992
TO: Ginny Fay
FROM: Mark Herrmann *MH*
Re: Salmon Project

I have enclosed the final executive summary report for the demand portion of the salmon grant. I have type it in double space and cleaned up a few errors. Otherwise, it is nearly identical to the DRAFT version.

I have also enclosed the hard copy of the salmon prices used for the "average" price runs for every scenario as well as the Goodness-Of-Fit statistics requested.

Also enclosed are the files that will run the base scenario.

After Jeff has been able to reproduce the base scenario I will give him the rest of the data to run the 11 simulations. I rather hold off on this data now because it will only confuse things. Once Jeff has fooled around with the base scenario, he will have more understanding on how to run the rest of the scenarios. At that point, it might be easier for me to guide him through the rest of the process over the phone, at some predetermined time.

For instructions on how to run the base scenario please see the instructions I sent with the last correspondence. Again, I am rewriting the entire program to improve the forecasting and simulation ability. The results I sent you will likely be somewhat different than the results I have in three months (the same with the program). Early indications are the results for sockeye, chinook, and coho will remain virtually unchanged, but the results for pink salmon may have been too generous in our initial study, i.e., I believe that I may be high on the predicted future pink prices.

I believe this satisfies the demand portion of the grant with the exception of the large report which I will get to you by mid-February. Having Ben and Kurt's comments will be very useful-please thank them for me. I would appreciate it if you would let us know when the project is signed

off on so we can send the executive summaries to interest parties. I got a call today from Chile requesting it!

Josh and I have both enjoyed working with you Ginny. I found your comments on the project, at all stages, to be very useful. If you have any questions about the project in the future please do not hesitate to call. Maybe we will work together again.

CASE 1 -- BASE SCENARIO

pu's - rock - kerlian k - Southport - Rort of Alk

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37625	1.20521	1.18618	1.26222	0.95053
94	1.33838	1.17631	1.15389	1.22507	0.92426
95	1.40388	1.22630	1.20973	1.28859	0.96968
96	1.44636	1.25872	1.24595	1.32915	0.99914
97	1.51027	1.30749	1.30044	1.39015	1.04346
98	1.56688	1.35070	1.34870	1.44419	1.08272
99	1.59961	1.37568	1.37661	1.47544	1.10542
100	1.63307	1.40122	1.40514	1.50738	1.12863
101	1.66577	1.42617	1.43302	1.53860	1.15130
102	1.70827	1.45861	1.46926	1.57917	1.18078
103	1.75406	1.49356	1.50830	1.62289	1.21253
104	1.80348	1.53128	1.55043	1.67006	1.24681
105	1.84930	1.56624	1.58949	1.71380	1.27858
106	1.89847	1.60377	1.63142	1.76074	1.31268

*465
4979*

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26562	0.23606	0.25665	0.27727	0.27155
94	0.27649	0.24444	0.26718	0.28801	0.28022
95	0.25519	0.22803	0.24656	0.26697	0.26324
96	0.25993	0.23168	0.25115	0.27166	0.26703
97	0.27015	0.23955	0.26104	0.28175	0.27517
98	0.26824	0.23808	0.25918	0.27985	0.27364
99	0.27306	0.24179	0.26385	0.28461	0.27748
100	0.28203	0.24870	0.27253	0.29347	0.28463
101	0.29736	0.26051	0.28737	0.30860	0.29685
102	0.29803	0.26102	0.28801	0.30927	0.29738
103	0.29570	0.25923	0.28576	0.30696	0.29553
104	0.32187	0.27939	0.31108	0.33280	0.31638
105	0.34137	0.29441	0.32996	0.35206	0.33192
106	0.35749	0.30682	0.34555	0.36796	0.34476

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.39319	0.40544	0.35289	0.45677	0.33278
94	0.40524	0.41316	0.36629	0.46922	0.33808
95	0.38165	0.39803	0.34004	0.44483	0.32771
96	0.38690	0.40140	0.34588	0.45026	0.33002
97	0.39822	0.40866	0.35848	0.46196	0.33499
98	0.39609	0.40730	0.35611	0.45976	0.33406
99	0.40143	0.41072	0.36206	0.46528	0.33641
100	0.41137	0.41710	0.37311	0.47555	0.34077
101	0.42833	0.42798	0.39200	0.49310	0.34823
102	0.42908	0.42846	0.39282	0.49387	0.34856
103	0.42650	0.42680	0.38995	0.49120	0.34743
104	0.45547	0.44539	0.42219	0.52115	0.36016
105	0.47706	0.45924	0.44622	0.54348	0.36966

R - sockeye

P - pink

C - Chem

S - Cch.

K - Chumk

106 0.49490 0.47069 0.46608 0.56192 0.37750

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82443	0.63338	0.66658	1.09384	0.66309
94	0.80538	0.61990	0.65593	1.06537	0.64783
95	0.83834	0.64322	0.67435	1.11460	0.67422
96	0.85971	0.65834	0.68630	1.14653	0.69134
97	0.89187	0.68109	0.70428	1.19456	0.71709
98	0.92036	0.70124	0.72021	1.23711	0.73990
99	0.93683	0.71289	0.72941	1.26172	0.75309
100	0.95366	0.72480	0.73883	1.28686	0.76657
101	0.97012	0.73644	0.74803	1.31144	0.77975
102	0.99151	0.75157	0.75998	1.34338	0.79687
103	1.01455	0.76787	0.77286	1.37780	0.81532
104	1.03942	0.78546	0.78677	1.41494	0.83524
105	1.06247	0.8077	0.79965	1.44938	0.85370
106	1.08721	0.81927	0.81349	1.48634	0.87351

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59658	1.13720	1.02164	2.27151	1.37220
94	1.56030	1.12702	1.01250	2.24669	1.35600
95	1.62305	1.14462	1.02831	2.28979	1.38403
96	1.66375	1.15604	1.03857	2.31774	1.40221
97	1.72498	1.17321	1.05400	2.35978	1.42956
98	1.77921	1.18843	1.06766	2.39703	1.45379
99	1.81058	1.19722	1.07556	2.41857	1.46780
100	1.84263	1.20621	1.08364	2.44059	1.48212
101	1.87396	1.21500	1.09153	2.46210	1.49611
102	1.91468	1.22642	1.10179	2.49007	1.51430
103	1.95855	1.23873	1.11285	2.52020	1.53390
104	2.00590	1.25201	1.12478	2.55271	1.55505
105	2.04980	1.26432	1.13584	2.58285	1.57466
106	2.09691	1.27754	1.14771	2.61521	1.59570

CASE 2 -- WISH LIST

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.28421	1.13497	1.10770	1.17435	0.88669
93	1.35656	1.19018	1.16939	1.24342	0.93687
94	1.32995	1.16988	1.14670	1.21802	0.91841
95	1.39646	1.22064	1.20341	1.28152	0.96454
96	1.44365	1.25665	1.24364	1.32656	0.99726
97	1.50278	1.30178	1.29406	1.38301	1.03827
98	1.55916	1.34481	1.34213	1.43683	1.07737
99	1.57114	1.35395	1.35234	1.44826	1.08568
100	1.59915	1.37533	1.37622	1.47500	1.10510
101	1.62876	1.39793	1.40146	1.50327	1.12564

102	1.66036	1.42205	1.42841	1.53343	1.14755
103	1.61556	1.38786	1.39021	1.49067	1.11649
104	1.66011	1.42185	1.42819	1.53319	1.14738
105	1.70320	1.45474	1.46493	1.57433	1.17726
106	1.75018	1.49060	1.50499	1.61918	1.20984

YR	FWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27536	0.24356	0.26608	0.28689	0.27932
93	0.26778	0.23773	0.25875	0.27941	0.27328
94	0.27027	0.23964	0.26115	0.28186	0.27526
95	0.24813	0.22259	0.23973	0.26001	0.25762
96	0.24904	0.22329	0.24061	0.26090	0.25834
97	0.25880	0.23081	0.25005	0.27053	0.26612
98	0.25494	0.22784	0.24632	0.26673	0.26305
99	0.25975	0.23154	0.25097	0.27147	0.26688
100	0.26824	0.23808	0.25919	0.27986	0.27365
101	0.28530	0.25122	0.27570	0.29670	0.28724
102	0.28486	0.25088	0.27527	0.29626	0.28689
103	0.27906	0.24641	0.26966	0.29054	0.28227
104	0.30488	0.26630	0.29465	0.31603	0.30285
105	0.32515	0.28192	0.31426	0.33604	0.31900
106	0.34134	0.29438	0.32992	0.35202	0.33189

YR	PWCZ	CICZ	KCZ	JCZ	KOCPZ
92	0.40398	0.41236	0.36489	0.46792	0.33753
93	0.39559	0.40698	0.35556	0.45925	0.33384
94	0.39834	0.40874	0.35862	0.46209	0.33505
95	0.37384	0.39302	0.33135	0.43675	0.32427
96	0.37484	0.39366	0.33246	0.43779	0.32471
97	0.38564	0.40059	0.34448	0.44896	0.32946
98	0.38137	0.39785	0.33973	0.44454	0.32759
99	0.38670	0.40127	0.34565	0.45005	0.32993
100	0.39610	0.40730	0.35612	0.45977	0.33406
101	0.41499	0.41942	0.37714	0.47930	0.34237
102	0.41449	0.41910	0.37659	0.47879	0.34215
103	0.40808	0.41498	0.36945	0.47215	0.33933
104	0.43667	0.43333	0.40127	0.50171	0.35190
105	0.45910	0.44772	0.42624	0.52491	0.36176
106	0.47702	0.45922	0.44618	0.54344	0.36964

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.77812	0.60062	0.64069	1.02465	0.62600
93	0.81452	0.62637	0.66104	1.07903	0.65515
94	0.80113	0.61690	0.65356	1.05903	0.64443
95	0.83460	0.64058	0.67227	1.10903	0.67123
96	0.85835	0.65737	0.68554	1.14449	0.69025
97	0.88810	0.67842	0.70218	1.18894	0.71407
98	0.91647	0.69849	0.71804	1.23131	0.73679
99	0.92250	0.70275	0.72140	1.24031	0.74162
100	0.93660	0.71273	0.72929	1.26137	0.75290
101	0.95149	0.72326	0.73761	1.28362	0.76483

102	0.96740	0.73451	0.74650	1.30737	0.77757
103	0.94485	0.71857	0.73390	1.27370	0.75952
104	0.96727	0.73442	0.74643	1.30718	0.77746
105	0.98896	0.74976	0.75856	1.33957	0.79483
106	1.01259	0.76649	0.77177	1.37488	0.81376

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.50840	1.11246	0.99942	2.21105	1.33281
93	1.57771	1.13191	1.01689	2.25865	1.36378
94	1.55222	1.12476	1.01047	2.24114	1.35239
95	1.61595	1.14263	1.02652	2.28491	1.38085
96	1.66115	1.15531	1.03791	2.31595	1.40105
97	1.71781	1.17120	1.05219	2.35486	1.42636
98	1.77183	1.18635	1.06580	2.39196	1.45049
99	1.78330	1.18957	1.06869	2.39984	1.45561
100	1.81014	1.19710	1.07545	2.41827	1.46760
101	1.83850	1.20505	1.08260	2.43775	1.48027
102	1.86878	1.21355	1.09023	2.45854	1.49380
103	1.83586	1.20151	1.07941	2.42907	1.47463
104	1.86854	1.21348	1.09017	2.45837	1.49369
105	1.90983	1.22506	1.10057	2.48673	1.51213
106	1.95484	1.23769	1.11191	2.51764	1.53224

CASE 3 -- SALMON ENHANCEMENT PROGRAM IS ELIMINATED

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37529	1.20448	1.18535	1.26130	0.94985
94	1.33757	1.17569	1.15320	1.22529	0.92370
95	1.41029	1.23119	1.21520	1.29472	0.97413
96	1.48124	1.28534	1.27569	1.36244	1.02333
97	1.62979	1.39871	1.40234	1.50425	1.12635
98	1.72768	1.47343	1.48581	1.59770	1.19424
99	1.77755	1.51148	1.52832	1.64530	1.22882
100	1.82675	1.54903	1.57027	1.69227	1.26294
101	1.85131	1.56778	1.59121	1.71572	1.27998
102	1.90895	1.61177	1.64035	1.77074	1.31995
103	1.96692	1.65601	1.68978	1.82608	1.36015
104	2.02623	1.70128	1.74035	1.88270	1.40128
105	2.07731	1.74026	1.78289	1.93146	1.43670
106	2.13953	1.78775	1.83694	1.99086	1.47985

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26133	0.23276	0.25250	0.27303	0.26814
94	0.27137	0.24049	0.26222	0.28295	0.27614
95	0.38941	0.33141	0.37645	0.39948	0.37021
96	0.41403	0.35037	0.40027	0.42379	0.38982
97	0.48671	0.40635	0.47060	0.49554	0.44774
98	0.51052	0.42469	0.49364	0.51905	0.46672
99	0.52624	0.43680	0.50886	0.53456	0.47924

100	0.53877	0.44645	0.52099	0.54694	0.48923
101	0.54737	0.45307	0.52930	0.55542	0.49608
102	0.55905	0.46207	0.54061	0.56696	0.50539
103	0.56213	0.46444	0.54359	0.56999	0.50784
104	0.57665	0.47562	0.55764	0.58433	0.51941
105	0.58662	0.48330	0.56728	0.59417	0.52736
106	0.60666	0.49874	0.58668	0.61396	0.54333

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.38845	0.40239	0.34760	0.45186	0.33069
94	0.39956	0.40952	0.35997	0.46335	0.33558
95	0.53024	0.49336	0.50542	0.59847	0.39304
96	0.55749	0.51085	0.53574	0.62664	0.40502
97	0.63795	0.56247	0.62529	0.70984	0.44040
98	0.66431	0.57938	0.65463	0.73709	0.45199
99	0.68172	0.59054	0.67400	0.75509	0.45964
100	0.69559	0.59945	0.68944	0.76943	0.46574
101	0.70511	0.60555	0.70003	0.77927	0.46993
102	0.71804	0.61385	0.71442	0.79264	0.47561
103	0.72145	0.61603	0.71822	0.79616	0.47711
104	0.73752	0.62635	0.73611	0.81279	0.48418
105	0.74856	0.63343	0.74839	0.82420	0.48903
106	0.77075	0.64767	0.77309	0.84714	0.49879

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82395	0.63304	0.66631	1.09311	0.66270
94	0.80497	0.61961	0.65570	1.06476	0.64750
95	0.84156	0.64550	0.67616	1.11942	0.67680
96	0.87726	0.67075	0.69611	1.17274	0.70539
97	0.95201	0.72363	0.73790	1.28439	0.76525
98	1.00127	0.75848	0.76544	1.35797	0.80469
99	1.02636	0.77623	0.77947	1.39545	0.82479
100	1.05112	0.79374	0.79331	1.43243	0.84461
101	1.06348	0.80248	0.80022	1.45089	0.85451
102	1.09249	0.82300	0.81644	1.49422	0.87773
103	1.12166	0.84364	0.83274	1.53779	0.90109
104	1.15150	0.86475	0.84943	1.58236	0.92499
105	1.17720	0.88293	0.86380	1.62075	0.94557
106	1.20851	0.90508	0.88130	1.66752	0.97064

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59566	1.13694	1.02141	2.27097	1.37179
94	1.55952	1.12680	1.01231	2.24616	1.35565
95	1.62919	1.14635	1.02986	2.29401	1.38677
96	1.69716	1.16541	1.04699	2.34068	1.41713
97	1.83949	1.20533	1.08285	2.43843	1.48071
98	1.93328	1.23164	1.10648	2.50284	1.52261

99	1.98105	1.24504	1.11852	2.53564	1.54395
100	2.02819	1.25826	1.13040	2.56802	1.56501
101	2.05173	1.26486	1.13633	2.58418	1.57552
102	2.10695	1.28035	1.15024	2.62210	1.60019
103	2.16249	1.29593	1.16423	2.66025	1.62500
104	2.21931	1.31187	1.17855	2.69927	1.65038
105	2.26825	1.32559	1.19088	2.73288	1.67224
106	2.32786	1.34232	1.20590	2.77382	1.69887

CASE 4A -- SALMON PRODUCTION FROM ENHANCEMENT PROGRAM IS INCREASED BY 15%

YR	PWRZ	C	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37639	1.20532	1.18630	1.26236	0.95062
94	1.33850	1.17640	1.15399	1.22619	0.92435
95	1.40331	1.22587	1.20925	1.28805	0.96929
96	1.44121	1.25479	1.24156	1.32423	0.99557
97	1.49531	1.29608	1.28769	1.37588	1.03309
98	1.54486	1.33390	1.32993	1.42318	1.06746
99	1.57654	1.35807	1.35694	1.45342	1.08942
100	1.60937	1.38313	1.38493	1.48476	1.11219
101	1.64187	1.40793	1.41264	1.51578	1.13473
102	1.68369	1.43985	1.44830	1.55571	1.16373
103	1.72695	1.47287	1.48518	1.59700	1.19373
104	1.77688	1.51098	1.52775	1.64467	1.22836
105	1.82103	1.54467	1.56539	1.68681	1.25897
106	1.86767	1.58027	1.60516	1.73134	1.29132

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26626	0.23655	0.25727	0.27790	0.27207
94	0.27726	0.24503	0.26792	0.28876	0.28083
95	0.23266	0.21068	0.22476	0.24473	0.24529
96	0.23852	0.21519	0.23043	0.25052	0.24996
97	0.23766	0.21453	0.22960	0.24967	0.24928
98	0.23265	0.21067	0.22475	0.24472	0.24528
99	0.23427	0.21191	0.22631	0.24632	0.24657
100	0.24182	0.21773	0.23362	0.25377	0.25259
101	0.26145	0.23285	0.25261	0.27315	0.26823
102	0.26054	0.23215	0.25174	0.27226	0.26751
103	0.25690	0.22971	0.24821	0.26866	0.26461
104	0.28501	0.251	0.27542	0.29642	0.28701
105	0.30371	0.26540	0.29351	0.31487	0.30191
106	0.32020	0.27810	0.30947	0.33116	0.31505

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.39391	0.40589	0.35368	0.45750	0.33310
94	0.40609	0.41371	0.36723	0.47010	0.33845
95	0.35671	0.38203	0.31228	0.41904	0.31674

96	0.36320	0.38619	0.31951	0.42575	0.31960
97	0.36225	0.38558	0.31844	0.42477	0.31918
98	0.35670	0.38202	0.31227	0.41903	0.31674
99	0.35849	0.38317	0.31426	0.42088	0.31752
100	0.36685	0.38853	0.32357	0.42953	0.32120
101	0.38858	0.40248	0.34775	0.45199	0.33075
102	0.38758	0.40183	0.34663	0.45096	0.33031
103	0.38354	0.39925	0.34215	0.44679	0.32854
104	0.41467	0.41921	0.37679	0.47897	0.34223
105	0.43537	0.43249	0.39982	0.50037	0.3513
106	0.45362	0.44421	0.42014	0.51925	0.355

YR	PWSZ	CISZ	KSZ	JSZ	AKOS
92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82450	0.63343	0.66662	1.09394	0.66315
94	0.80544	0.61995	0.65596	1.06546	0.64788
95	0.83805	0.64301	0.67419	1.11417	0.67399
96	0.85712	0.65651	0.68486	1.14266	0.68926
97	0.88434	0.67576	0.70007	1.18332	0.71106
98	0.90928	0.69340	0.71401	1.22056	0.73103
99	0.92522	0.70468	0.72292	1.24437	0.74379
100	0.94174	0.71636	0.73216	1.26905	0.75702
101	0.95809	0.72793	0.74130	1.29348	0.77012
102	0.97914	0.74282	0.75307	1.32491	0.78697
103	1.00090	0.75822	0.76524	1.35742	0.80440
104	1.02603	0.77599	0.77928	1.39495	0.82452
105	1.04824	0.79170	0.79170	1.42813	0.84231
106	1.07172	0.80831	0.80482	1.46319	0.86110

YR	PWKZ	CIRZ	KRZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59672	1.13724	1.02168	2.27170	1.37226
94	1.56042	1.12705	1.01253	2.24677	1.35605
95	1.62251	1.14447	1.02818	2.28941	1.38378
96	1.65882	1.15466	1.03733	2.31435	1.40001
97	1.71065	1.16919	1.05038	2.34994	1.42316
98	1.75812	1.18251	1.06235	2.38255	1.44437
99	1.78847	1.19102	1.06999	2.40339	1.45792
100	1.81992	1.19984	1.07792	2.42499	1.47197
101	1.85106	1.20858	1.08576	2.44637	1.48588
102	1.89113	1.21982	1.09586	2.47389	1.50378
103	1.93258	1.23144	1.10630	2.50235	1.52230
104	1.98042	1.24486	1.11836	2.53521	1.54367
105	2.02271	1.25672	1.12901	2.56425	1.56256
106	2.06740	1.26926	1.14027	2.59494	1.58252

CASE 4B -- SALMON HARVEST FROM ENHANCEMENT IS DECREASED BY 15 PERCENT

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
----	------	------	-----	-----	--------

92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37613	1.20512	1.18607	1.26210	0.95044
94	1.33827	1.17623	1.15380	1.22596	0.92419
95	1.40393	1.22634	1.20978	1.28864	0.9972
96	1.45096	1.26223	1.24987	1.33354	1.00233
97	1.52637	1.31979	1.31417	1.40553	1.05463
98	1.58707	1.36611	1.36592	1.46347	1.09672
99	1.62345	1.39388	1.39694	1.49820	1.12195
100	1.65789	1.42016	1.42630	1.53108	1.14584
101	1.68958	1.44435	1.45332	1.56133	1.16782
102	1.73148	1.47632	1.48904	1.60132	1.19687
103	1.78103	1.51414	1.53129	1.64862	1.23123
104	1.83095	1.55224	1.57385	1.69628	1.26585
105	1.87715	1.58750	1.61324	1.74038	1.29789
106	1.92786	1.62620	1.65647	1.78879	1.33306

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26547	0.23595	0.25651	0.27713	0.27144
94	0.27632	0.24431	0.26701	0.28784	0.28009
95	0.26027	0.23194	0.25148	0.27199	0.26730
96	0.26472	0.23537	0.25578	0.27638	0.27084
97	0.28560	0.25146	0.27599	0.29700	0.28748
98	0.28624	0.25194	0.27660	0.29762	0.28799
99	0.29216	0.25650	0.28233	0.30347	0.29270
100	0.30168	0.26383	0.29155	0.31287	0.30029
101	0.31746	0.27599	0.30682	0.32845	0.31287
102	0.31637	0.27515	0.30576	0.32737	0.31200
103	0.31389	0.27324	0.30336	0.32492	0.31002
104	0.34061	0.29382	0.32922	0.35130	0.33131
105	0.35979	0.30860	0.34779	0.37024	0.34660
106	0.37530	0.32054	0.36279	0.38555	0.36896

YR	PWCZ	CICZ	KCZ		
92	0.40428	0.41255	0.36522	0.4	
93	0.39304	0.40534	0.35271	0.4	
94	0.40505	0.41304	0.36608	0.4	
95	0.38728	0.40164	0.34630	0.450	0.33235
96	0.39220	0.40480	0.35178	0.45574	0.34251
97	0.41532	0.41963	0.37751	0.47965	0.34282
98	0.41602	0.42008	0.37829	0.48037	0.34570
99	0.42258	0.42429	0.38559	0.48715	0.35034
100	0.43312	0.43105	0.39732	0.49804	0.35802
101	0.45059	0.44226	0.41676	0.51611	0.35749
102	0.44938	0.44149	0.41542	0.51486	0.35628
103	0.44663	0.43972	0.41236	0.51202	0.36929
104	0.47621	0.45870	0.44528	0.54260	0.37862
105	0.49745	0.47233	0.46892	0.56457	0.38617
106	0.51462	0.48334	0.48803	0.58232	

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
----	------	------	-----	-----	--------

92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82437	0.63334	0.66655	1.09374	0.66304
94	0.80532	0.61986	0.65590	1.06529	0.64778
95	0.83836	0.64323	0.67437	1.11464	0.67424
96	0.86203	0.65998	0.68760	1.14999	0.69319
97	0.89997	0.68682	0.70881	1.20667	0.72358
98	0.93052	0.70842	0.72589	1.25229	0.74803
99	0.94882	0.72137	0.73612	1.27963	0.76269
100	0.96616	0.73364	0.74581	1.30552	0.77657
101	0.98210	0.74491	0.75472	1.32933	0.78934
102	1.00318	0.75983	0.76651	1.36083	0.80622
103	1.02812	0.77747	0.78045	1.39807	0.82619
104	1.05324	0.79524	0.79449	1.43559	0.84630
105	1.07648	0.81168	0.80749	1.47031	0.86492
106	1.10200	0.82973	0.82175	1.50843	0.88535

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59646	1.13716	1.02161	2.27153	1.37215
94	1.56019	1.12699	1.01248	2.24662	1.35595
95	1.62310	1.14464	1.02833	2.28982	1.38405
96	1.66816	1.15727	1.03968	2.32076	1.40418
97	1.74041	1.17754	1.05788	2.37038	1.43645
98	1.79856	1.19385	1.07254	2.41032	1.46243
99	1.83341	1.20363	1.08132	2.43425	1.47800
100	1.86642	1.21288	1.08963	2.45692	1.49274
101	1.89677	1.22140	1.09728	2.47777	1.50630
102	1.93692	1.23266	1.10740	2.50533	1.52423
103	1.98439	1.24597	1.11936	2.53794	1.54544
104	2.03222	1.25939	1.13141	2.57078	1.56681
105	2.07648	1.27181	1.14256	2.60118	1.58658
106	2.12506	1.28543	1.15480	2.63455	1.60828

CASE 5 -- PINK SALMON ENHANCEMENT PROGRAM IS ELIMINATED

YR	PWRZ	CIRZ	KRZ	JNZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37613	1.20512	1.18608	1.26211	0.95044
94	1.33829	1.17624	1.15381	1.22598	0.92419
95	1.41108	1.23179	1.21587	1.29547	0.97468
96	1.45144	1.26260	1.25028	1.33400	1.00267
97	1.51564	1.31159	1.30502	1.39528	1.04719
98	1.57372	1.35592	1.35453	1.45072	1.08746
99	1.60732	1.38156	1.38318	1.48280	1.11077
100	1.64219	1.40818	1.41291	1.51609	1.13495
101	1.67526	1.43341	1.44111	1.54765	1.15788
102	1.72102	1.46834	1.48013	1.59135	1.18962
103	1.76771	1.50398	1.51993	1.63591	1.22200
104	1.81922	1.54329	1.56385	1.68508	1.25772
105	1.86645	1.57934	1.60412	1.73018	1.29048
106	1.92116	1.62185	1.65161	1.78335	1.32911

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26	0.28715	0.27953
93	0.26136	0.23278	0.25253	0.27306	0.26816
94	0.27140	0.24052	0.26225	0.28298	0.27617
95	0.38945	0.33144	0.37649	0.39952	0.37024
96	0.41363	0.35006	0.39988	0.42339	0.38950
97	0.42511	0.35890	0.41099	0.43472	0.39865
98	0.43010	0.36275	0.41582	0.43965	0.40263
99	0.43723	0.36824	0.42272	0.44669	0.40831
100	0.44733	0.37603	0.43250	0.45667	0.41636
101	0.45543	0.38226	0.44034	0.46466	0.42282
102	0.46705	0.39121	0.45158	0.47613	0.43207
103	0.47019	0.39363	0.45462	0.47923	0.43458
104	0.48479	0.40487	0.46875	0.49364	0.44621
105	0.49496	0.41271	0.47859	0.50369	0.45432
106	0.51511	0.42823	0.49809	0.52358	0.47038

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.392013	0.404683	0.351578	0.45555	0.332263
94	0.40383	0.412258	0.364723	0.467763	0.33746
95	0.41881	0.42187	0.381395	0.48325	0.344048
96	0.429438	0.42869	0.393223	0.494243	0.348723
97	0.441105	0.436175	0.406208	0.506303	0.353848
98	0.440888	0.43604	0.405968	0.50608	0.353755
99	0.446868	0.439873	0.412628	0.51226	0.356388
100	0.457118	0.44645	0.424028	0.522855	0.360885
101	0.47208	0.45605	0.44069	0.538335	0.367468
102	0.475858	0.458473	0.444883	0.542235	0.369128
103	0.474793	0.457785	0.443698	0.541133	0.368663
104	0.50056	0.47432	0.472375	0.567773	0.379988
105	0.519568	0.486513	0.49353	0.587433	0.38835
106	0.538525	0.498678	0.514633	0.607028	0.396683

YR	FWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82437	0.63334	0.66655	1.09375	0.66304
94	0.80533	0.61987	0.65590	1.06530	0.64779
95	0.84196	0.64578	0.67638	1.12001	0.67712
96	0.86227	0.66015	0.68773	1.15035	0.69339
97	0.89457	0.68300	0.70579	1.19860	0.71925
98	0.92380	0.70367	0.72213	1.24225	0.74265
99	0.94071	0.71563	0.73158	1.26751	0.75619
100	0.95825	0.72804	0.74139	1.29371	0.77024
101	0.97489	0.73982	0.75069	1.31857	0.78357
102	0.99792	0.75611	0.76357	1.35297	0.80201
103	1.02141	0.77273	0.77670	1.38806	0.82082
104	1.04733	0.79106	0.79119	1.42677	0.84158
105	1.07110	0.80787	0.80448	1.46228	0.86061
106	1.09913	0.82770	0.82015	1.50414	0.88306

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59647	1.13717	1.02161	2.27153	1.37215
94	1.56021	1.12700	1.01248	2.24663	1.35595
95	1.62995	1.14656	1.03005	2.29452	1.38711
96	1.66862	1.15740	1.03980	2.32108	1.40438
97	1.73012	1.17466	1.05529	2.36332	1.43186
98	1.78577	1.19026	1.06931	2.40153	1.45671
99	1.81796	1.19929	1.07742	2.42354	1.47110
100	1.85137	1.20866	1.08584	2.44650	1.48602
101	1.88305	1.21755	1.09382	2.46834	1.50017
102	1.92690	1.22985	1.10487	2.49846	1.51976
103	1.97163	1.24240	1.11614	2.52917	1.53974
104	2.02098	1.25624	1.12858	2.56306	1.56178
105	2.06623	1.26893	1.13998	2.59418	1.58200
106	2.11960	1.28390	1.15343	2.63080	1.60584

CASE 6 -- SOCKEYE SALMON ENHANCEMENT PROGRAM IS ELIMINATED

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.31900	1.16152	1.13736	1.20757	0.91082
93	1.39366	1.21850	1.20102	1.27884	0.96260
94	1.36540	1.19693	1.17692	1.25186	0.94300
95	1.43587	1.25072	1.23701	1.31914	0.99187
96	1.49413	1.29518	1.28668	1.37475	1.03227
97	1.58648	1.36566	1.36542	1.46291	1.09632
98	1.66728	1.42733	1.43431	1.54004	1.15235
99	1.70029	1.45252	1.46245	1.57155	1.17524
100	1.74431	1.48611	1.49998	1.61357	1.20577
101	1.76693	1.50338	1.51926	1.63517	1.22146
102	1.82020	1.54404	1.56469	1.68602	1.25840
103	1.87327	1.58454	1.60993	1.73668	1.29520
104	1.92519	1.62417	1.65420	1.78625	1.33121
105	1.97229	1.66012	1.69436	1.83121	1.36388
106	2.02096	1.69726	1.73585	1.87767	1.39763

YR	FWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27604	0.24409	0.26673	0.28755	0.27986
93	0.26623	0.23653	0.25724	0.27787	0.27204
94	0.27742	0.24515	0.26808	0.28892	0.28096
95	0.25637	0.22894	0.24770	0.26814	0.26419
96	0.26157	0.23294	0.25273	0.27327	0.26833
97	0.27260	0.24144	0.26340	0.28416	0.27712
98	0.27146	0.24056	0.26231	0.28304	0.27621
99	0.27648	0.24443	0.26716	0.28799	0.28021
100	0.28566	0.25150	0.27604	0.29705	0.28753
101	0.30076	0.26313	0.29066	0.31196	0.29956
102	0.30150	0.26370	0.29138	0.31269	0.30015
103	0.29929	0.26199	0.28923	0.31051	0.29839
104	0.32547	0.28216	0.31457	0.33636	0.31925

105	0.34490	0.29713	0.33330	0.35554	0.33474
106	0.36090	0.30945	0.34885	0.37133	0.34748

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40473	0.41284	0.36573	0.46869	0.33786
93	0.39387	0.40587	0.35364	0.45747	0.33308
94	0.40627	0.41382	0.36743	0.47028	0.33853
95	0.38296	0.39887	0.34150	0.44618	0.32828
96	0.38871	0.40256	0.34790	0.45213	0.33081
97	0.40092	0.41039	0.36149	0.46476	0.33618
98	0.39967	0.40959	0.36009	0.46346	0.33563
99	0.40522	0.41315	0.36627	0.46920	0.33807
100	0.41538	0.41967	0.37758	0.47971	0.34254
101	0.43210	0.43040	0.39619	0.49699	0.34989
102	0.43292	0.43092	0.39710	0.49784	0.35025
103	0.43047	0.42935	0.39437	0.49531	0.34917
104	0.45946	0.44795	0.42664	0.52528	0.36192
105	0.48097	0.46175	0.45058	0.54752	0.37138
106	0.49867	0.47311	0.47028	0.56563	0.37916

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.789478	0.60865	0.647035	1.04162	0.6351
93	0.82662	0.63493	0.66780	1.09711	0.664843
94	0.808778	0.622305	0.65700	1.070448	0.65055
95	0.842363	0.646065	0.67660	1.120613	0.677443
96	0.86572	0.66259	0.68966	1.155505	0.696153
97	0.901458	0.687873	0.70964	1.208883	0.724768
98	0.93299	0.710175	0.72727	1.255975	0.750015
99	0.949495	0.72185	0.736493	1.280638	0.763233
100	0.967655	0.734698	0.746653	1.307763	0.777775
101	0.982845	0.745443	0.755143	1.330448	0.78994
102	1.00559	0.76153	0.76780	1.364413	0.808145
103	1.029545	0.778478	0.781245	1.400198	0.827328
104	1.05473	0.79629	0.795328	1.43781	0.8475
105	1.077943	0.812715	0.8083	1.472493	0.86609
106	1.10262	0.83017	0.822105	1.509355	0.88585

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.530023	1.118533	1.004873	2.2259	1.342473
93	1.60075	1.13837	1.022693	2.274473	1.374063
94	1.56677	1.128835	1.01413	2.251135	1.35889
95	1.630713	1.14677	1.030243	2.295053	1.387453
96	1.675193	1.15925	1.041453	2.325598	1.40732
97	1.743235	1.17833	1.058598	2.372318	1.437715
98	1.80326	1.195175	1.07372	2.413545	1.464533
99	1.834695	1.203985	1.081638	2.435133	1.478573
100	1.869275	1.213685	1.090353	2.458885	1.49402
101	1.89819	1.221798	1.097635	2.47874	1.506935
102	1.94149	1.23394	1.108545	2.50848	1.526278
103	1.987103	1.246738	1.120043	2.539808	1.546655
104	2.035053	1.260188	1.132125	2.57273	1.568073

105	2.07926	1.272583	1.143263	2.603083	1.58782
106	2.126248	1.285768	1.155103	2.635358	1.608808

CASE 7A -- PRODUCTION FROM PINK SALMON ENHANCEMENT IS INCREASED BY 15 PERCENT

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37627	1.20523	1.18620	1.26224	0.95054
94	1.33840	1.17632	1.15390	1.22608	0.92427
95	1.40320	1.22578	1.20915	1.28794	0.96921
96	1.44596	1.25842	1.24561	1.32877	0.99887
97	1.50970	1.30706	1.29995	1.38961	1.04307
98	1.56627	1.35024	1.34819	1.44362	1.08230
99	1.59883	1.37508	1.37594	1.47469	1.10488
100	1.63214	1.40051	1.40434	1.50649	1.12798
101	1.66502	1.42560	1.43238	1.53788	1.15078
102	1.70718	1.45778	1.46832	1.57813	1.18002
103	1.75283	1.49262	1.50725	1.62171	1.21168
104	1.80206	1.53019	1.54922	1.66871	1.24582
105	1.84743	1.56482	1.58790	1.71201	1.27728
106	1.89633	1.60214	1.62959	1.75870	1.31120

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26626	0.23655	0.25727	0.27790	0.27206
94	0.27726	0.24503	0.26791	0.28876	0.28083
95	0.23266	0.21067	0.22475	0.24473	0.24529
96	0.23859	0.21524	0.23050	0.25059	0.25002
97	0.24639	0.22125	0.23805	0.25829	0.25623
98	0.24431	0.21965	0.23603	0.25623	0.25457
99	0.24721	0.22188	0.23884	0.25910	0.25689
100	0.25514	0.22799	0.24651	0.26692	0.26321
101	0.27487	0.24319	0.26561	0.28641	0.27893
102	0.27391	0.24244	0.26467	0.28545	0.27816
103	0.27026	0.23963	0.26114	0.28185	0.27525
104	0.29834	0.26127	0.28832	0.30958	0.29763
105	0.31700	0.27564	0.30637	0.32799	0.31250
106	0.33347	0.28832	0.32231	0.34425	0.32562

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.393368	0.405553	0.353085	0.456953	0.332858
94	0.40545	0.413295	0.366525	0.469438	0.338173
95	0.375415	0.39403	0.3331	0.438383	0.324968
96	0.380995	0.39761	0.339308	0.444153	0.327423
97	0.391643	0.40444	0.35116	0.45516	0.332098
98	0.38947	0.40305	0.34874	0.452915	0.331148
99	0.394278	0.406133	0.354098	0.457885	0.333263
100	0.403928	0.412325	0.364828	0.467855	0.337498
101	0.422108	0.423988	0.385073	0.486665	0.345495
102	0.422403	0.424175	0.38539	0.486965	0.345625

103	0.419458	0.422283	0.382115	0.48392	0.344333
104	0.44896	0.441213	0.414945	0.51442	0.357298
105	0.470315	0.454913	0.438713	0.536505	0.366693
106	0.488253	0.466425	0.45868	0.555048	0.374578

YR	PWSZ	CISZ	KSZ	JSZ	AKO9PZ
92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82444	0.63339	0.66659	1.09385	0.66310
94	0.80538	0.61991	0.65593	1.06538	0.64784
95	0.83799	0.64297	0.67416	1.11409	0.67395
96	0.85951	0.65820	0.68619	1.14623	0.69118
97	0.89158	0.68088	0.70412	1.19413	0.71686
98	0.92005	0.70102	0.72004	1.23666	0.73966
99	0.93643	0.71261	0.72919	1.26112	0.75277
100	0.95319	0.72447	0.73856	1.28616	0.76619
101	0.96974	0.73617	0.74781	1.31087	0.77944
102	0.99095	0.75118	0.75967	1.34256	0.79643
103	1.01393	0.76743	0.77252	1.37687	0.81483
104	1.03870	0.78495	0.78637	1.41388	0.83466
105	1.06153	0.80110	0.79913	1.4479	0.85294
106	1.08614	0.81851	0.81289	1.4847	0.87265

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59660	1.13720	1.02165	2.27162	1.37221
94	1.56031	1.12703	1.01251	2.24670	1.35600
95	1.62240	1.14444	1.02815	2.28934	1.38373
96	1.66337	1.15593	1.03847	2.31748	1.40204
97	1.72443	1.17306	1.05386	2.35941	1.42932
98	1.77864	1.18826	1.0675	2.39663	1.45353
99	1.80982	1.19701	1.0753	2.41805	1.46746
100	1.84174	1.20596	1.0834	2.43997	1.48172
101	1.87324	1.21480	1.091	2.46160	1.49579
102	1.91363	1.22613	1.101	2.48934	1.51383
103	1.95737	1.23840	1.11255	2.51938	1.53337
104	2.00454	1.25163	1.12444	2.55178	1.55444
105	2.04800	1.26382	1.13539	2.58163	1.57386
106	2.09486	1.27696	1.14719	2.61380	1.59479

CASE 7B -- PRODUCTION FROM PINK ENHANCEMENT IS DECREASED BY 15 PERCENT

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37624	1.20520	1.18616	1.26220	0.95051
94	1.33837	1.17630	1.15388	1.22606	0.92425
95	1.40465	1.22688	1.21039	1.28932	0.97021
96	1.44688	1.25912	1.24640	1.32965	0.99951
97	1.51085	1.30794	1.30094	1.39071	1.04387

98	1.56753	1.35120	1.34926	1.44482	1.08318
99	1.60044	1.37631	1.37732	1.47623	1.10600
100	1.63405	1.40197	1.40598	1.50832	1.12931
101	1.66660	1.42681	1.43373	1.53939	1.15188
102	1.70944	1.45950	1.47025	1.58029	1.18159
103	1.75538	1.49456	1.50942	1.62414	1.21345
104	1.80523	1.53261	1.55192	1.67173	1.24802
105	1.85122	1.56771	1.59113	1.71563	1.27991
106	1.90043	1.60527	1.63309	1.76251	1.31404

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26498	0.23557	0.25603	0.27644	0.27105
94	0.27573	0.24385	0.26644	0.28725	0.27961
95	0.27722	0.24500	0.26788	0.28872	0.28080
96	0.28341	0.24976	0.27387	0.29483	0.28573
97	0.29401	0.25793	0.28412	0.30529	0.29418
98	0.29205	0.25642	0.28223	0.30336	0.29262
99	0.29793	0.26095	0.28792	0.30917	0.29731
100	0.30757	0.26837	0.29725	0.31868	0.30499
101	0.31943	0.27750	0.30872	0.33039	0.31443
102	0.32140	0.27903	0.31063	0.33234	0.31601
103	0.32020	0.27810	0.30947	0.33116	0.31506
104	0.34638	0.29827	0.33481	0.35700	0.33592
105	0.36511	0.31269	0.35293	0.37549	0.35084
106	0.37888	0.32330	0.36626	0.38909	0.36182

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.393015	0.405325	0.352693	0.456585	0.332703
94	0.405028	0.413025	0.366055	0.469	0.337988
95	0.387748	0.401943	0.346825	0.451135	0.33039
96	0.393398	0.405568	0.353113	0.456978	0.332875
97	0.40482	0.412895	0.365828	0.468785	0.337893
98	0.40268	0.411528	0.363445	0.466575	0.336958
99	0.408315	0.415138	0.36972	0.4724	0.339435
100	0.418438	0.421633	0.380978	0.48286	0.343878
101	0.434438	0.431898	0.398795	0.493415	0.350915
102	0.435548	0.43261	0.40002	0.500558	0.351405
103	0.433283	0.431153	0.397498	0.498213	0.35041
104	0.462255	0.449743	0.429743	0.528165	0.363145
105	0.48363	0.463455	0.453533	0.550273	0.372548
106	0.500823	0.47449	0.47267	0.568045	0.380105

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPPZ
92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82442	0.63338	0.66658	1.09382	0.66308
94	0.80537	0.61990	0.65592	1.06536	0.64782
95	0.83872	0.64349	0.67457	1.11518	0.67453
96	0.85998	0.65852	0.68645	1.14622	0.69155
97	0.89216	0.68129	0.70445	1.19500	0.71732

98	0.92069	0.70147	0.72039	1.23760	0.74016
99	0.93724	0.71318	0.72965	1.26234	0.75342
100	0.95416	0.72515	0.73910	1.28760	0.76697
101	0.97054	0.73674	0.74826	1.31207	0.78008
102	0.99209	0.75198	0.76031	1.34426	0.79734
103	1.01521	0.76834	0.77323	1.37879	0.81585
104	1.04029	0.78608	0.78726	1.41626	0.83594
105	1.06344	0.80245	0.80020	1.45083	0.85447
106	1.08820	0.81997	0.81404	1.48781	0.87430

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59657	1.13719	1.02164	2.27160	1.37220
94	1.56028	1.12702	1.01250	2.24668	1.35599
95	1.62378	1.14483	1.02850	2.29029	1.38436
96	1.66425	1.15618	1.03869	2.31808	1.40243
97	1.72554	1.17337	1.05414	2.36017	1.42981
98	1.77984	1.18860	1.06782	2.39747	1.45407
99	1.81137	1.19744	1.07576	2.41912	1.46815
100	1.84358	1.20648	1.08388	2.44123	1.48254
101	1.87476	1.21523	1.09144	2.46265	1.49647
102	1.91580	1.22674	1.10208	2.49083	1.51480
103	1.95981	1.23908	1.11317	2.52106	1.53446
104	2.00757	1.25248	1.12520	2.55386	1.55580
105	2.05164	1.26484	1.13630	2.58412	1.57548
106	2.09879	1.27806	1.14818	2.61650	1.59654

CASE 8A -- SALMON PRODUCTION FROM SOCKEYE ENHANCEMENT IS INCREASED 15 PERCENT

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37627	1.20523	1.18620	1.26224	0.95054
94	1.33841	1.17633	1.15391	1.22609	0.92428
95	1.40390	1.22632	1.20975	1.28862	0.96970
96	1.44513	1.25778	1.24490	1.32797	0.99829
97	1.50006	1.29971	1.29174	1.38041	1.03639
98	1.55235	1.33962	1.33632	1.43033	1.07265
99	1.58427	1.36395	1.36350	1.46076	1.09476
100	1.61891	1.39041	1.39306	1.49386	1.11880
101	1.65147	1.41526	1.42083	1.52495	1.14139
102	1.69334	1.44722	1.45653	1.56492	1.17042
103	1.73726	1.48073	1.49397	1.60684	1.20088
104	1.78677	1.51852	1.53618	1.65411	1.23522
105	1.83255	1.55346	1.57521	1.69781	1.26696
106	1.87963	1.58939	1.61535	1.74275	1.29961

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26562	0.23606	0.25665	0.27727	0.27155

94	0.27650	0.24444	0.26718	0.28801	0.28022
95	0.25519	0.22803	0.24656	0.26697	0.26324
96	0.25990	0.23166	0.25112	0.27163	0.26700
97	0.26990	0.23936	0.26079	0.28149	0.27497
98	0.26779	0.23773	0.25875	0.27941	0.27328
99	0.27254	0.24139	0.26335	0.28410	0.27707
100	0.28153	0.24831	0.27205	0.29287	0.28423
101	0.29687	0.26013	0.28690	0.30812	0.29646
102	0.29754	0.26065	0.28755	0.30879	0.29700
103	0.29518	0.25883	0.28526	0.30646	0.29512
104	0.32135	0.27899	0.31059	0.33229	0.31597
105	0.34087	0.29402	0.32948	0.35156	0.33153
106	0.35696	0.30642	0.34505	0.36745	0.34435

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.30428	0.41255	0.36522	0.46822	0.33766
93	0.39320	0.40544	0.35289	0.45677	0.33278
94	0.40524	0.41316	0.36629	0.46922	0.33808
95	0.38165	0.39803	0.34004	0.44483	0.32771
96	0.38687	0.40138	0.34585	0.45023	0.33000
97	0.39793	0.40848	0.35816	0.46167	0.33487
98	0.39560	0.40698	0.35556	0.45925	0.33384
99	0.40086	0.41035	0.36141	0.46469	0.33615
100	0.41081	0.41674	0.37249	0.47498	0.34053
101	0.42780	0.42764	0.39140	0.49254	0.34800
102	0.42854	0.42811	0.39222	0.49331	0.34832
103	0.42593	0.42644	0.38932	0.49061	0.34717
104	0.45490	0.44502	0.42156	0.52057	0.35991
105	0.47651	0.45889	0.44561	0.54291	0.36941
106	0.49432	0.47032	0.46543	0.56132	0.37725

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.6072	0.64589	1.03856	0.63346
93	0.824433	0.633383	0.666583	1.093843	0.663093
94	0.805383	0.619903	0.65593	1.065375	0.647833
95	0.838343	0.643223	0.674353	1.114605	0.674223
96	0.859555	0.65823	0.686215	1.146298	0.691215
97	0.890585	0.68018	0.703563	1.192643	0.716063
98	0.918533	0.699948	0.719188	1.234793	0.738438
99	0.934895	0.711523	0.72833	1.25913	0.75154
100	0.95188	0.72354	0.737833	1.2842	0.765143
101	0.968323	0.735168	0.747023	1.308753	0.77831
102	0.98963	0.75024	0.75893	1.340575	0.795368
103	1.012435	0.766375	0.77168	1.374643	0.813628
104	1.037318	0.783973	0.785595	1.411803	0.833555
105	1.060363	0.80028	0.798473	1.446233	0.852013
106	1.08484	0.817593	0.812165	1.4828	0.871613

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.596585	1.1372	1.021643	2.271613	1.372203

94	1.560305	1.127023	1.012503	2.246695	1.356003
95	1.623055	1.144623	1.028313	2.289793	1.384033
96	1.663455	1.155958	1.038495	2.317535	1.402078
97	1.722535	1.172525	1.053383	2.358103	1.428468
98	1.775733	1.187453	1.066785	2.394643	1.452235
99	1.806895	1.196188	1.074633	2.41604	1.466155
100	1.839238	1.20526	1.082785	2.43826	1.480605
101	1.870538	1.21404	1.090668	2.459748	1.49458
102	1.911105	1.225418	1.10089	2.487613	1.512703
103	1.954525	1.2376	1.111835	2.517435	1.532103
104	2.001898	1.250888	1.12377	2.549963	1.553263
105	2.045788	1.263195	1.13483	2.580098	1.572868
106	2.092395	1.276273	1.146573	2.61211	1.593685

CASE 8B -- SALMON ENHANCEMENT FROM PINK DECREASED 15 PERCENT

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37624	1.20520	1.18616	1.26220	0.95051
94	1.33836	1.17629	1.15387	1.22605	0.92425
95	1.40386	1.22628	1.20971	1.28857	0.96967
96	1.44733	1.25946	1.24678	1.33008	0.99982
97	1.52184	1.31633	1.31030	1.40120	1.05149
98	1.58036	1.36099	1.36020	1.45706	1.09207
99	1.61373	1.38646	1.38865	1.48892	1.11522
100	1.64888	1.41329	1.41862	1.52248	1.13959
101	1.68001	1.43704	1.44516	1.55219	1.16118
102	1.72380	1.47046	1.48249	1.59399	1.19154
103	1.77111	1.50657	1.52284	1.63916	1.22436
104	1.82069	1.54441	1.56510	1.68649	1.25874
105	1.86666	1.57950	1.60430	1.73037	1.29062
106	1.91704	1.61795	1.64725	1.77847	1.32556

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26562	0.23606	0.25665	0.27727	0.27155
94	0.27649	0.24444	0.26718	0.28801	0.28022
95	0.25519	0.22803	0.24656	0.26697	0.26324
96	0.25996	0.23170	0.25117	0.27168	0.26704
97	0.27044	0.23977	0.26131	0.28203	0.27540
98	0.26867	0.23841	0.25961	0.28028	0.27399
99	0.27354	0.24216	0.26432	0.28509	0.27787
100	0.28256	0.24911	0.27304	0.29399	0.28505
101	0.29785	0.26089	0.28784	0.30909	0.29724
102	0.29852	0.26140	0.28849	0.30975	0.29778
103	0.29622	0.25963	0.28626	0.30748	0.29594
104	0.32239	0.27979	0.31159	0.33332	0.31680
105	0.34188	0.29480	0.33045	0.35256	0.33233
106	0.35800	0.30722	0.34605	0.36848	0.34518

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
----	------	------	-----	-----	--------

92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.39319	0.40544	0.35289	0.45677	0.33278
94	0.40524	0.41316	0.36629	0.46922	0.33808
95	0.38165	0.39803	0.34004	0.44483	0.32771
96	0.38693	0.40142	0.34591	0.45029	0.33003
97	0.39853	0.40886	0.35883	0.46228	0.33513
98	0.39658	0.40761	0.35665	0.46026	0.33427
99	0.40197	0.41107	0.36265	0.46584	0.33664
100	0.41195	0.41747	0.37376	0.47616	0.34103
101	0.42888	0.42833	0.39250	0.49366	0.34847
102	0.42962	0.42881	0.39343	0.49443	0.34880
103	0.42707	0.42717	0.39059	0.49179	0.34768
104	0.45605	0.44576	0.42284	0.52175	0.36042
105	0.47762	0.45960	0.44685	0.54406	0.36991
106	0.49547	0.47106	0.46672	0.56252	0.37775

YR	PWSZ	CISZ	KSZ	JSZ	AKOSFZ
92	0.78743	0.6072	0.64589	1.03856	0.63346
93	0.824428	0.63338	0.66658	1.093835	0.663088
94	0.805378	0.619898	0.655928	1.065365	0.647828
95	0.838335	0.643218	0.67435	1.114595	0.674218
96	0.859833	0.658425	0.68637	1.146713	0.691438
97	0.893325	0.68212	0.705095	1.196735	0.718255
98	0.922055	0.70244	0.721158	1.239643	0.741258
99	0.938605	0.714148	0.730405	1.264373	0.754513
100	0.95565	0.726208	0.739943	1.289833	0.768163
101	0.97191	0.737708	0.74903	1.314115	0.781183
102	0.993463	0.75295	0.761073	1.346298	0.798435
103	1.016695	0.769388	0.77406	1.381005	0.817038
104	1.041583	0.78699	0.78798	1.418175	0.836973
105	1.064655	0.803315	0.800873	1.452643	0.855448
106	1.089548	0.820923	0.814795	1.48983	0.87538

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.596575	1.137198	1.02164	2.271608	1.3722
94	1.560295	1.12702	1.0125	2.246688	1.355998
95	1.623045	1.14462	1.02831	2.289785	1.384028
96	1.663983	1.156105	1.038628	2.3179	1.402315
97	1.727753	1.173988	1.054698	2.361685	1.430798
98	1.78244	1.189335	1.068475	2.399248	1.455233
99	1.813963	1.19817	1.076413	2.420893	1.46931
100	1.846418	1.207273	1.084595	2.44319	1.483813
101	1.877373	1.215958	1.09239	2.464443	1.497635
102	1.9184	1.227463	1.102728	2.492623	1.515963
103	1.962635	1.239875	1.11388	2.523003	1.535725
104	2.010023	1.253165	1.125818	2.55554	1.556893
105	2.053958	1.265488	1.136888	2.585708	1.576518
106	2.101358	1.278788	1.14883	2.618265	1.597688

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37625	1.20521	1.18618	1.26222	0.95053
94	1.33838	1.17631	1.15389	1.22607	0.92426
95	1.40388	1.22630	1.20973	1.28859	0.96968
96	1.44636	1.25872	1.24595	1.32915	0.99914
97	1.51011	1.30737	1.30030	1.39000	1.04335
98	1.56681	1.35065	1.34865	1.44413	1.08268
99	1.59958	1.37566	1.37658	1.47541	1.10540
100	1.63302	1.40118	1.40510	1.50734	1.12859
101	1.66570	1.42612	1.43296	1.53853	1.15125
102	1.70821	1.45856	1.46920	1.57911	1.18074
103	1.75400	1.49352	1.50825	1.62283	1.21249
104	1.80335	1.53117	1.55031	1.66993	1.24671
105	1.84911	1.56610	1.58934	1.71362	1.27845
106	1.89823	1.60359	1.63121	1.76051	1.31251

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26562	0.23606	0.25665	0.27727	0.27155
94	0.27649	0.24444	0.26718	0.28801	0.28022
95	0.25519	0.22803	0.24656	0.26697	0.26324
96	0.25993	0.23168	0.25115	0.27166	0.26703
97	0.268053	0.237935	0.259008	0.279678	0.273498
98	0.265485	0.235958	0.256518	0.277133	0.271448
99	0.27001	0.239443	0.2609	0.281603	0.275053
100	0.2789	0.24629	0.269503	0.29038	0.282138
101	0.294203	0.258078	0.284315	0.305485	0.294335
102	0.294883	0.258595	0.284965	0.30616	0.294873
103	0.29256	0.256813	0.282723	0.305863	0.293028
104	0.318733	0.276973	0.308045	0.329703	0.31388
105	0.338243	0.292	0.326933	0.34897	0.329428
106	0.354373	0.30442	0.342535	0.364885	0.342278

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.39319	0.40544	0.35289	0.45677	0.33278
94	0.40524	0.41316	0.36629	0.46922	0.33808
95	0.38165	0.39803	0.34004	0.44483	0.32771
96	0.38690	0.40140	0.34588	0.45026	0.33002
97	0.38892	0.40270	0.34813	0.45235	0.33090
98	0.38390	0.39948	0.34254	0.44716	0.32870
99	0.38793	0.40206	0.34703	0.45133	0.33047
100	0.39750	0.40820	0.35768	0.46122	0.33468
101	0.41436	0.41901	0.37644	0.47865	0.34209
102	0.41513	0.41951	0.37731	0.47945	0.34243
103	0.41260	0.41789	0.37442	0.47683	0.34131
104	0.44157	0.43648	0.40673	0.50679	0.35405
105	0.46321	0.45035	0.43081	0.52916	0.36357

106	0.48110	0.46183	0.45072	0.54765	0.37143
YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82443	0.63338	0.66658	1.09384	0.66309
94	0.80538	0.61990	0.65593	1.06537	0.64783
95	0.83834	0.64322	0.67435	1.11460	0.67422
96	0.85971	0.65834	0.68630	1.14653	0.69134
97	0.89179	0.68103	0.70424	1.19444	0.71702
98	0.92032	0.70121	0.72019	1.23706	0.73987
99	0.93681	0.71288	0.72941	1.26169	0.75308
100	0.95364	0.72478	0.73881	1.28683	0.76655
101	0.97008	0.73641	0.74801	1.31139	0.77972
102	0.99147	0.75155	0.75996	1.34334	0.79685
103	1.01452	0.76785	0.77285	1.37776	0.81530
104	1.03935	0.78541	0.78673	1.41484	0.83518
105	1.06238	0.80170	0.79960	1.44924	0.85362
106	1.08709	0.81919	0.81342	1.48616	0.87341

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59658	1.13720	1.02164	2.27161	1.37220
94	1.56030	1.12702	1.01250	2.24669	1.35600
95	1.62305	1.14462	1.02831	2.28979	1.38403
96	1.66375	1.15604	1.03857	2.31774	1.40221
97	1.72482	1.17317	1.05396	2.35968	1.42949
98	1.77915	1.18841	1.06765	2.39699	1.45376
99	1.81054	1.19721	1.07556	2.41855	1.46778
100	1.84259	1.20620	1.08363	2.44055	1.48210
101	1.87389	1.21498	1.09152	2.46205	1.49608
102	1.91462	1.22641	1.10178	2.49002	1.51428
103	1.95850	1.23871	1.11283	2.52016	1.53387
104	2.00577	1.25197	1.12475	2.55262	1.55499
105	2.04962	1.26427	1.13579	2.58274	1.57458
106	2.09668	1.27747	1.14765	2.61505	1.59560

CASE 9B -- CHUM SALMON HARVEST FROM ENHANCEMENT DECREASED 15 PERCENT

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37625	1.20521	1.18618	1.26222	0.95053
94	1.33838	1.17631	1.15389	1.22607	0.92426
95	1.40388	1.22630	1.20973	1.28859	0.96968
96	1.44636	1.25872	1.24595	1.32915	0.99914
97	1.51044	1.30762	1.30058	1.39031	1.04358
98	1.56694	1.35075	1.34876	1.44426	1.08277
99	1.59965	1.37572	1.37665	1.47548	1.10545
100	1.63312	1.40126	1.40518	1.50743	1.12866
101	1.66584	1.42623	1.43308	1.53867	1.15135
102	1.70834	1.45867	1.46932	1.57924	1.18083
103	1.75413	1.49361	1.50836	1.62295	1.21258

104	1.80363	1.53139	1.55056	1.67020	1.24691
105	1.84949	1.56639	1.58966	1.71399	1.27872
106	1.89873	1.60397	1.63164	1.76099	1.31286

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26562	0.23606	0.25665	0.27727	0.27155
94	0.27649	0.24444	0.26718	0.28801	0.28022
95	0.25519	0.22803	0.24656	0.26637	0.26324
96	0.25993	0.23168	0.25115	0.27166	0.26703
97	0.27226	0.241175	0.26308	0.28383	0.27685
98	0.271	0.240208	0.261853	0.282578	0.27584
99	0.276118	0.244145	0.26681	0.28763	0.279918
100	0.28517	0.25112	0.27557	0.29657	0.287135
101	0.300525	0.262948	0.290433	0.311728	0.299373
102	0.301188	0.263453	0.291068	0.312388	0.299898
103	0.298848	0.261655	0.288808	0.31007	0.298038
104	0.325018	0.281813	0.314128	0.335908	0.318888
105	0.34451	0.296828	0.332998	0.355158	0.334423
106	0.360615	0.309228	0.348578	0.371048	0.347253

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.39319	0.40544	0.35289	0.45677	0.33278
94	0.40524	0.41316	0.36629	0.46922	0.33808
95	0.38165	0.39803	0.34004	0.44483	0.32771
96	0.38690	0.40140	0.34588	0.45026	0.33002
97	0.40755	0.41465	0.36887	0.47161	0.33910
98	0.40832	0.41514	0.36972	0.47241	0.33944
99	0.41497	0.41941	0.37712	0.47928	0.34236
100	0.42527	0.42602	0.38859	0.48993	0.34689
101	0.44236	0.43698	0.40760	0.50760	0.35440
102	0.44306	0.43743	0.40838	0.50832	0.35471
103	0.44044	0.43575	0.40546	0.50561	0.35355
104	0.46941	0.45433	0.43771	0.53556	0.36629
105	0.49096	0.46816	0.46169	0.55785	0.37577
106	0.50874	0.47957	0.48149	0.57624	0.38359

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82443	0.63338	0.66658	1.09384	0.66309
94	0.80538	0.61990	0.65593	1.06537	0.64783
95	0.83834	0.64322	0.67435	1.11460	0.67422
96	0.85971	0.65834	0.68630	1.14653	0.69134
97	0.89195	0.68115	0.70433	1.19469	0.71716
98	0.92039	0.70126	0.72022	1.23716	0.73993
99	0.93685	0.71290	0.72943	1.26175	0.75311
100	0.95369	0.72482	0.73884	1.28690	0.76659
101	0.97016	0.73646	0.74805	1.31149	0.77978
102	0.99154	0.75159	0.76000	1.34344	0.79690
103	1.01458	0.76789	0.77288	1.37785	0.81535

104	1.03949	0.78551	0.78681	1.41506	0.83530
105	1.06257	0.80184	0.79971	1.44953	0.85378
106	1.08734	0.81936	0.81356	1.48654	0.87362

YR.	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.003	2.22322	1.34073
93	1.59658	1.13720	1.02164	2.27161	1.37220
94	1.56030	1.12702	1.01250	2.24669	1.35600
95	1.62305	1.14462	1.02831	2.28979	1.38403
96	1.66375	1.15604	1.03857	2.31774	1.40221
97	1.72514	1.17326	1.05404	2.35990	1.42963
98	1.77928	1.18844	1.06768	2.39708	1.45382
99	1.81062	1.19723	1.07557	2.41860	1.46782
100	1.84268	1.20623	1.08365	2.44062	1.48214
101	1.87403	1.21502	1.09155	2.46215	1.49644
102	1.91475	1.22644	1.10181	2.49011	1.51433
103	1.95862	1.23875	1.11287	2.52024	1.53393
104	2.00604	1.25205	1.12482	2.55281	1.55511
105	2.04999	1.26437	1.13589	2.58299	1.57474
106	2.09716	1.27761	1.14777	2.61538	1.59582

CASE 10A -- SALMON ENHANCMENT FROM COHO HARVEST INCREASED 15 PERCENT

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.303588	1.149758	1.124225	1.192855	0.900128
93	1.37701	1.205793	1.186828	1.262945	0.951055
94	1.338073	1.176075	1.153628	1.225775	0.924048
95	1.404775	1.226983	1.210495	1.289445	0.970303
96	1.44568	1.258203	1.24537	1.3285	0.99867
97	1.509798	1.30713	1.300038	1.3897	1.043133
98	1.565343	1.349528	1.347393	1.442725	1.081655
99	1.599108	1.375298	1.376183	1.474963	1.105073
100	1.632025	1.400423	1.40425	1.506385	1.127905
101	1.664845	1.425465	1.43223	1.537718	1.15066
102	1.706485	1.457248	1.467738	1.577468	1.179543
103	1.753243	1.492935	1.507603	1.622108	1.211965
104	1.802373	1.530435	1.549485	1.669003	1.24604
105	1.847978	1.565233	1.588363	1.712538	1.277663
106	1.897258	1.602845	1.630385	1.759583	1.31184

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27576	0.24387	0.26646	0.28728	0.27964
93	0.26577	0.23617	0.25679	0.27741	0.27167
94	0.27650	0.24444	0.26718	0.28801	0.28023
95	0.25532	0.22813	0.24668	0.26710	0.26335
96	0.25996	0.23171	0.25118	0.27169	0.26705
97	0.27015	0.23955	0.26103	0.28174	0.27517
98	0.26809	0.23796	0.25904	0.27970	0.27352
99	0.27301	0.24175	0.26380	0.28456	0.27744
100	0.28194	0.24863	0.27244	0.29338	0.28456
101	0.29728	0.26044	0.28729	0.30852	0.29678

102	0.29784	0.26088	0.28783	0.30908	0.29723
103	0.29562	0.25917	0.28568	0.30688	0.29546
104	0.32177	0.27931	0.31099	0.33271	0.31630
105	0.34126	0.29432	0.32985	0.35194	0.33183
106	0.35738	0.30674	0.34545	0.36786	0.34468

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40442	0.41264	0.36538	0.46837	0.33772
93	0.39336	0.40554	0.35307	0.45694	0.33286
94	0.40524	0.41317	0.36630	0.46922	0.33808
95	0.38179	0.39812	0.34020	0.44498	0.32777
96	0.38694	0.40142	0.34592	0.45030	0.33003
97	0.39821	0.40866	0.35847	0.45195	0.33499
98	0.39593	0.40719	0.35593	0.45959	0.33398
99	0.40138	0.41069	0.36199	0.46523	0.33638
100	0.41126	0.41703	0.37300	0.47545	0.34073
101	0.42824	0.42792	0.39189	0.49300	0.34819
102	0.42887	0.42832	0.39259	0.49365	0.34847
103	0.42640	0.42674	0.38985	0.49110	0.34739
104	0.45536	0.44532	0.42208	0.52104	0.36012
105	0.47693	0.45916	0.44608	0.54334	0.36960
106	0.49478	0.47061	0.46595	0.56181	0.37745

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78919	0.60845	0.64688	1.04120	0.63487
93	0.82596	0.63446	0.66744	1.09612	0.66431
94	0.80476	0.61946	0.65558	1.06444	0.64733
95	0.84014	0.64449	0.67536	1.11729	0.67566
96	0.85834	0.65737	0.68554	1.14449	0.69024
97	0.89092	0.68041	0.70375	1.19314	0.71633
98	0.91726	0.69905	0.71848	1.23249	0.73742
99	0.93582	0.71217	0.72885	1.26020	0.75228
100	0.95156	0.72331	0.73765	1.28372	0.76489
101	0.96826	0.73512	0.74699	1.30866	0.77826
102	0.98791	0.74903	0.75797	1.33802	0.79400
103	1.01290	0.76670	0.77194	1.37534	0.81401
104	1.03719	0.78388	0.78552	1.41161	0.83345
105	1.05981	0.79988	0.79817	1.44540	0.85157
106	1.08477	0.81754	0.81212	1.48269	0.87156

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.5278	1.11791	1.004315	2.224375	1.34148
93	1.59804	1.13761	1.02201	2.27261	1.372855
94	1.55971	1.126855	1.01235	2.246285	1.355735
95	1.624765	1.145105	1.028745	2.290965	1.384795
96	1.66245	1.155675	1.03824	2.316845	1.401625
97	1.724075	1.17296	1.05377	2.35916	1.429155
98	1.77627	1.1876	1.06692	2.39501	1.452475
99	1.809615	1.19695	1.07532	2.41791	1.46737
100	1.84063	1.20565	1.083135	2.439215	1.481225
101	1.87219	1.214505	1.091085	2.460885	1.49532

102	1.91126	1.22546	1.10093	2.48772	1.512775
103	1.956985	1.23829	1.112455	2.51912	1.5332
104	2.00378	1.251415	1.124245	2.551255	1.5541
105	2.047265	1.26361	1.1352	2.581115	1.57353
106	2.094585	1.276885	1.147125	2.613615	1.594665

CASE 10B -- SALMON ENHANCEMENT FROM COHO DECREASED 15 PERCENT.

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37625	1.20521	1.18618	1.26222	0.95053
94	1.33838	1.17631	1.15389	1.22607	0.92426
95	1.40388	1.2263	1.20973	1.28859	0.96968
96	1.44726	1.259405	1.246718	1.330008	0.999765
97	1.511265	1.308253	1.30129	1.391103	1.044153
98	1.567885	1.351468	1.349558	1.445153	1.083418
99	1.600648	1.376473	1.377495	1.47643	1.10614
100	1.634125	1.402025	1.40604	1.508388	1.12936
101	1.666845	1.426993	1.433935	1.539625	1.152048
102	1.709373	1.459453	1.4702	1.580223	1.181545
103	1.755193	1.494425	1.509265	1.62397	1.213318
104	1.804648	1.53217	1.551425	1.671175	1.247618
105	1.850498	1.567155	1.590513	1.714943	1.27941
106	1.8997	1.60471	1.63247	1.761915	1.313533

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26562	0.23606	0.25665	0.27727	0.27155
94	0.27649	0.24444	0.2671	0.28801	0.28022
95	0.25519	0.22803	0.2465	0.26697	0.26324
96	0.25998	0.23171	0.25119	0.27170	0.26706
97	0.27025	0.23963	0.26114	0.28184	0.27525
98	0.26834	0.23816	0.25929	0.27996	0.27373
99	0.27317	0.24188	0.26396	0.28472	0.27757
100	0.28214	0.24879	0.27264	0.29358	0.28472
101	0.29746	0.26059	0.28747	0.30871	0.29693
102	0.29813	0.26110	0.28812	0.30937	0.29747
103	0.29580	0.25931	0.28586	0.30707	0.29561
104	0.32197	0.27947	0.31118	0.33290	0.31646
105	0.34147	0.29449	0.33006	0.35216	0.33200
106	0.35759	0.30690	0.34565	0.36806	0.34484

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.39319	0.40544	0.35289	0.45677	0.33278
94	0.40524	0.41316	0.36629	0.46922	0.33808
95	0.38165	0.39803	0.34004	0.44483	0.32771
96	0.38695	0.40143	0.34594	0.45031	0.33004
97	0.39833	0.40873	0.35860	0.46207	0.33504
98	0.39621	0.40737	0.35624	0.45989	0.33411

99	0.40155	0.41080	0.36219	0.46541	0.33646
100	0.41149	0.41717	0.37324	0.47568	0.34083
101	0.42845	0.42806	0.39213	0.49322	0.34828
102	0.42919	0.42853	0.39295	0.49398	0.34861
103	0.42661	0.42688	0.39008	0.49132	0.34748
104	0.45558	0.44546	0.42232	0.52127	0.36021
105	0.47717	0.45931	0.44635	0.54360	0.36971
106	0.49501	0.47076	0.46620	0.56204	0.37755

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.60720	0.64589	1.03856	0.63346
93	0.82443	0.63338	0.66658	1.09384	0.66309
94	0.80538	0.61990	0.65593	1.06537	0.64783
95	0.83834	0.64322	0.67435	1.11460	0.67422
96	0.86152	0.65962	0.68731	1.14923	0.69279
97	0.89387	0.68250	0.70540	1.19756	0.71869
98	0.92238	0.70267	0.72134	1.24013	0.74152
99	0.93891	0.71437	0.73058	1.26483	0.75476
100	0.95579	0.72630	0.74001	1.29003	0.76827
101	0.97228	0.73797	0.74924	1.31467	0.78148
102	0.99372	0.75314	0.76122	1.34670	0.79865
103	1.01683	0.76948	0.77414	1.38121	0.81715
104	1.04177	0.78712	0.78808	1.41845	0.83712
105	1.06488	0.80347	0.80100	1.45298	0.85563
106	1.08969	0.82102	0.81487	1.49004	0.87550

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59658	1.1372	1.02164	2.27161	1.3722
94	1.5603	1.12702	1.0125	2.24669	1.356
95	1.62305	1.14462	1.02831	2.28979	1.38403
96	1.66461	1.15628	1.038788	2.31833	1.402595
97	1.725935	1.173478	1.05424	2.360438	1.429985
98	1.780175	1.1887	1.067903	2.397693	1.45422
99	1.811573	1.1975	1.07581	2.419253	1.468243
100	1.84364	1.206495	1.083895	2.441283	1.48257
101	1.87499	1.21529	1.09179	2.462808	1.49657
102	1.915738	1.226718	1.102058	2.490795	1.514773
103	1.959635	1.239035	1.113123	2.520945	1.534385
104	2.00702	1.252323	1.125063	2.553478	1.55555
105	2.050945	1.264643	1.136128	2.58364	1.575173
106	2.09809	1.27787	1.148008	2.61602	1.596228

CASE 11A -- SALMON PRODUCTION FROM CHINOOK ENHANCEMENT UP 15 PERCENT

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.376278	1.20523	1.186203	1.262245	0.950548
94	1.338403	1.176328	1.153908	1.22609	0.924275
95	1.403903	1.226318	1.20975	1.288613	0.969698

96	1.446375	1.258733	1.245963	1.329163	0.999153
97	1.51024	1.307468	1.300413	1.390122	1.04344
98	1.56614	1.350135	1.34807	1.44345	1.082208
99	1.598885	1.375128	1.375993	1.474748	1.104918
100	1.631933	1.400353	1.40417	1.506295	1.12784
101	1.664598	1.425275	1.43202	1.53748	1.150488
102	1.707195	1.45779	1.468343	1.578145	1.180035
103	1.752878	1.492658	1.50729	1.62176	1.21171
104	1.802503	1.530533	1.549598	1.669128	1.246133
105	1.848055	1.56529	1.58843	1.71261	1.277718
106	1.897223	1.60282	1.630358	1.75955	1.311815

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26562	0.23606	0.25665	0.27727	0.27156
94	0.27650	0.24444	0.26718	0.28801	0.28023
95	0.25519	0.22803	0.24656	0.26698	0.26325
96	0.25994	0.23169	0.25115	0.27166	0.26703
97	0.27015	0.23955	0.26104	0.28174	0.27517
98	0.26814	0.23800	0.25909	0.27975	0.27356
99	0.27293	0.24170	0.26373	0.28449	0.27738
100	0.28185	0.24856	0.27236	0.29329	0.28449
101	0.29716	0.26035	0.28717	0.30841	0.29669
102	0.29784	0.26088	0.28783	0.30908	0.29723
103	0.29550	0.25908	0.28557	0.30677	0.29537
104	0.32170	0.27926	0.31093	0.33264	0.31625
105	0.34118	0.29426	0.32978	0.35187	0.33177
106	0.35730	0.30668	0.34537	0.36778	0.34462

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.39320	0.40544	0.35289	0.45677	0.33278
94	0.40524	0.41317	0.36629	0.46922	0.33808
95	0.38165	0.39803	0.34004	0.44483	0.32771
96	0.38691	0.40140	0.34589	0.45026	0.33002
97	0.39821	0.40866	0.35847	0.46196	0.33499
98	0.39598	0.40723	0.35599	0.45965	0.33401
99	0.40129	0.41063	0.36190	0.46514	0.33634
100	0.41116	0.41696	0.37288	0.47534	0.34068
101	0.42811	0.42784	0.39175	0.49287	0.34814
102	0.42887	0.42832	0.39259	0.49365	0.34847
103	0.42628	0.42667	0.38971	0.49098	0.34733
104	0.45529	0.44527	0.42199	0.52097	0.36008
105	0.47685	0.45911	0.44599	0.54326	0.36957
106	0.49469	0.47056	0.46585	0.56171	0.37741

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.6072	0.64589	1.03856	0.63346
93	0.824445	0.63339	0.666588	1.093858	0.6631
94	0.80539	0.619908	0.655935	1.065388	0.647838

95	0.83835	0.643228	0.674358	1.114618	0.67423
96	0.859718	0.658345	0.686305	1.14654	0.691345
97	0.891855	0.681078	0.704273	1.194538	0.717078
98	0.919988	0.700975	0.72	1.236555	0.739603
99	0.936465	0.712633	0.729208	1.261173	0.752798
100	0.953088	0.724395	0.73	1.286005	0.766113
101	0.96953	0.736023	0.7477	1.310558	0.779278
102	0.990968	0.751188	0.759678	1.342573	0.796438
103	1.013955	0.767448	0.772528	1.376913	0.814845
104	1.038928	0.785113	0.786495	1.414208	0.834845
105	1.061843	0.801328	0.7993	1.44	0.853198
106	1.086583	0.818828	0.813138	1.4	0.873008

YR	PWKZ	CIKZ	IKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59668	1.13723	1.02167	2.27168	1.37225
94	1.56038	1.12704	1.01252	2.24675	1.35603
95	1.62314	1.14465	1.02834	2.28985	1.38407
96	1.66381	1.15605	1.03858	2.31778	1.40223
97	1.72486	1.17318	1.05397	2.35970	1.42951
98	1.77638	1.18763	1.06695	2.39509	1.45252
99	1.80780	1.19644	1.07486	2.41666	1.46656
100	1.83827	1.20499	1.08254	2.43759	1.48017
101	1.86947	1.21374	1.09040	2.45901	1.49410
102	1.91056	1.22527	1.10076	2.48724	1.51246
103	1.95402	1.23746	1.11171	2.51708	1.53188
104	2.00216	1.25096	1.12384	2.55014	1.55338
105	2.04503	1.26298	1.13464	2.57958	1.57253
106	2.09213	1.27620	1.14651	2.61193	1.59357

CASE 11B -- SALMON PRODUCTION FROM CHINOOK PRODUCTION DECREASED 15 PERCENT

YR	PWRZ	C* RZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.376225	1.205193	1.186158	1.262195	0.95051
94	1.33836	1.176295	1.153873	1.22605	0.924245
95	1.403858	1.226283	1.20971	1.28857	0.969665
96	1.446345	1.258708	1.245938	1.329135	0.99913
97	1.510433	1.307615	1.300578	1.390308	1.043575
98	1.567453	1.351138	1.34919	1.444738	1.083118
99	1.600908	1.37667	1.377718	1.47568	1.10632
100	1.634155	1.402048	1.406065	1.508415	1.12938
101	1.666953	1.427073	1.434028	1.539728	1.15212
102	1.708998	1.459165	1.46988	1.579865	1.181285
103	1.755285	1.494495	1.509343	1.624058	1.21338
104	1.804693	1.532205	1.551463	1.671218	1.24765
105	1.850528	1.567178	1.590538	1.71497	1.27943
106	1.899728	1.60473	1.63249	1.76194	1.313553

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
----	------	------	-----	-----	--------

92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26561	0.23606	0.25665	0.27726	0.27155
94	0.27649	0.24443	0.26717	0.28800	0.28022
95	0.25518	0.22802	0.24655	0.26697	0.26324
96	0.25993	0.23168	0.25115	0.27165	0.26702
97	0.27017	0.23957	0.26106	0.28177	0.27519
98	0.26832	0.23814	0.25927	0.27994	0.27371
99	0.27325	0.24194	0.26404	0.28481	0.27764
100	0.28223	0.24885	0.27272	0.29366	0.28479
101	0.29756	0.26067	0.28756	0.30881	0.29701
102	0.29817	0.26113	0.28815	0.30941	0.29750
103	0.29589	0.25937	0.28594	0.30715	0.29568
104	0.32206	0.27953	0.31127	0.33299	0.31653
105	0.34156	0.29455	0.33014	0.35224	0.33207
106	0.35767	0.30696	0.34573	0.36815	0.34491

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.39319	0.40543	0.35288	0.45676	0.33278
94	0.40523	0.41316	0.36628	0.46921	0.33808
95	0.38164	0.39803	0.34003	0.44482	0.32770
96	0.38690	0.40140	0.34588	0.45026	0.33001
97	0.39824	0.40867	0.35850	0.46198	0.33500
98	0.39619	0.40736	0.35622	0.45986	0.33410
99	0.40165	0.41086	0.36230	0.46551	0.33650
100	0.41158	0.41723	0.37335	0.47578	0.34087
101	0.42856	0.42813	0.39225	0.49333	0.34833
102	0.42923	0.42856	0.39300	0.49403	0.34863
103	0.42670	0.42694	0.39018	0.49141	0.34752
104	0.45568	0.44552	0.42243	0.52137	0.36026
105	0.47727	0.45938	0.44646	0.54369	0.36975
106	0.49510	0.47082	0.46631	0.56214	0.37759

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.6072	0.64589	1.03856	0.63346
93	0.824405	0.633365	0.666565	1.0938	0.66307
94	0.805355	0.619885	0.655915	1.06534	0.64781
95	0.838315	0.6432	0.67434	1.114565	0.6742
96	0.859695	0.65833	0.686295	1.146505	0.691325
97	0.892035	0.681205	0.70437	1.194805	0.71722
98	0.920935	0.701645	0.72053	1.23797	0.74036
99	0.938135	0.713815	0.73014	1.26367	0.754135
100	0.954755	0.72557	0.73944	1.28849	0.767445
101	0.971131	0.73728	0.748695	1.313215	0.7807
102	0.99224	0.752085	0.76039	1.344475	0.797455
103	1.01578	0.76874	0.77355	1.37964	0.81631
104	1.040635	0.78632	0.78745	1.416765	0.836215
105	1.063705	0.80264	0.800345	1.451225	0.85469
106	1.088475	0.820165	0.814195	1.48823	0.874525

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
----	------	------	-----	-----	--------

92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59648	1.13717	1.02162	2.27154	1.37216
94	1.56022	1.12700	1.01248	2.24664	1.35596
95	1.62296	1.14460	1.02829	2.28973	1.38399
96	1.66369	1.15602	1.03855	2.31770	1.40218
97	1.72560	1.17339	1.05415	2.36021	1.42984
98	1.78141	1.18904	1.06821	2.39854	1.45477
99	1.81555	1.19862	1.07682	2.42199	1.47002
100	1.84679	1.20738	1.08469	2.44344	1.48397
101	1.87849	1.21627	1.09268	2.46521	1.49814
102	1.91747	1.22720	1.10250	2.49198	1.51555
103	1.96325	1.24005	1.11403	2.52342	1.53600
104	2.01054	1.25331	1.12595	2.55590	1.55713
105	2.05450	1.26564	1.13702	2.58609	1.57676
106	2.10172	1.27889	1.14892	2.61852	1.59786

SIMNLIN Procedure
Simultaneous Simulation

Solution Range T = 9 To 43

Descriptive Statistics

Variable	Nobs	N	Actual		Predicted	
			Mean	Std	Mean	Std
NXQUSA Norw exp Q USA			4.0069	2.2509	3.9513	2.1754
NXPUSA Norw exp P USA			21.9871	2.9363	22.2632	3.3385
NXPEEC Norw exp P EEC			19.7802	3.0037	19.7344	3.2799
NXQJAP Norw exp Q JAP			1.2401	1.2306	1.2139	1.2256
NXPJAP Norw exp P JAP			21.5489	2.8177	21.5632	3.1270
NPHX N.A. wh exp P			2.4373	0.6190	2.4815	0.7018
NPHXJ NA P H-V sal-Jpn			2.4657	0.6666	2.5323	0.7713
NXQEEC NA Q H-V sal-EEC			27.4308	23.0370	27.5126	22.7056
NPHXE NA P H-V sal-EEC			2.3924	0.5769	2.4115	0.5574
NHTSUP Tot beg H-V Supp			131.5584	136.7795	131.1849	136.6855
NHZINVE Tot end H-V Inv			23.8234	16.9948	23.8685	17.3264
NQHXX NA Q H-V sal-Jpn			46.5171	63.6166	46.2489	63.5907
NHEXP Tot NA H-V export			54.5437	68.9716	54.0954	68.8298
NQHXE NA Q H-V sal-Jpn			8.0266	5.9285	7.8465	6.9924
JINVZE Tot end Jpn Inv			103.4069	42.3828	101.6850	42.4151
NPLXE NA P L-V sal-EEC			1.4303	0.3533	1.3727	0.3837
NQLXE NA Q L-V sal-EEC			13.0180	15.9128	13.8160	15.2647
NQLXJ NA Q L-V sal-JPN			5.6120	2.9659	5.7017	2.9031
NPLXJ NA P L-V sal-JPN			1.4748	0.3243	1.4130	0.3325
JINVTE Tot end Jpn Inv			156.0483	54.1726	158.4135	61.5247
NPLX N.A. wh exp P			1.4190	0.3180	1.3658	0.3627
NLTSUP Tot beg H-V Supp			144.2762	166.1618	145.1019	165.1933
NLZINVE Tot end H-V Inv			29.5918	18.6374	31.0904	21.1642
HCANP H-V NA can exp P			3.0955	0.6937	2.9819	0.2970
LCANQ L-V NA exp can Q			8.8026	4.7669	8.6817	4.4092
LCANP L-V NA exp can P			2.1292	0.6547	2.1778	0.6197
ULBINVE Tot end L-V Inv Can			68.6657	43.6838	67.4633	35.6399
NLTSUPC Tot beg H-V Supp Can			250.6330	147.6046	251.0246	148.4074
NAPHEX Exvessel H-V			1.7297	0.7349	1.7540	0.7582
NAPLEX Exvessel H-V			0.4931	0.2250	0.4858	0.1979

SAS

SIMNLIN Procedure
Simultaneous Simulation

Solution Range T = 9 To 43

Statistics of Fit

Variable	N	Mean Error	Mean % Error	Mean Abs Error	Mean Abs % Error
NXQUSA	35	-0.0556	5.9371	0.4010	17.77905
NXPUSA	35	0.2761	1.5334	1.7103	8.15393
NXPEEC	35	-0.0458	0.1303	1.7233	8.82741
NXQJAP	35	-0.0263	6.0744	0.3336	25.49316
NXPJAP	35	0.0144	0.5542	2.0362	9.74573
NPHX	35	0.0442	3.2964	0.4203	18.86219
NPHXJ	35	0.0665	4.6108	0.4874	21.74561
NXQEEC	35	0.0819	1.2119	0.6366	3.04369
NPHXE	35	0.0191	2.8543	0.3780	16.69246
NHTSUP	35	-0.3735	1.1544	5.0035	10.65467
NHZINVE	35	0.0451	3.1679	5.4221	24.51783
NQHXJ	35	-0.2683	7.5652	5.2357	30.81754
NHEXP	35	-0.4483	1.5198	4.6495	20.90141
NQHXE	35	-0.1800	4.3557	2.5536	36.81190
JINVZE	35	-1.7219	2.8167	18.7556	22.76753
NPLXE	35	-0.0577	-3.5583	0.2220	16.60730
NQLXE	35	0.7980	24.8097	4.4942	44.88275
NQLXJ	35	0.0896	9.0240	1.1887	27.80592
NPLXJ	35	-0.0617	-3.7588	0.1601	11.27363
JINVTE	35	2.3652	3.9132	26.3101	18.39993
NPLX	35	-0.0532	-3.8725	0.1901	14.29884
NLTSUP	35	0.8257	2.9972	5.1698	8.93675
NLZINVE	35	1.4986	5.8455	5.8427	19.40417
HCANP	35	-0.1135	0.8122	0.5989	19.77807
LCANQ	35	-0.1209	6.0660	1.6644	24.03509
LCANP	35	0.0486	4.9438	0.4344	20.90294
ULBINVE	35	-1.2024	14.6453	16.1274	33.78358
NLTSUPC	35	0.3916	1.3187	22.2858	11.84294
NAPHEX	35	0.0242	3.4049	0.2241	14.01889
NAPLEX	35	-0.007348	2.0515	0.0813	16.76242

SAS

SIMNLIN Procedure
Simultaneous Simulation

Solution Range T = 9 To 43

Statistics of Fit

Variable	RMS Error	RMS % Error
NXQUSA	0.4932	36.3555
NXPUSA	2.2256	10.9613
NXPEEC	2.0516	10.6907
NXQJAP	0.6044	34.3097
NXPJAP	2.4552	11.9235
NPHX	0.5614	26.3001
NPHXJ	0.6344	29.6726
NXQEEC	0.8618	3.9085
NPHXE	0.4840	22.1572
NHTSUP	7.2255	17.5745
NHZINVE	7.6381	29.6371
NQHXJ	7.4445	45.0224
NHEXP	6.3986	29.7228
NQHXE	3.8821	51.2270
JINVZE	23.4826	30.8980
NPLXE	0.2819	21.4445
NQLXE	8.4043	62.7209
NQLXJ	1.5310	37.0747
NPLXJ	0.1954	13.8841
JINVTE	33.2171	24.0762
NPLX	0.2253	17.6895
NLTSUP	7.4146	12.9263
NLZINVE	8.4158	23.6761
HCANP	0.7179	24.2040
LCANQ	1.9719	31.8355
LCANP	0.5449	25.8759
ULBINVE	19.3088	47.8222
NLTSUPC	26.3965	15.2242
NAPHEX	0.2997	18.1398
NAPLEX	0.1076	21.0015

①

A

UNIF

DATA SALMON ; SET SDATA LINIF;

1- Base Case

C=DQ1+DQ2+DQ3+DQ4;
 JLAN=JLAN/1000000;
 NXQUSA=NXQUSA/1000000;
 NXQJAP=NXQJAP/1000000;
 NXQEEC=NXQEEC/1000000;
 NXQSUP9=NXQSUP9/1000000;
 NXQSUP9=NXQSUP9/1000000;
 NQLXE=NQLXE/1000000;
 NQHXE=NQHXE/1000000;
 NQHXLJ=NQHXLJ/1000000;
 NQLXJ=NQLXJ/1000000;
 NHZINVE=NHZINVE/1000000;
 NLZINVE=NLZINVE/1000000;
 NHTSUP=NHTSUP/1000000;
 NLTSUP=NLTSUP/1000000;
 NHEXP=NHEXP/1000000;
 JINVZE=JINVZE/1000000;
 JINVZ=JINVZ/1000000;
 JINVZP=JINVZP/1000000;
 JINVS=JINVS/1000000;
 JINVSP=JINVSP/1000000;
 JINVT=JINVZ+JINVZP+JINVS+JINVSP;
 JINVTE=JINVTE/1000000;
 CFATL9=CFATL9/1000000;
 CHXQU9=CHXQU9/1000000;
 CFPAC9=CFPAC9/1000000;
 LCANQ=LCANQ/1000000;
 ULBINVE=ULBINVE/1000000;
 NLTSUPC=NLTSUPC/1000000;
 ULBINV=ULBINV/1000000;
 OTQHEX=OTQKEX+OTQREX+OTQSEX;
 OTQLEX=OTQCEX+OTQPEX;
 AKQHEX=AKQKEX+AKQREX+AKQSEX;
 AKQLEX=AKQCEX+AKQPEX;
 NAQHEX=AKQHEX+OTQHEX;
 NAQLEX=AKQLEX+OTQLEX;
 AKQHEX=AKQHEX/1000000;
 AKQLEX=AKQLEX/1000000;
 NAQHEX=NAQHEX/1000000;
 NAQLEX=NAQLEX/1000000;

Use # as Case

For Regular analysis

Case 1-11 refer to

Cases 1-11.

This
 scales
 variables

PROC SIMNLIN DATA=SALMON NEWTON DYNAMIC OUT=HAT THEIL LIST STAT
 OUTPREDICT OUTACTUAL;

RANGE T= 9 TO 104; → 1983.1 → 2006.4

NHEXP=F1*NPHX+F2*NHTSUP+F3*C+F4*DQ2+F5*DQ3+F6*DQ4;

NHTSUP=NAQHEX+LAG (NHZINVE) ;

NQHXE=EXP (C1* ((NPHXE*ECUUSA) *ETAX) /ECPI)

+C2* (DQ1+DQ3+DQ4) * ((NPLXE*ECUUSA) *ETAX) /ECPI)

+C3* ((NXPEEC/NORECU) *ETAX) /ECPI) +C4* (EY/ (ECPI*EPOP)) +C5*DQ2

+C6*DQ3+C7*DQ4+C8*D89+C9*C) *EPOP;

NPHXJ= (EXP ((LOG (NQHXLJ/JPOP) -K2*LOG (LAG (JINVZE) /JPOP) -K4*LOG (FPFTF/JCPI2)

-K3*LOG (JY1/ (JPOP*JCPI2)) -K5*C-K6*DQ3) /K1) *JCPI2) / (JTAX*JAPUSA) ;

NPHXE=G1*NPHXJ+G2*C+G3*DQ2+G4*DQ3+G5*DQ4+G6*D89+G7*LAG (NPHXE) ;

NPHX= (NQHXE*NPHXE+NQHXLJ*NPHXJ) / (NQHXE+NQHXLJ) ;

NQHXLJ=NHEXP-NQHXE;

NHZINVE=EXP (H1*LOG (NPHX) +H2*LOG (NHTSUP) +H3*LAG (LOG (NHZINVE)) +H4*C+H5*DQ2+H6*DQ3

+H7*DQ4+H8*LAG (LOG (NPHX)) +H9*D87) ;

NAPHEX=EXP (R1*NPHX+R2* (NXPUA/NORUSA) *UTAX)

+R3*NHTSUP+R4*C+R5*DQ2+R6*DQ3+R7*DQ4+R8*D91+R9*UY2) ;

JINVZE=EXP (L1*LOG (NPHXJ*JTAX*JAPUSA) +L2*LOG (NQHXLJ) +L3*LAG (LOG (JINVZE))

B/oz
 1

NQLXJ=EXP(N1*LOG((NPLXJ*JAPUSA)*JTAX)/JCPI2)+N2*LAG(LOG((JINVTE)/JPOP))
 +N3*LOG(FP42F/JCPI2)+N4*LOG(JY1/(JPOP*JCPI2))
 +N5*C+N6*DQ1+N7*DQ2+N8*DQ3+N9*D22)*JPOP;
 NQLXE=EXP(W1*LOG((NPLXE*ECUUSA)*ETAX)/ECPI)
 +W2*(DQ1+DQ3+DQ4)*LOG((NPHXE*ECUUSA)*ETAX)/ECPI+W3*LOG(EY/(ECPI*EPOP))
 +W4*DQ2+W5*DQ3+W6*DQ4+W7*C+W8*LAG(LOG(NQLXE/EPOP))+W9*D91)*EPOP;
 NLTSUP=NAQLEX+LAG(NLZINVE);
 NPLXJ=Q1*NPLXE+Q2*C+Q3*DQ2+Q4*DQ3+Q5*DQ4+Q6*D89+Q7*LAG(NPLXJ);
 NLZINVE=EXP(I1*LOG(NPLXJ)+I2*LOG(NLTSUP)+I3*LAG(LOG(NLZINVE))+I4*C+I5*DQ2+I6*DQ3
 +I7*DQ4+I8*LAG(LOG(NPLXJ))+I9*D87);
 JINVTE=EXP(O1*LOG(NPLXJ*JTAX*JAPUSA)+O2*LOG(LAG(JINVTE)+NQLXJ+JLAN)+O3*LAG(LOG(N
 +O4*C+O5*DQ2+O6*DQ3+O7*DQ4+O8*D2728));
 NAPLEX=V1*NPLX+V2*LCANP+V3*NLTSUP+V4*C+V5*DQ2+V6*DQ3+V7*DQ4+V8*D910;
 NPLXE=(NQLXE-P2*NLTSUP-P3*C-P4*DQ2-P5*DQ3-P6*DQ4)/P1;
 HCANP=X1*(NPHXE*ECUUSA)+X2*C+X3*DQ2+X4*DQ3+X5*DQ4+X6*D89
 +X7*LAG(HCANP/ECPI)*ECPI;
 LCANP=(LCANQ-CC2*NLTSUP-CC3*C-CC4*DQ3-CC5*DQ4
 -CC6*D86-CC7*LAG(LCANQ))/CC1;
 LCANQ=(AA1*(LCANP*ECUUSA)/ECPI)+AA2*(HCANP*ECUUSA)/ECPI+AA3*(EY/(ECPI*EPOP))
 +AA4*C+AA5*DQ2+AA6*DQ3+AA7*DQ4+AA8*D86+AA9*LAG(LCANQ/EPOP))*EPOP;
 NLTSUPC=NLTSUP+(1.6)*LAG(ULBINVE);
 ULBINVE=BB1*LCANP+BB2*NLTSUPC+BB3*C+BB4*DQ2+BB5*DQ3+BB6*DQ4
 +BB7*D86+BB8*LAG(LCANP)+BB9*LAG(ULBINVE);

ENDOGENOUS NHEXP NHTSUP NQHXE NPHXJ NPHXE NPHX NQHJXJ NHZINVE JINVZE
 NLTSUP NQLXE NPLXJ NPLXE NQLXJ NLZINVE JINVTE
 HCANP LCANP NLTSUPC LCANQ ULBINVE
 NAPHEX NAPLEX;

*endo
variables*

EXOGENOUS NXPUSA NXPEEC
 ECPI EY JY1 UCPI2 UY2 JPOP JCPI2 UPOP EPOP
 NORECU ECUUSA JAPUSA NORUSA
 DQ1 DQ2 DQ3 DQ4 C T DSEPT90 DMAR91 JTAX UTAX D86 D89 D87 D4T
 DISEASE ETAX D91 JAPDISC
 NXQSUP9 QSCOT9 CHXQU9 CFPAC99 CFATL9 FPFTF FP42F
 AKQHEX AKQLEX NAQHEX NAQLEX AKQKEX AKQSEX AKQREX AKQCEX AKQPEX
 OTQHEX
 OTQLEX
 AKQHEX
 AKQLEX

*exo
var.*

YEARDUM ;

PARMS

A1 2.1703078 A2 -1.6330891 A3 0.43065125 A4 -0.44089064
 A5 -0.74541160 A6 -0.31479699 A7 -2.0244100 A8 -1.4647240
 A9 -0.85408495 A10 0.47196112
 B1 1.8406322 B2 -1.2316258 B3 0.79766897 B4 -4.4659989 B5 -0.042349681
 B6 -0.61897993 B7 -0.34505981 B8 0.49632996
 J1 -7.4607784 J2 4.0874656 J3 1.7783261 J4 0.00448116
 J5 -0.0019660946 J6 -0.00575396 J7 -0.003197891 J8 -0.25851924 J9 0.31564177
 M1 -2.7252348 M2 1.2643312 M3 2.2248377 M4 -2.2609940
 M5 0.0099122491 M6 -0.35691275 M7 -0.71287453 M8 0.46522354
 E1 -1.2828244 E2 0.15734950 E3 -0.0084039431 E4 2.1280588
 E5 0.32531754 E6 -0.13871774 E7 0.028762792 E8 0.36656196
 W1 -1.0467034 W2 1.2448608 W3 0.94053021 W4 -5.6147509
 W5 2.1954520 W6 -0.71471358 W7 1.4687261 W8 0.62274874 W9 -0.51107709
 N1 -0.82730252 N2 -0.63939272 N3 0.36923978 N4 1.5155688
 N5 -4.0255616 N6 -0.4169835 N7 -1.5738941 N8 -0.46926983 N9 0.72414713
 I1 -0.67340522 I2 0.57316548 I3 0.36389113 I4 -0.41850456
 I5 -0.57053185 I6 0.015406089 I7 0.47205477 I8 0.53958869 I9 -0.18565787
 O1 -0.20975730 O2 0.67579069 O3 0.38135868 O4 0.13068296
 O5 -0.059642171 O6 0.51912732 O7 -0.13156785 O8 -0.18705183
 P1 4.2903689 P2 0.12279124 P3 -6.2482100 P4 -0.8230557
 P5 -10.925165 P6 -2.7185740

*Parameter
block*

H1 -0.46270487 H2 0.73062168 H3 0.33679897 H4 -1.2921083
 H5 -0.94495828 H6 0.11791034 H7 0.39178974 H8 0.61108317 H9 -0.26027444
 L1 -0.71298874 L2 0.20926009 L3 0.64783214 L4 0.70380465
 L5 1.2800630 L6 -0.17863604 L7 -0.42841893 L8 0.31284203 L9 -0.12229471
 K1 -1.5594344 K2 -0.80762371 K3 3.6054771 K4 1.4750593
 K5 -8.3086840 K6 1.8814047
 C1 -88.159648 C2 112.89185 C3 59.719245 C4 52.645034
 C5 0.49745794 C6 1.7455694 C7 0.8468517 C8 0.53752012
 C9 -7.8775829
 F1 5.1711710 F2 0.42228787 F3 -13.927917 F4 -22.169020
 F5 19.096809 F6 2.5516031
 G1 0.52787434 G2 0.11220710 G3 0.15200501 G4 0.18909898
 G5 0.36916592 G6 -0.61450273 G7 0.35885010
 R1 0.21145111 R2 0.197166 R3 -0.0014624589 R4 -0.26067049
 R5 -0.72153930 R6 -0.30074025 R7 -0.8504966 R8 -0.47569344
 R9 0.000086045401
 V1 0.33821869 V2 0.10086879 V3 -0.00032994525 V4 -0.25636447
 V5 -0.002074535 V6 0.18754862 V7 0.27784296 V8 -0.10164001
 X1 0.56190258 X2 1.0708838 X3 -0.10230191 X4 -0.33279205
 X5 -0.33669733 X6 0.39405126 X7 0.24443156
 AA1 -0.88172083 AA2 0.55536571 AA3 0.47873639 AA4 0.0029952523
 AA5 -0.013587823 AA6 -0.015946397 AA7 0.012760083 AA8 0.016638944
 AA9 0.19574671
 BB1 -12.049532 BB2 0.19391146 BB3 -26.706668 BB4 9.6088150 BB5 35.437597
 BB6 14.432225 BB7 -12.756196 BB8 11.816741 BB9 0.49524456
 CC1 1.0133866 CC2 0.011614621 CC3 -0.77387759 CC4 -5.8325603
 CC5 6.4645768 CC6 6.3461941 CC7 0.41091076;

DATA HATA ; SET HAT ;
 IF _TYPE_ NE 'PREDICT' THEN DELETE ;
 ULBINVEH=ULBINVE;
 NLTSUPCH=NLTSUPC;
 HCANPH=HCANP;
 LCAHQH=LCANQ;
 LCAHPH=LCANP;
 TEMP1H=TEMP1;
 TEMP2H=TEMP2;
 TEMP3H=TEMP3;
 NPLX1H=NPLX1;
 NPLXEH=NPLXE;
 JINVTEH=JINVTE;
 NLZINVEH=NLZINVE;
 NPLXEH=NPLXE;
 NPLXJH=NPLXJ;
 NQLXJH=NQLXJ;
 NQLXEH=NQLXE;
 NLTSUPH=NLTSUP;
 NAPLEXH=NAPLEX;
 NAPHEXH=NAPHEX;
 NHEXPH=NHEXP;
 NHTSUPH=NHTSUP;
 NQHXEH=NQHXE;
 NQHXXH=NQHXX;
 NPHXJH=NPHXJ;
 NPLXJH=NPLXJ;
 NPHXEH=NPHXE;
 NPHXH=NPHX;
 NHZINVEH=NHZINVE;
 JINVZEH=JINVZE;
 NLTSUPH=NLTSUP;

DATA HATB ; SET HAT ;
 IF _TYPE_ NE 'ACTUAL' THEN DELETE ;

```

LREX=NAPLEX*NAQLEX;
LREXH=NAPLEXH*NAQLEX;
HREX=NAPHEX*NAQHEX;
HREXH=NAPHEXH*NAQHEX;
ALREX=NAPLEX*AKQLEX;
ALREXH=NAPLEXH*AKQLEX;
AHREX=NAPHEX*AKQHEX;
AHREXH=NAPHEXH*AKQHEX;

```

```
PROC MEANS DATA=TOTO; VAR NAPHEXH NAQHEX NHTSUP;
```

```
DATA TOTO ; SET TOTO ; BY YEARDUM ;
```

```
YEARDUM1=LAG1(YEARDUM) ;
```

```
IF YEARDUM1 = . THEN YEARDUM1=YEARDUM ;
```

```
IF YEARDUM=YEARDUM1 THEN DO ;
```

```
*** sums up variables ;
```

```

SLREX      +      LREX      ;
SLREXH     +      LREXH     ;
SHREX      +      HREX      ;
SHREXH     +      HREXH     ;
SNAQLEX    +      NAQLEX    ;
SNAQHEX    +      NAQHEX    ;
ASLREX     +      ALREX     ;
ASLREXH    +      ALREXH    ;
ASHREX     +      AHREX     ;
ASHREXH    +      AHREXH    ;
SAKQLEX    +      AKQLEX    ;
SAKQHEX    +      AKQHEX    ;
SAKQKEX    +      AKQKEX    ;
SAKQREX    +      AKQREX    ;
SAKQSEX    +      AKQSEX    ;
SAKQCEX    +      AKQCEX    ;
SAKQPEX    +      AKQPEX    ;

```

*Sums Quarter
to
Years*

```
END ;
```

```
IF FIRST.YEARDUM THEN DO ;
```

```
*** resets sums at 1st obsv of each fisherman
```

```

SLREX      =      LREX      ;
SLREXH     =      LREXH     ;
SHREX      =      HREX      ;
SHREXH     =      HREXH     ;
SNAQLEX    =      NAQLEX    ;
SNAQHEX    =      NAQHEX    ;
ASLREX     =      ALREX     ;
ASLREXH    =      ALREXH    ;
ASHREX     =      AHREX     ;
ASHREXH    =      AHREXH    ;
AKQLEX     =      AKQLEX    ;
AKQHEX     =      AKQHEX    ;
SAKQKEX    =      AKQKEX    ;
SAKQREX    =      AKQREX    ;
SAKQSEX    =      AKQSEX    ;
SAKQCEX    =      AKQCEX    ;
SAKQPEX    =      AKQPEX    ;

```

```
END ;
```

```
PROC PRINT ; VAR NLTSUPH LCNAPH NPLXJH;
```

```
PROC PRINT ; VAR T SLREX LREX SLREXH LREXH SHREX HREX SHREXH HREXH
```

```
SNAQLEX NAQLEX SNAQHEX NAQHEX AKQHEX AKQLEX ;
```

```
PROC PRINT ; VAR T ASLREX ALREX ASLREXH ALREXH ASHREX AHREX ASHREXH AHREXH
```

```
SAKQLEX AKQLEX SAKQHEX AKQHEX ;
```

```
PROC PRINT; VAR SAKQKEX AKQKEX SAKQREX AKQREX SAKQSEX AKQSEX SAKQCEX AKQCEX
```

```
SAKQPEX AKQPEX;
```

```
DATA TOTOYR ; SET TOTO; BY YEARDUM ;
```

```
IF LAST.YEARDUM THEN DUM=1 ; *** delete all obsvs except the last obsv ;
```

NAPLEXH=SLREXH/SNAQLEX;
 NAPHEX=SHREX/SNAQHEX;
 NAPHEXH=SHREXH/SNAQHEX;
 YR=80+YEARDUM ;

PROC PRINT ; VAR YEARDUM YR SLREX SLREXH SNAQLEX;
 PROC PRINT ; VAR YEARDUM YR SHREX SHREXH SNAQHEX;
 PROC PRINT ; VAR YEARDUM YR ASLREX ASLREXH ASHREX ASHREXH;
 PROC PRINT ; VAR YEARDUM YR SAKQKEX SAKQREX SAKQSEX SAKQCEX SAKQPEX;
 PROC PRINT ; VAR YEARDUM YR NAPLEX NAPLEXH NAPHEX NAPHEXH;

PROC MEANS DATA=TOTOYR; VAR YR NAPLEX NAPLEXH NAPHEX NAPHEXH SHREX SHREXH SLREX
 ASHREX ASHREXH ASLREX ASLREXH SAKQKEX SAKQREX SAKQSEX SAKQCEX SAKQPEX;

PROC MEANS DATA=TOTOYR; VAR YR NAPHEXH SHREXH SNAQHEX NAPLEXH SLREXH SNAQLEX
 ASHREXH ASLREXH SAKQKEX SAKQREX SAKQSEX SAKQCEX SAKQPEX;

DATA SDATA.SEV2 ; SET TOTOYR ;
 , KEEP YR NAPLEXH NAPHEXH SAKQKEX SAKQSEX SAKQREX SAKQCEX SAKQPEX;

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * * ;

DATA SEV ; MERGE SDATA.SEV2 SDATA.SAREGION SDATA.SEVAK;BY YR;
 KR=KKR;
 JR=SER;
 IF YR<82 THEN DELETE ;
 SNAPHEX=NAPHEXH ;
 AKRV=AKRQ*AKRP;
 AFFRQ=PWRTH+CIRTH+KKRTH+SERTH;
 AFFRV=PWRTH*PWR+CIRTH*CIR+KKRTH*KR+SERTH*JR;
 AFFRP=AFFRV/AFFRQ;
 AKORQ=AKRQ-AFFRQ;
 AKORV=AKRV-AFFRV;
 AKORP=AKORV/AKORQ;

*Suckeye
Annual
model*

PROC SYNLIN OLS DATA=SEV OUTEST=PARAM
 MAXIT=1775 CONVERGE=0.00001 DW OUT=PUTZ OUTACTUAL
 OUTPREDICT OUTRESID LIST ; ID YR ;

PARAMETERS ZOPWR Z1PWR
 ZOCIR Z1CIR
 ZOKR Z1KR
 ZOJR Z1JR
 ZOAKRP Z1AKRP
 ZOAKORP Z1AKORP;

ENDOGENOUS PWR CIR KR JR AKRP AKORP ;
 EXOGENOUS NAPHEX ;

PWR= ZOPWR+ Z1PWR*NAPHEX ;
 CIR= ZOCIR+ Z1CIR*NAPHEX ;
 KR = ZOKR + Z1KR *NAPHEX ;
 JR = ZOJR + Z1JR *NAPHEX ;
 AKRP = ZOAKRP + Z1AKRP *NAPHEX ;
 AKORP = ZOAKORP + Z1AKORP *NAPHEX ;

TITLE ' * * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * * ' ;
 PROC PRINT ;

```

CALL SYMPUT('ZOCIR',ZOCIR) ;
CALL SYMPUT('ZOKR',ZOKR) ;
CALL SYMPUT('ZOJR',ZOJR) ;
CALL SYMPUT('ZOKRP',ZOKRP) ;
CALL SYMPUT('ZOKORP',ZOKORP) ;
CALL SYMPUT('Z1PWR',Z1PWR) ;
CALL SYMPUT('Z1CIR',Z1CIR) ;
CALL SYMPUT('Z1KR',Z1KR) ;
CALL SYMPUT('Z1JR',Z1JR) ;
CALL SYMPUT('Z1AKRP',Z1AKRP) ;
CALL SYMPUT('Z1AKORP',Z1AKORP) ;

```

* * * * SIMNLIN PROGRAM * * * * *

```

DATA SIM; SET SDATA.SEV2; KEEP YR;
DATA SIM; MERGE SEV SIM; BY YR;

```

```

PROC MODEL OUT=SAL ;
  PWR= ZOPWR+ Z1PWR*SNAPHEX ;
  CIR= ZOCIR+ Z1CIR*SNAPHEX ;
  KR = ZOKR + Z1KR *SNAPHEX ;
  JR = ZOJR + Z1JR *SNAPHEX ;
  AKRP = ZOKRP + Z1AKRP *SNAPHEX ;
  AKORP = ZOKORP + Z1AKORP *SNAPHEX ;

```

```

ENDOGENOUS PWR CIR KR JR AKRP AKORP;
EXOGENOUS SNAPHEX ;

```

PARMS

```

ZOPWR & ZOPWR
ZOCIR & ZOCIR
ZOKR & ZOKR
ZOJR & ZOJR
ZOKRP & ZOKRP
ZOKORP & ZOKORP
Z1PWR & Z1PWR
Z1CIR & Z1CIR
Z1KR & Z1KR
Z1JR & Z1JR
Z1AKRP & Z1AKRP
Z1AKORP & Z1AKORP ;

```

```

PROC SIMNLIN DATA=SIM MODEL=SAL NEWTON
STAT THEIL LIST OUTPREDICT OUTACTUAL OUTRESID OUT=ZIPPY ; ID YR ;
RANGE YR= 83 TO 106;

```

```

DATA ZIPPY ; SET ZIPPY ;
IF TYPE NE 'PREDICT' THEN DELETE ;
PWRZ=PWR ;
CIRZ=CIR ;
KRZ =KR ;
JRZ =JR ;
AKRPZ=AKRP ;
AKORPZ=AKORP ;
DROP PWR CIR KR JR AKRP AKORP;

```

```

DATA BOZO ; MERGE SEV ZIPPY SDATA.COOK1 SDATA.PRINCE1 SDATA.KODIAK1 SDATA.SOUTH1
BY YR ;

```

```

PWRR=PWR- PWRZ ;
CIRR=CIR- CIRZ ;
KRR =KR - KRZ ;

```

for all 5 species

Δ then

If you globally change
cook1 → cook2 etc. you will

come 1 New to change
each # to refer to
the same year running.
So SDATA.PRINCE2
refers to case 2
etc.

①

AKORPR = AKORP - AKORPZ ;
HAKOR = SAKQREX-HPWR-HCIR-HKKR-HSER;

PWRREV=PWRZ*HPWR;
CIRREV=CIRZ*HCIR;
KRREV=KRZ*HKKR;
JRREV=JRZ*HSER;
AKRREV1=AKRPZ*AKRQ;
AKORREV=HAKOR*AKORPZ;
AKRREV=PWRREV+CIRREV+KRREV+JRREV+AKORREV;

IF YR>106 OR YR<83 THEN DELETE;
PROC MEANS DATA=BOZO; VAR PWRREV CIRREV KRREV JRREV AKRREV AKRREV1 AKRP AKRPZ;

PROC PRINT; VAR AKRQ AKORQ AKRP AKORP;
PROC PRINT; ID YR; VAR PWRZ CIRZ KRZ JRZ AKORPZ;
PROC PRINT; ID YR; VAR PWRZ CIRZ KRZ JRZ AKRPZ;
PROC PRINT; ID YR; VAR HPWR HCIR HKKR HSER HAKOR ;

DATA ZOZO; SET BOZO;
IF YR>106 OR YR<97 THEN DELETE;
PROC MEANS DATA=ZOZO; VAR PWRZ HPWR CIRZ HCIR JRZ HSER KRZ HKKR
AKORPZ HAKOR AKRPZ SAKQREX;
PROC MEANS DATA=ZOZO; VAR PWRZ PWRREV HPWR PWRREV CIRZ HCIR
CIRREV JRZ HSER JRREV KRZ HKKR KRREV AKORPZ HAKOR AKORREV AKRPZ SAKQREX AKRREV;
PROC MEANS DATA=ZOZO; VAR PWRREV CIRREV KRREV JRREV AKORREV AKRREV ;

* * * PINK BXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *' ;

DATA SEV ; MERGE SDATA.SEV2 SDATA.SAREGION SDATA.SEVAK; BY YR;
KP=KKP;
JP=SEP;
IF YR<82 THEN DELETE ;
SNAPLEX=NAPLEXH ;
AKPV=AKPQ*AKPP;
AFFPQ=PWPTH+CIPTH+KKPTH+SEPTH;
AFFPV=PWPTH*PWP+CIPTH*CIP+KKPTH*KP+SEPTH*JP;
AFFPP=AFFPV/AFFPQ;
AKOPQ=AKPQ-AFFPQ;
AKOPV=AKPV-AFFPV;
AKOPP=AKOPV/AKOPQ;

PROC SYSNLIN OLS DATA=SEV OUTEST=PARAM
MAXIT=1775 CONVERGE=0.00001 DW OUT=PUTZ OUTACTUAL
OUTPREDICT OUTRESID LIST ; ID YR ;

PARAMETERS Z0PWP Z1PWP
 Z0CIP Z1CIP
 Z0KP Z1KP
 Z0JP Z1JP
 Z0AKPP Z1AKPP
 Z0AKOPP Z1AKOPP;

ENDOGENOUS PWP CIP KP JP AKPP AKOPP ;
EXOGENOUS NAPLEX ;

PWP= Z0PWP+ Z1PWP*NAPLEX ;
CIP= Z0CIP+ Z1CIP*NAPLEX ;
KP = Z0KP + Z1KP *NAPLEX ;
JP = Z0JP + Z1JP *NAPLEX ;
AKPP = Z0AKPP + Z1AKPP *NAPLEX ;

TITLE ' * * * PINK EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * * ' ;
PROC PRINT ;

DATA PARAM ; SET PARAM ;
CALL SYMPUT(' _ZOPWP', ZOPWP) ;
CALL SYMPUT(' _ZOCIP', ZOCIP) ;
CALL SYMPUT(' _ZOKP', ZOKP) ;
CALL SYMPUT(' _ZOJP', ZOJP) ;
CALL SYMPUT(' _ZOAKPP', ZOAKPP) ;
CALL SYMPUT(' _ZOAKOPP', ZOAKOPP) ;
CALL SYMPUT(' _Z1PWP', Z1PWP) ;
CALL SYMPUT(' _Z1CIP', Z1CIP) ;
CALL SYMPUT(' _Z1KP', Z1KP) ;
CALL SYMPUT(' _Z1JP', Z1JP) ;
CALL SYMPUT(' _Z1AKPP', Z1AKPP) ;
CALL SYMPUT(' _Z1AKOPP', Z1AKOPP) ;

* * * * SIMNLIN PROGRAM * * * * * ;

DATA SIM; SET SDATA.SEV2; KEEP YR;
DATA SIM; MERGE SEV SIM; BY YR;

PROC MODEL OUT=SAL ;
PWP= ZOPWP+ Z1PWP*SNAPLEX ;
CIP= ZOCIP+ Z1CIP*SNAPLEX ;
KP = ZOKP + Z1KP *SNAPLEX ;
JP = ZOJP + Z1JP *SNAPLEX ;
AKPP = ZOAKPP + Z1AKPP *SNAPLEX ;
AKOPP = ZOAKOPP + Z1AKOPP *SNAPLEX ;

ENDOGENOUS PWP CIP KP JP AKPP AKOPP;
EXOGENOUS SNAPLEX ;

PARMS

ZOPWP & _ZOPWP
ZOCIP & _ZOCIP
ZOKP & _ZOKP
ZOJP & _ZOJP
ZOAKPP & _ZOAKPP
ZOAKOPP & _ZOAKOPP
Z1PWP & _Z1PWP
Z1CIP & _Z1CIP
Z1KP & _Z1KP
Z1JP & _Z1JP
Z1AKPP & _Z1AKPP
Z1AKOPP & _Z1AKOPP ;

PROC SIMNLIN DATA=SIM MODEL=SAL NEWTON
STAT THEIL LIST OUTPREDICT OUTACTUAL OUTRESID OUT=ZIPPY ; ID YR ;
RANGE YR= 83 TO 106;

DATA ZIPPY ; SET ZIPPY ;
IF TYPE NE 'PREDICT' THEN DELETE ;
PWPZ=PWP ;
CIPZ=CIP ;
KPZ =KP ;
JPZ =JP ;
AKPPZ=AKPP ;
AKOPPZ=AKOPP ;
DROP PWP CIP KP JP AKPP AKOPP;

PWPR=PWP- PWPZ ;
 CIPR=CIP- CIPZ ;
 KPR =KP - KPZ ;
 JPR =JP - JPZ ;
 AKPPR =AKPP - AKPPZ ;
 AKOPPR =AKOPP - AKOPPZ ;
 HAKOP = SAKQPEX-HPWP-HCIP-HKKP-HSEP;

PWPREV=PWPZ*HPWP;
 CIPREV=CIPZ*HCIP;
 KPREV=KPZ*HKKP;
 JPREV=JPZ*HSEP;
 AKPREV1=AKPPZ*AKPQ;
 AKOPREV=HAKOP*AKOPPZ;
 AKPREV=PWPREV+CIPREV+KPREV+JPREV+AKOPREV;

IF YR>106 OR YR<83 THEN DELETE;
 PROC MEANS DATA=BOZO; VAR PWPREV CIPREV KPREV JPREV AKPREV AKPREV1 AKPP AKPPZ;

PROC PRINT; VAR AKPQ AKOPQ AKPP AKOPP;
 PROC PRINT; ID YR; VAR PWPZ CIPZ KPZ JPZ AKOPPZ;
 PROC PRINT; ID YR; VAR PWPZ CIPZ KPZ JPZ AKPPZ;
 PROC PRINT; ID YR; VAR HPWP HCIP HKKP HSEP HAKOP;

DATA ZOZO; SET BOZO;
 IF YR>106 OR YR<97 THEN DELETE;
 PROC MEANS DATA=ZOZO; VAR PWPZ HPWP CIPZ HCIP JPZ HSEP KPZ HKKP AKOPPZ HAKOP
 AKPPZ SAKQPEX;
 PROC MEANS DATA=ZOZO; VAR PWPZ HPWP PWPREV CIPZ HCIP CIPREV JPZ HSEP JPREV
 KPZ HKKP KPREV AKOPPZ HAKOP AKOPREV AKPPZ SAKQPEX AKPREV;
 PROC MEANS DATA=ZOZO; VAR PWPREV CIPREV KPREV JPREV AKOPREV AKPREV ;

* * * CHUM EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * * ' ;

DATA SEV ; MERGE SDATA.SEV2 SDATA.SAREGION SDATA.SEVAK;BY YR;
 KC=KKC;
 JC=SEC;
 IF YR<82 THEN DELETE ;
 SNAPLEX=NAPLEXH ;
 AKCV=AKCQ*AKCP;
 AFFCQ=PWCTH+CICTH+KKCTH+SECTH;
 AFFCV=PWCTH*PWC+CICTH*CIC+KKCTH*KC+SECTH*JC;
 AFFCP=AFFCV/AFFCQ;
 AKOCQ=AKCQ-AFFCQ;
 AKOCV=AKCV-AFFCV;
 AKOCP=AKOCV/AKOCQ;

PROC SYSNLIN OLS DATA=SEV OUTEST=PARAM
 MAXIT=1775 CONVERGE=0.00001 DW OUT=PUTZ OUTACTUAL
 OUTPREDICT OUTRESID LIST ; ID YR ;

PARAMETERS Z0PWC Z1PWC
 Z0CIC Z1CIC
 Z0KC Z1KC
 Z0JC Z1JC
 Z0AKCP Z1AKCP
 Z0AKOCP Z1AKOCP;

ENDOGENOUS PWC CIC KC JC AKCP AKOCP ;

```

PWC= ZOPWC+ Z1PWC*NAPLEX ;
CIC= ZOCIC+ Z1CIC*NAPLEX ;
KC = ZOKC + Z1KC *NAPLEX ;
JC = ZOJC + Z1JC *NAPLEX ;
AKCP = ZOAKCP + Z1AKCP *NAPLEX ;
AKOCP = ZOAKOCP + Z1AKOCP *NAPLEX ;

```

```

TITLE ' * * * CHUM EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * * ' ;
PROC PRINT ;

```

```

DATA PARAM ; SET PARAM ;
CALL SYMPUT(' ZOPWC',ZOPWC) ;
CALL SYMPUT(' ZOCIC',ZOCIC) ;
CALL SYMPUT(' ZOKC',ZOKC) ;
CALL SYMPUT(' ZOJC',ZOJC) ;
CALL SYMPUT(' ZOAKCP',ZOAKCP) ;
CALL SYMPUT(' ZOAKOCP',ZOAKOCP) ;
CALL SYMPUT(' Z1PWC',Z1PWC) ;
CALL SYMPUT(' Z1CIC',Z1CIC) ;
CALL SYMPUT(' Z1KC',Z1KC) ;
CALL SYMPUT(' Z1JC',Z1JC) ;
CALL SYMPUT(' Z1AKCP',Z1AKCP) ;
CALL SYMPUT(' Z1AKOCP',Z1AKOCP) ;

```

```

* * * * SIMNLIN PROGRAM * * * * * ;

```

```

DATA SIM; SET SDATA.SEV2; KEEP YR;
DATA SIM; MERGE SEV SIM; BY YR;

```

```

PROC MODEL OUT=SAL ;
PWC= ZOPWC+ Z1PWC*SNAPLEX ;
CIC= ZOCIC+ Z1CIC*SNAPLEX ;
KC = ZOKC + Z1KC *SNAPLEX ;
JC = ZOJC + Z1JC *SNAPLEX ;
AKCP = ZOAKCP + Z1AKCP *SNAPLEX ;
AKOCP = ZOAKOCP + Z1AKOCP *SNAPLEX ;

```

```

ENDOGENOUS PWC CIC KC JC AKCP AKOCP;
EXOGENOUS SNAPLEX ;

```

```

PARMS

```

```

ZOPWC & ZOPWC
ZOCIC & ZOCIC
ZOKC & ZOKC
ZOJC & ZOJC
ZOAKCP & ZOAKCP
ZOAKOCP & ZOAKOCP
Z1PWC & Z1PWC
Z1CIC & Z1CIC
Z1KC & Z1KC
Z1JC & Z1JC
Z1AKCP & Z1AKCP
Z1AKOCP & Z1AKOCP ;

```

```

PROC SIMNLIN DATA=SIM MODEL=SAL NEWTON
STAT THEIL LIST OUTPREDICT OUTACTUAL OUTRESID OUT=ZIPPY ; ID YR ;
RANGE YR= 83 TO 106;

```

```

DATA ZIPPY ; SET ZIPPY ;
IF TYPE NE 'PREDICT' THEN DELETE ;
PWCZ=PWC ;
CICZ=CIC ;

```

. AKCPZ=AKCP ;
AKOCPZ=AKOCP ;
DROP PWC CIC KC JC AKCP AKOCP;

DATA BOZO ; MERGE SEV ZIPPY SDATA.COOK1 SDATA.PRINCE1 SDATA.KODIAK1 SDATA.SOUTH
BY YR ;

PWCR=PWC- PWCZ ;
CICR=CIC- CICZ ;
KCR =KC - KCZ ;
JCR =JC - JCZ ;
AKCPR =AKCP - AKCPZ ;
AKOCPR =AKOCP - AKOCPZ ;
HAKOC = SAKQCEX-HPWC-HCIC-HKKC-HSEC;

PWCREV=PWCZ*HPWC;
CICREV=CICZ*HCIC;
KCREV=KCZ*HKKC;
JCREV=JCZ*HSEC;
AKCREV1=AKCPZ*AKCQ;
AKOCREV=HAKOC*AKOCPZ;
AKCREV=PWCREV+CICREV+KCREV+JCREV+AKOCREV;

IF YR>106 OR YR<83 THEN DELETE;
PROC MEANS DATA=BOZO; VAR PWCREV CICREV KCREV JCREV AKCREV AKCREV1 AKCP AKCPZ;

PROC PRINT; VAR AKCQ AKOCQ AKCP AKOCP;
PROC PRINT; ID YR; VAR PWCZ CICZ KCZ JCZ AKOCPZ;
PROC PRINT; ID YR; VAR PWCZ CICZ KCZ JCZ AKCPZ;
PROC PRINT; ID YR; VAR HPWC HCIC HKKC HSEC HAKOC ;

DATA ZOZO; SET BOZO;
IF YR>106 OR YR<97 THEN DELETE;

PROC MEANS DATA=ZOZO; VAR PWCZ HPWC CICZ HCIC JCZ HSEC KCZ HKKC AKOCPZ HAKOC
AKCPZ SAKQCEX;
PROC MEANS DATA=ZOZO; VAR PWCZ PWCREV HPWC CICZ HCIC CICREV JCZ HSEC JCREV
KCZ HKKC KCREV AKOCPZ HAKOC AKOCREV AKCPZ SAKQCEX AKCREV;
PROC MEANS DATA=ZOZO; VAR PWCREV CICREV KCREV JCREV AKCREV AKOCREV;

* * * COHO EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *' ;

DATA SEV ; MERGE SDATA.SEV2 SDATA.SAREGION SDATA.SEVAK;BY YR;
KS=KKS;
JS=SES;
IF YR<82 THEN DELETE ;
SNAPHEX=NAPHEXH ;
AKSV=AKSQ*AKSP;
AFFSQ=PWSTH+CISTH+KKSTH+SESTH;
AFFSV=PWSTH*PWS+CISTH*CIS+KKSTH*KS+SESTH*JS;
AFFSP=AFFSV/AFFSQ;
AKOSQ=AKSQ-AFFSQ;
AKOSV=AKSV-AFFSV;
AKOSP=AKOSV/AKOSQ;

PROC SYSNLIN OLS DATA=SEV OUTEST=PARAM
MAXIT=1775 CONVERGE=0.00001 DW OUT=PUTZ OUTACTUAL
OUTPREDICT OUTRESID LIST ; ID YR ;

```

ZOCIS  Z1CIS
ZOKS   Z1KS
ZOJS   Z1JS
ZOAKSP Z1AKSP
ZOAKOSP Z1AKOSP;

```

```

ENDOGENOUS PWS CIS KS JS AKSP AKOSP ;
EXOGENOUS  NAPHEX ;

```

```

PWS= ZOPWS+ Z1PWS*NAPHEX ;
CIS= ZOCIS+ Z1CIS*NAPHEX ;
KS = ZOKS + Z1KS *NAPHEX ;
JS = ZOJS + Z1JS *NAPHEX ;
AKSP = ZOAKSP + Z1AKSP *NAPHEX ;
AKOSP = ZOAKOSP + Z1AKOSP *NAPHEX ;

```

```

TITLE ' * * * COHO EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * * ' ;
PROC PRINT ;

```

```

DATA PARAM ; SET PARAM ;
CALL SYMPUT(' _ZOPWS',ZOPWS) ;
CALL SYMPUT(' _ZOCIS',ZOCIS) ;
CALL SYMPUT(' _ZOKS',ZOKS) ;
CALL SYMPUT(' _ZOJS',ZOJS) ;
CALL SYMPUT(' _ZOAKSP',ZOAKSP) ;
CALL SYMPUT(' _ZOAKOSP',ZOAKOSP) ;
CALL SYMPUT(' _Z1PWS',Z1PWS) ;
CALL SYMPUT(' _Z1CIS',Z1CIS) ;
CALL SYMPUT(' _Z1KS',Z1KS) ;
CALL SYMPUT(' _Z1JS',Z1JS) ;
CALL SYMPUT(' _Z1AKSP',Z1AKSP) ;
CALL SYMPUT(' _Z1AKOSP',Z1AKOSP) ;

```

```

* * * * SIMNLIN PROGRAM * * * * * ;

```

```

DATA SIM; SET SDATA.SEV2; KEEP YR;
DATA SIM; MERGE SEV SIM; BY YR;

```

```

PROC MODEL OUT=SAL ;
PWS= ZOPWS+ Z1PWS*SNAPHEX ;
CIS= ZOCIS+ Z1CIS*SNAPHEX ;
KS = ZOKS + Z1KS *SNAPHEX ;
JS = ZOJS + Z1JS *SNAPHEX ;
AKSP = ZOAKSP + Z1AKSP *SNAPHEX ;
AKOSP = ZOAKOSP + Z1AKOSP *SNAPHEX ;

```

```

ENDOGENOUS PWS CIS KS JS AKSP AKOSP;
EXOGENOUS  SNAPHEX ;

```

```
PARMS
```

```

ZOPWS & _ZOPWS
ZOCIS & _ZOCIS
ZOKS & _ZOKS
ZOJS & _ZOJS
ZOAKSP & _ZOAKSP
ZOAKOSP & _ZOAKOSP
Z1PWS & _Z1PWS
Z1CIS & _Z1CIS
Z1KS & _Z1KS
Z1JS & _Z1JS
Z1AKSP & _Z1AKSP
Z1AKOSP & _Z1AKOSP ;

```

```
PROC SIMNLIN DATA=SIM MODEL=SAL NEWTON
```

```

DATA ZIPPY ; SET ZIPPY ;
IF TYPE NE 'PREDICT' THEN DELETE ;
PWSZ=PWS ;
CISZ=CIS ;
KSZ =KS ;
JSZ =JS ;
AKSPZ=AKSP ;
AKOSPZ=AKOSP ;
DROP PWS CIS KS JS AKSP AKOSP;

```

```

DATA BOZO ; MERGE SEV ZIPPY SDATA.COOK1 SDATA.PRINCE1 SDATA.KODIAK1 SDATA.SOUTH
BY YR ;

```

```

PWSR=PWS- PWSZ ;
CISR=CIS- CISZ ;
KSR =KS - KSZ ;
JSR =JS - JSZ ;
AKSPR =AKSP - AKSPZ ;
AKOSPR =AKOSP - AKOSPZ ;
HAKOS = SAKQSEX-HPWS-HCIS-HKKS-HSES;

```

```

PWSREV=PWSZ*HPWS;
CISREV=CISZ*HCIS;
KSREV=KSZ*HKKS;
JSREV=JSZ*HSES;
AKSREV1=AKSPZ*AKSQ;
AKOSREV=HAKOS*AKOSPZ;
AKSREV=PWSREV+CISREV+KSREV+JSREV+AKOSREV;

```

```

IF YR>106 OR YR<83 THEN DELETE;

```

```

PROC MEANS DATA=BOZO; VAR PWSREV CISREV KSREV JSREV AKSREV AKSREV1 AKSP AKSPZ;

```

```

PROC PRINT; VAR AKSQ AKOSQ AKSP AKOSP;
PROC PRINT; ID YR; VAR PWSZ CISZ KSZ JSZ AKOSPZ;
PROC PRINT; ID YR; VAR PWSZ CISZ KSZ JSZ AKSPZ;
PROC PRINT; ID YR; VAR HPWS HCIS HKKS HSES HAKOS ;

```

```

PROC PRINT; VAR AKSQ AKOSQ AKSP AKOSP;
PROC PRINT; ID YR; VAR PWSZ CISZ KSZ JSZ AKSPZ AKOSPZ;

```

```

DATA ZOZO; SET BOZO;
IF YR>106 OR YR<97 THEN DELETE;

```

```

PROC MEANS DATA=ZOZO; VAR PWSZ HPWS CISZ HCIS JSZ HSES KSZ HKKS
AKOSPZ HAKOS AKSPZ SAKQSEX;
PROC MEANS DATA=ZOZO; VAR PWSZ PWSREV HPWS CISZ HCIS CISREV JSZ HSES JSREV
KSZ HKKS KSREV AKOSPZ HAKOS AKOSREV AKSPZ SAKQSEX AKSREV;
PROC MEANS DATA=ZOZO; VAR PWSREV CISREV KSREV JSREV AKOSREV AKSREV ;

```

```

JK=SEK;
IF YR<82 THEN DELETE ;
SNAPHEX=NAPHEXH ;
AKKV=AKKQ*AKKP;
AFFKQ=PWKTH+CIKTH+KKKTH+SEKTH;
AFFKV=PWKTH*PWK+CIKTH*CIK+KKKTH*KK+SEKTH*JK;
AFFKP=AFFKV/AFFKQ;
AKOKQ=AKKQ-AFFKQ;
AKOKV=AKKV-AFFKV;
AKOKP=AKOKV/AKOKQ;

```

```

PROC SYSNLIN OLS DATA=SEV OUTEST=PARAM
  MAXIT=1775 CONVERGE=0.00001 DW OUT=PUTZ OUTACTUAL
  OUTPREDICT OUTRESID LIST ; ID YR ;

```

```

PARAMETERS      ZOPWK  Z1PWK
                 ZOCIK  Z1CIK
                 ZOKK   Z1KK
                 ZOJK   Z1JK
                 ZOAKKP Z1AKKP
                 ZOAKOKP Z1AKOKP;

```

```

ENDOGENOUS PWK CIK KK JK AKKP AKOKP ;
EXOGENOUS  NAPHEX ;

```

```

PWK= ZOPWK+ Z1PWK*NAPHEX ;
CIK= ZOCIK+ Z1CIK*NAPHEX ;
KK = ZOKK + Z1KK *NAPHEX ;
JK = ZOJK + Z1JK *NAPHEX ;
AKKP = ZOAKKP + Z1AKKP *NAPHEX ;
AKOKP = ZOAKOKP + Z1AKOKP *NAPHEX ;

```

```

TITLE '* * * KING EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *' ;
PROC PRINT ;

```

```

DATA PARAM ; SET PARAM ;
  CALL SYMPUT(' ZOPWK',ZOPWK) ;
  CALL SYMPUT(' ZOCIK',ZOCIK) ;
  CALL SYMPUT(' ZOKK',ZOKK) ;
  CALL SYMPUT(' ZOJK',ZOJK) ;
  CALL SYMPUT(' ZOAKKP',ZOAKKP) ;
  CALL SYMPUT(' ZOAKOKP',ZOAKOKP) ;
  CALL SYMPUT(' Z1PWK',Z1PWK) ;
  CALL SYMPUT(' Z1CIK',Z1CIK) ;
  CALL SYMPUT(' Z1KK',Z1KK) ;
  CALL SYMPUT(' Z1JK',Z1JK) ;
  CALL SYMPUT(' Z1AKKP',Z1AKKP) ;
  CALL SYMPUT(' Z1AKOKP',Z1AKOKP) ;

```

```

* * * * SIMNLIN PROGRAM * * * * * ;

```

```

DATA SIM; SET SDATA.SEV2; KEEP YR;
DATA SIM; MERGE SEV SIM; BY YR;

```

```

PROC MODEL OUT=SAL ;
  PWK= ZOPWK+ Z1PWK*SNAPHEX ;
  CIK= ZOCIK+ Z1CIK*SNAPHEX ;
  KK = ZOKK + Z1KK *SNAPHEX ;
  JK = ZOJK + Z1JK *SNAPHEX ;
  AKKP = ZOAKKP + Z1AKKP *SNAPHEX ;

```

ENDOGENOUS PWK CIK KK JK AKKP AKOKP;
EXOGENOUS SNAPHEX ;
PARMS

ZOPWK & ZOPWK
ZOCIK & ZOCIK
ZOKK & ZOKK
ZOJK & ZOJK
ZOAKKP & ZOAKKP
ZOAKOKP & ZOAKOKP
Z1PWK & Z1PWK
Z1CIK & Z1CIK
Z1KK & Z1KK
Z1JK & Z1JK
Z1AKKP & Z1AKKP
Z1AKOKP & Z1AKOKP ;

PROC SIMNLIN DATA=SIM MODEL=SAL NEWTON
STAT THEIL LIST OUTPREDICT OUTACTUAL OUTRESID OUT=ZIPPY ; ID YR ;
RANGE YR= 83 TO 106;

DATA ZIPPY ; SET ZIPPY ;
IF TYPE NE 'PREDICT' THEN DELETE ;
PWKZ=PWK ;
CIKZ=CIK ;
KKZ =KK ;
JKZ =JK ;
AKKPZ=AKKP ;
AKOKPZ=AKOKP ;
DROP PWK CIK KK JK AKKP AKOKP;

DATA BOZO ; MERGE SEV ZIPPY SDATA.COOK1 SDATA.PRINCE1 SDATA.KODIAK1 SDATA.SOUTH
BY YR ;

PWKR=PWK- PWKZ ;
CIKR=CIK- CIKZ ;
KKR =KK - KKZ ;
JKR =JK - JKZ ;
AKKPR =AKKP - AKKPZ ;
AKOKPR =AKOKP - AKOKPZ ;
HAKOK = SAKQKEX-HPWK-HCIK-HKKK-HSEK;

PWKREV=PWKZ*HPWK;
CIKREV=CIKZ*HCIK;
KKREV=KKZ*HKKK;
JKREV=JKZ*HSEK;
AKKREV1=AKKPZ*AKKQ;
AKOKREV=HAKOK*AKOKPZ;
AKKREV=PWKREV+CIKREV+KKREV+JKREV+AKOKREV;

IF YR>106 OR YR<83 THEN DELETE;
PROC MEANS DATA=BOZO; VAR PWKREV CIKREV KKREV JKREV AKKREV AKKREV1 AKKP AKKPZ;

PROC PRINT; VAR AKKQ AKOKQ AKKP AKOKP;
PROC PRINT; ID YR; VAR PWKZ CIKZ KKZ JKZ AKOKPZ;
PROC PRINT; ID YR; VAR PWKZ CIKZ KKZ JKZ AKKPZ;
PROC PRINT; ID YR; VAR HPWK HCIK HKKK HSEK HAKOK ;

DATA ZOZO; SET BOZO;
IF YR>106 OR YR<97 THEN DELETE;
PROC MEANS DATA=ZOZO; VAR PWKZ HPWK CIKZ HCIK JKZ HSEK KKZ HKKK AKOKPZ HAKOK

KKZ HKKK KKREV AKOKPZ HAKOK AKOKREV AKKPZ SAKQKEX AKKREV;
PROC MEANS DATA=ZOZO; VAR PWKREV CIKREV KKREV JKREV AKOKREV AKKREV ;

SYSNLIN Procedure

Model Summary

Model Variables	7
Endogenous	6
Exogenous	1
Parameters	12
ID Variables	1
Equations	6
Number of Statements	6

Model Variables: PWR CIR KR JR AKRP AKORP NAPHEX

Parameters: ZOPWR Z1PWR ZOCIR Z1CIR ZOKR Z1KR ZOJR Z1JR ZOAKRP Z1AKRP
Z0AKORP Z1AKORP

Equations: PWR CIR KR JR AKRP AKORP

This is just one part of the output from SIML.SAS. The first part of the output is Blue 1 and can be ignored. The G & F stats you see for Blue 1 are not relevant because they span ~~observing~~ time period in which there are no observations. The relevant #'s start here. They are for

Sucrose

Pink

Chem

Che

king

In that order.

SYSNLIN Procedure

The 6 Equations to Estimate are:

PWR = F(ZOPWR(1), Z1PWR(NAPHEX))
CIR = F(ZOCIR(1), Z1CIR(NAPHEX))
KR = F(ZOKR(1), Z1KR(NAPHEX))
JR = F(ZOJR(1), Z1JR(NAPHEX))
AKRP = F(ZOAKRP(1), Z1AKRP(NAPHEX))
AKORP = F(ZOAKORP(1), Z1AKORP(NAPHEX))

SYSNLIN Procedure
OLS Estimation

OLS Estimation Summary

Dataset Option	Dataset
DATA=	SEV
OUT=	PUTZ
OUTEST=	PARAM

Parameters Estimated	12
----------------------	----

Minimization Summary

Method	GAUSS
Iterations	1

Final Convergence Criteria

R	0
PPC	2.5E-14
RPC(Z1PWR)	14211.11
Object	0.9836553
Trace(S)	0.27399268
Objective Value	0.21919415

Observations Processed

Read	25
Solved	25
Used	10
Missing	15

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

SYSNLIN Procedure
OLS Estimation

estimation
of fit between
Suckeye price
and NAPHEX-HAT
shv. exv. for
Bkcl

Nonlinear OLS Summary of Residual Errors

Equation	Model	DF	DF	SSE	MSE	Root MSE	R-Square	Adj R-Sq	Durbin Watson
PWR		2	8	0.9020	0.11275	0.33578	0.8058	0.7815	1.963
CIR		2	8	0.2409	0.03011	0.17352	0.9005	0.8881	2.008
KR		2	8	0.3453	0.04317	0.20776	0.8874	0.8733	1.662
JR		2	8	0.3129	0.03911	0.19776	0.9160	0.9055	1.473
AKRP		2	8	0.1840	0.02300	0.15166	0.9220	0.9122	1.788
AKORP		2	8	0.2069	0.02586	0.16082	0.8969	0.8840	1.827

Nonlinear OLS Parameter Estimates

Parameter	Estimate	Approx. Std Err	'T' Ratio	Approx. Prob> T
Z0PWR	-0.332396	0.35706	-0.93	0.3791
Z1PWR	1.435422	0.24915	5.76	0.0004
Z0CIR	-0.098836	0.18452	-0.54	0.6068
Z1CIR	1.095522	0.12875	8.51	0.0001
Z0KR	-0.270607	0.22093	-1.22	0.2555
Z1KR	1.223834	0.15416	7.94	0.0001
Z0JR	-0.368885	0.21029	-1.75	0.1175
Z1JR	1.370279	0.14674	9.34	0.0001
Z0AKRP	-0.289220	0.16127	-1.79	0.1107
Z1AKRP	1.094227	0.11253	9.72	0.0001
Z0AKORP	-0.234415	0.17101	-1.37	0.2077
Z1AKORP	0.995458	0.11933	8.34	0.0001

Number of Observations
Used 10
Missing 15

Statistics for System
Objective 0.2192
Objective*N 2.1919

SYSNLIN Procedure

Listing of Program:

Stmt	Line:Col	Source Text
1	323:4	PWR= Z0PWR+ Z1PWR*NAPHEX ; Z1PWR: 1.4354(5.76) Z0PWR: -0.3324(-0.931)
2	324:4	CIR= Z0CIR+ Z1CIR*NAPHEX ; Z1CIR: 1.0955(8.51) Z0CIR: -0.09884(-0.536)
3	325:4	KR = Z0KR + Z1KR *NAPHEX ; Z1KR: 1.2238(7.94) Z0KR: -0.27061(-1.22)
4	326:4	JR = Z0JR + Z1JR *NAPHEX ; Z1JR: 1.3703(9.34) Z0JR: -0.36889(-1.75)
5	327:4	AKRP = ZOAKRP + Z1AKRP *NAPHEX ; Z1AKRP: 1.0942(9.7) ZOAKRP: -0.28922(-1.79)
6	328:4	AKORP = ZOAKORP + Z1AKORP *NAPHEX ; Z1AKORP: 0.99546(8.34) ZOAKORP: -0.23442(-1.37)

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

OBS	_NAME_	_TYPE_	_NUSED_	ZOPWR	Z1PWR	ZOCIR	Z1CIR	ZOKR
1		OLS	10	-0.33240	1.43542	-0.098836	1.09552	-0.27061
OBS	Z1KR	Z0JR	Z1JR	Z0AKRP	Z1AKRP	Z0AKORP	Z1AKORP	
1	1.22383	-0.36889	1.37028	-0.28922	1.09423	-0.23442	0.99546	

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

MODEL Procedure

Model Summary

Model Variables	7
Endogenous	6
Exogenous	1
Parameters	12
Equations	6
Number of Statements	6

Model Variables: PWR SNAPHEX CIR KR JR AKRP AKORP

Parameters: ZOPWR: -0.3324 Z1PWR: 1.435 ZOCIR: -0.0988
Z1CIR: 1.096 ZOKR: -0.2706 Z1KR: 1.224 ZOJR: -0.3689
Z1JR: 1.37 ZOAKRP: -0.2892 Z1AKRP: 1.094
ZOAKORP: -0.2344 Z1AKORP: 0.9955

Equations: PWR CIR KR JR AKRP AKORP

SIMNLIN Procedure

Model Summary

Model Variables	7
Endogenous	6
Exogenous	1
Parameters	12
RANGE Variable	YR
ID Variables	1
Equations	6
Number of Statements	6

Model Variables: PWR SNAPHEX CIR KR JR AKRP AKORP

Parameters: ZOPWR: -0.3324 Z1PWR: 1.435 ZOCIR: -0.0988
 Z1CIR: 1.096 ZOKR: -0.2706 Z1KR: 1.224 ZOJR: -0.3689
 Z1JR: 1.37 ZOAKRP: -0.2892 Z1AKRP: 1.094
 ZOAKORP: -0.2344 Z1AKORP: 0.9955

Equations: PWR CIR KR JR AKRP AKORP

Listing of Program:

Stmt	Line:Col	Source Text
1	354:4	PWR= ZOPWR+ Z1PWR*SNAPHEX ; Z1PWR: 1.4354(.) ZOPWR: -0.3324(.)
2	355:4	CIR= ZOCIR+ Z1CIR*SNAPHEX ; Z1CIR: 1.0955(.) ZOCIR: -0.09884(.)
3	356:4	KR = ZOKR + Z1KR *SNAPHEX ; Z1KR: 1.2238(.) ZOKR: -0.27061(.)
4	357:4	JR = ZOJR + Z1JR *SNAPHEX ; Z1JR: 1.3703(.) ZOJR: -0.36889(.)
5	358:4	AKRP = ZOAKRP + Z1AKRP *SNAPHEX ; Z1AKRP: 1.0942(.) ZOAKRP: -0.28922(.)
6	359:4	AKORP = ZOAKORP + Z1AKORP *SNAPHEX ; Z1AKORP: 0.99546(.) ZOAKORP: -0.23442(.)

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

SIMNLIN Procedure
Simultaneous Simulation

Solution Summary

Dataset Option	Dataset
DATA=	SIM
OUT=	ZIPPY

Variables Solved	6
------------------	---

Solution RANGE	YR
First	83
Last	106

Solution Method	NEWTON
CONVERGE=	1E-8
Maximum CC	0
Maximum Iterations	1
Total Iterations	24
Average Iterations	1

Observations Processed	
Read	24
Solved	24
First	2
Last	25

Variables Solved For: PWR CIR KR JR AKRP AKORP

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

SIMNLIN Procedure
Simultaneous Simulation

Solution Range YR = 83 To 106

Descriptive Statistics

Variable	Nobs	N	Actual		Predicted	
			Mean	Std	Mean	Std
PWR	24	10	1.5391	0.8643	1.6155	0.5117
CIR	24	10	1.2905	0.6806	1.3878	0.3905
KR	24	10	1.3149	0.7222	1.3902	0.4363
JR	24	10	1.3945	0.7968	1.4906	0.4885
AKRP	24	9	1.2500	0.5244	1.2136	0.4093
AKORP	24	9	1.1697	0.4806	1.1327	0.3724

Descriptive Statistics

Missing Values

Variable	Total	Actual	Predict
PWR	14	14	0
CIR	14	14	0
KR	14	14	0
JR	14	14	0
AKRP	15	15	0
AKORP	15	15	0

Statistics of Fit

Variable	N	Mean Error	Mean % Error	Mean Abs Error	Mean Abs % Error
PWR	10	0.0764	.	0.4222	.
CIR	10	0.0973	.	0.3155	.
KR	10	0.0752	.	0.2931	.
JR	10	0.0961	.	0.3152	.
AKRP	9	-0.0364	1.1258	0.1452	13.15330
AKORP	9	-0.0370	0.8410	0.1357	12.83644

Statistics of Fit

Variable	RMS Error	RMS % Error	R-Square
PWR	0.5675	.	0.5210
CIR	0.4455	.	0.5238
KR	0.4448	.	0.5785
JR	0.4694	.	0.6145
AKRP	0.1686	15.9107	0.8837
AKORP	0.1566	15.5815	0.8805

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

SIMNLIN Procedure
Simultaneous Simulation

Solution Range YR = 83 To 106

Theil Forecast Error Statistics

Variable	N	MSE Decomposition Proportions							Inequality Coef	
		MSE	Corr (R)	Bias (UM)	Reg (UR)	Dist (UD)	Var (US)	Covar (UC)	U1	U
PWR	10	0.32203	0.743	0.018	0.048	0.934	0.347	0.634	0.3254	0.1654
CIR	10	0.19850	0.763	0.048	0.075	0.877	0.381	0.571	0.3088	0.1547
KR	10	0.19785	0.791	0.029	0.083	0.889	0.372	0.600	0.3000	0.1516
JR	10	0.22029	0.821	0.042	0.112	0.846	0.389	0.570	0.2959	0.1491
AKRP	9	0.02842	0.960	0.047	0.276	0.677	0.414	0.539	0.1254	0.0644
AKORP	9	0.02453	0.960	0.056	0.286	0.658	0.424	0.520	0.1248	0.0642

Theil Relative Change Forecast Error Statistics

Variable	N	MSE Decomposition Proportions							Inequality Coef	
		MSE	Corr (R)	Bias (UM)	Reg (UR)	Dist (UD)	Var (US)	Covar (UC)	U1	U
PWR	8	0.03947	0.833	0.003	0.152	0.845	0.013	0.984	0.5902	0.2866
CIR	8	0.02535	0.888	0.007	0.131	0.862	0.018	0.975	0.4779	0.2327
KR	8	0.02147	0.890	0.016	0.011	0.973	0.018	0.966	0.4570	0.2364
JR	8	0.02708	0.897	0.020	0.008	0.973	0.101	0.880	0.4390	0.2371
AKRP	8	0.02172	0.894	0.011	0.004	0.985	0.029	0.960	0.4413	0.2302
AKORP	8	0.02428	0.886	0.016	0.001	0.983	0.076	0.909	0.4576	0.2452

NOTE: Percent error statistics for 4 variables were set to missing values because an actual value was too close to zero to compute the percent error at one or more observations.

None of
the Goffit
stats are valid
because this
is the forecast program
not the simulation
program.

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

N Obs	Variable	N	Minimum	Maximum	Mean	Std Dev
24	PWRREV	24	0	30800203.92	15433091.90	12788119.38
	CIRREV	24	0	67836149.23	28266965.67	23852337.67
	KRREV	24	0	35270568.18	18131488.48	14870547.27
	JRREV	24	0	17089219.97	8761171.01	7114312.51
	AKRREV	24	189898508	366939419	288681006	46248368.44
	AKRREV1	9	201650300	397410504	285279035	70091466.99
	AKRP	9	0.6900000	2.3500000	1.2500000	0.5244044
	AKRPZ	24	0.7568826	2.1118810	1.1904528	0.2674092

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

OBS	AKRQ	AKORQ	AKRP	AKORP
1	305641044	251037984	0.69	0.66665
2	222603385	182776892	0.78	0.72614
3	224741718	173258366	0.98	0.88331
4	193808322	130504508	1.43	1.41936
5	224872711	129723039	1.55	1.48136
6	188178455	113355577	2.35	2.14242
7	260118084	199709170	1.42	1.30587
8	305571347	237512215	1.28	1.17036
9	258422585	194432637	0.77	0.73210
10	.	.	.	.
11	.	.	.	.
12	.	.	.	.
13	.	.	.	.
14	.	.	.	.
15	.	.	.	.
16	.	.	.	.
17	.	.	.	.
18	.	.	.	.
19	.	.	.	.
20	.	.	.	.
21	.	.	.	.
22	.	.	.	.
23	.	.	.	.
24	.	.	.	.

*** RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION ***

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
83	1.03990	0.94850	0.89940	0.94113	0.71726
84	1.30709	1.15243	1.12721	1.19620	0.90256
85	1.22404	1.08904	1.05640	1.11691	0.84496
86	1.75258	1.49243	1.50703	1.62147	1.21151
87	2.07083	1.73532	1.77837	1.92528	1.43221
88	2.81740	2.30511	2.41489	2.63797	1.94995
89	1.55975	1.34526	1.34263	1.43739	1.07778
90	1.60505	1.37983	1.38125	1.48063	1.10919
91	1.37441	1.20380	1.18460	1.26046	0.94924
92	1.30271	1.14909	1.12348	1.19202	0.89952
93	1.37625	1.20521	1.18618	1.26222	0.95053
94	1.33838	1.17631	1.15389	1.22607	0.92426
95	1.40388	1.22630	1.20973	1.28859	0.96968
96	1.44636	1.25872	1.24595	1.32915	0.99914
97	1.51027	1.30749	1.30044	1.39015	1.04346
98	1.56688	1.35070	1.34870	1.44419	1.08272
99	1.59961	1.37568	1.37661	1.47544	1.10542
100	1.63307	1.40122	1.40514	1.50738	1.12863
101	1.66577	1.42617	1.43302	1.53860	1.15130
102	1.70827	1.45861	1.46926	1.57917	1.18078
103	1.75406	1.49356	1.50830	1.62289	1.21253
104	1.80348	1.53128	1.55043	1.67006	1.24681
105	1.84930	1.56624	1.58949	1.71380	1.27858
106	1.89847	1.60377	1.63142	1.76074	1.31268

PWS

CF

Kooluk

S.E.

Rest of
Alaska

These are the
predicted prices
Base Case 1
Sockeye

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

YR	PWRZ	CIRZ	KRZ	JRZ	AKRPZ
83	1.03990	0.94850	0.89940	0.94113	0.75688
84	1.30709	1.15243	1.12721	1.19620	0.96057
85	1.22404	1.08904	1.05640	1.11691	0.89725
86	1.75258	1.49243	1.50703	1.62147	1.30017
87	2.07083	1.73532	1.77837	1.92528	1.54277
88	2.81740	2.30511	2.41489	2.63797	2.11188
89	1.55975	1.34526	1.34263	1.43739	1.15317
90	1.60505	1.37983	1.38125	1.48063	1.18770
91	1.37441	1.20380	1.18460	1.26046	1.01188
92	1.30271	1.14909	1.12348	1.19202	0.95728
93	1.37625	1.20521	1.18618	1.26222	1.01329
94	1.33838	1.17631	1.15389	1.22607	0.98442
95	1.40388	1.22630	1.20973	1.28859	1.03435
96	1.44636	1.25872	1.24595	1.32915	1.06673
97	1.51027	1.30749	1.30044	1.39015	1.11345
98	1.56688	1.35070	1.34870	1.44419	1.15860
99	1.59961	1.37568	1.37661	1.47544	1.18356
100	1.63307	1.40122	1.40514	1.50738	1.20906
101	1.66577	1.42617	1.43302	1.53860	1.23399
102	1.70827	1.45861	1.46926	1.57917	1.26639
103	1.75406	1.49356	1.50830	1.62289	1.30130
104	1.80348	1.53128	1.55043	1.67006	1.33897
105	1.84930	1.56624	1.58949	1.71380	1.37389
106	1.89847	1.60377	1.63142	1.76074	1.41138

not
used

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

YR	HPWR	HCIR	HKKR	HSER	HAKOR
83	0	0	0	0	305641056
84	0	0	0	0	222603381
85	0	0	0	0	224741766
86	0	0	0	0	193808287
87	0	0	0	0	224872669
88	0	0	0	0	188178481
89	0	0	0	0	260118080
90	0	0	0	0	305571332
91	0	0	0	0	258413468
92	11607212	59034873	14462148	9103137	172005492
93	11792258	49678554	17187458	9064515	172005490
94	14218659	55515178	21602617	9095915	172005493
95	14902859	40799000	26588491	9165058	172005491
96	16223684	36171804	24682932	9619039	172005491
97	16223684	29217280	23252498	9619039	172005487
98	16223684	27017642	21219613	9668023	172005487
99	16223684	26391398	20460838	9705703	172005486
100	16223684	27199453	21128736	9705703	172005487
101	16223684	27065348	21279477	9705703	172005488
102	16223684	26570347	20950956	9705703	172005486
103	16223684	26576220	21170333	9705703	172005486
104	16223684	26202138	20577370	9705703	172005486
105	16223684	25613092	21126296	9705703	172005487
106	16223684	27081065	21619562	9705703	172005487

Valid
92-2006

HPWR

HCIR

HKKR

HSER

HAKOR
as Ak

These are
the predicted
harvests
for each
region

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

N Obs	Variable	N	Minimum	Maximum	Mean	Std Dev
10	PWRZ	10	1.5102667	1.8984716	1.6989180	0.1268500
	HPWR	10	16223684.00	16223684.00	16223684.00	0
	CIRZ	10	1.3074940	1.6037739	1.4514736	0.0968125
	HCIR	10	25613092.00	29217280.00	26893398.30	951508.23
	JRZ	10	1.3901529	1.7607400	1.5702427	0.1210932
	HSER	10	9619039.00	9705703.00	9693268.60	28643.96
	KRZ	10	1.3004377	1.6314192	1.4612808	0.1081516
	HKKR	10	20460838.00	23252498.00	21278567.90	770367.51
	AKORPZ	10	1.0434627	1.3126809	1.1742915	0.0879698
	HAKOR	10	172005486	172005488	172005487	0.6749486
	AKRPZ	10	1.1154481	1.4113779	1.2592576	0.0966981
	SAKQREX	10	244674262	250317988	246094406	1646680.32

If "H" 1st - Harvest
 If "Z" 1st - price
 If "REV" 1st - revenue

See
 next
 page

*** RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION ***

N Obs	Variable	N	Minimum	Maximum	Mean	Std Dev
10	PWRZ	10	1.5102667	1.8984716	1.6989180	0.1268500
	PWRREV	10	24502090.31	30800203.92	27562709.55	2057973.79
	HPWR	10	16223684.00	16223684.00	16223684.00	0
	CIRZ	10	1.3074940	1.6037739	1.4514736	0.0968125
	HCIR	10	25613092.00	29217200.00	26893398.30	951508.23
	CIRREV	10	36306215.19	43431906.00	38983260.35	2049788.26
	JRZ	10	1.3901529	1.7607400	1.5702427	0.1210932
	HSER	10	9619039.00	9705703.00	9693268.60	28643.96
	JRREV	10	13371935.33	17089219.97	15222820.34	1201877.08
	KRZ	10	1.3004377	1.6314192	1.4612808	0.1081516
	HKKR	10	20460838.00	23252498.00	21278567.90	770367.51
	KRREV	10	28166676.95	35270568.18	31067467.58	2181563.05
	AKORPZ	10	1.0434627	1.3126809	1.1742915	0.0879698
	HAKOR	10	172005486	172005488	172005487	0.6749486
	AKORREV	10	179481308	225788320	201984575	15131295.38
	AKRPZ	10	1.1154481	1.4113779	1.2592576	0.0966981
	SAKOREX	10	244674262	250317988	246094406	1646680.32
	AKREV	10	285795176	352380218	314820833	22189261.25

PWRZ - pas ave^{annual} price
year 1997-2006
real 1991 \$.

* * * RED EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

N Obs	Variable	N	Minimum	Maximum	Mean	Std Dev
10	PWRREV <i>DWS</i>	10	2450200.31	30800203.92	27562709.55	2037973.79
	CIRREV <i>CI</i>	10	36306215.19	43431906.00	38983260.35	2049788.26
	KRREV <i>Kedial</i>	10	28166676.95	35270568.18	31067467.58	2181563.05
	JRREV <i>SE</i>	10	13371935.33	17089219.97	15222820.34	1201877.08
	AKORREV <i>Rest</i>	10	179481308	225788320	201984575	15131295.38
	~~AKRREV~~	~~10~~	~~285795176~~	~~352380219~~	~~314820833~~	~~22199261.25~~

Just the
Revenue,

* * * PINK EXVESSEL PRICE MODEL -- STATE ENHANCEMENT EVALUATION * * *

SYSNLIN Procedure

Model Summary

Model Variables	7
Endogenous	6
Exogenous	1
Parameters	12
ID Variables	1
Equations	6

Number of Statements 6

Model Variables: PWP CIP KP JP AKPP AKOPP NAPLEX

Parameters: Z0PWP Z1PWP Z0CIP Z1CIP Z0KP Z1KP Z0JP Z1JP Z0AKPP Z1AKPP
 Z0AKOPP Z1AKOPP

Equations: PWP CIP KP JP AKPP AKOPP

*Pink
starts
here
etc.*

CASE 1 -- BASE SCENARIO

This is the program I
give to John. I do not
know how he uses it!

Suckeye

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.30271	1.14909	1.12349	1.19202	0.89952
93	1.37625	1.20521	1.18618	1.26222	0.95053
94	1.33838	1.17631	1.15389	1.22607	0.92426
95	1.40388	1.22630	1.20973	1.28859	0.96968
96	1.44636	1.25872	1.24595	1.32915	0.99914
97	1.51027	1.30749	1.30044	1.39015	1.04346
98	1.56688	1.35070	1.34870	1.44419	1.08272
99	1.59961	1.37568	1.37661	1.47544	1.10542
100	1.63307	1.40122	1.40514	1.50738	1.12863
101	1.66577	1.42617	1.43302	1.53860	1.15130
102	1.70827	1.45861	1.46926	1.57917	1.18078
103	1.75406	1.49356	1.50830	1.62289	1.21253
104	1.80348	1.53128	1.55043	1.67006	1.24681
105	1.84930	1.56624	1.58949	1.71380	1.27858
106	1.89847	1.60377	1.63142	1.76074	1.31268

Pink

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27563	0.24377	0.26634	0.28715	0.27953
93	0.26562	0.23606	0.25665	0.27727	0.27155
94	0.27649	0.24444	0.26718	0.28801	0.28022
95	0.25519	0.22803	0.24656	0.26697	0.26324
96	0.25993	0.23168	0.25115	0.27166	0.26703
97	0.27015	0.23955	0.26104	0.28175	0.27517
98	0.26824	0.23808	0.25918	0.27985	0.27364
99	0.27306	0.24179	0.26385	0.28461	0.27748
100	0.28203	0.24870	0.27253	0.29347	0.28463
101	0.29736	0.26051	0.28737	0.30860	0.29685
102	0.29803	0.26102	0.28801	0.30927	0.29738
103	0.29570	0.25923	0.28576	0.30696	0.29553
104	0.32187	0.27939	0.31108	0.33280	0.31638
105	0.34137	0.29441	0.32996	0.35206	0.33192
106	0.35749	0.30682	0.34555	0.36796	0.34476

Cher

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40428	0.41255	0.36522	0.46822	0.33766
93	0.39319	0.40544	0.35289	0.45677	0.33278
94	0.40524	0.41316	0.36629	0.46922	0.33808
95	0.38165	0.39803	0.34004	0.44483	0.32771
96	0.38690	0.40140	0.34588	0.45026	0.33002
97	0.39822	0.40866	0.35848	0.46196	0.33499
98	0.39609	0.40730	0.35611	0.45976	0.33406
99	0.40143	0.41072	0.36206	0.46528	0.33641
100	0.41137	0.41710	0.37311	0.47555	0.34077
101	0.42833	0.42798	0.39200	0.49310	0.34823
102	0.42908	0.42846	0.39282	0.49387	0.34856
103	0.42650	0.42680	0.38995	0.49120	0.34743
104	0.45547	0.44539	0.42219	0.52115	0.36016
105	0.47706	0.45924	0.44622	0.54348	0.36966
106	0.49490	0.47069	0.46608	0.56192	0.37750

Cub

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.78743	0.60720	0.64589	1.03856	0.63346

93	0.82443	0.63338	0.66658	1.09384	0.66309
94	0.80538	0.61990	0.65593	1.06537	0.64783
95	0.83834	0.64322	0.67435	1.11460	0.67422
96	0.85971	0.65834	0.68630	1.14653	0.69134
97	0.89187	0.68109	0.70428	1.19456	0.71709
98	0.92036	0.70124	0.72021	1.23711	0.73990
99	0.93683	0.71289	0.72941	1.26172	0.75309
100	0.95366	0.72480	0.73883	1.28686	0.76657
101	0.97012	0.73644	0.74803	1.31144	0.77975
102	0.99151	0.75157	0.75998	1.34338	0.79687
103	1.01455	0.76787	0.77286	1.37780	0.81532
104	1.03942	0.78546	0.78677	1.41494	0.83524
105	1.06247	0.80177	0.79965	1.44938	0.85370
106	1.08721	0.81927	0.81349	1.48634	0.87351

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.52612	1.11744	1.00389	2.22322	1.34073
93	1.59658	1.13720	1.02164	2.27161	1.37220
94	1.56030	1.12702	1.01250	2.24669	1.35600
95	1.62305	1.14462	1.02831	2.28979	1.38403
96	1.66375	1.15604	1.03857	2.31774	1.40221
97	1.72498	1.17321	1.05400	2.35978	1.42956
98	1.77921	1.18843	1.06766	2.39703	1.45379
99	1.81058	1.19722	1.07556	2.41857	1.46780
100	1.84263	1.20621	1.08364	2.44059	1.48212
101	1.87396	1.21500	1.09153	2.46210	1.49611
102	1.91468	1.22642	1.10179	2.49007	1.51430
103	1.95855	1.23873	1.11285	2.52020	1.53390
104	2.00590	1.25201	1.12478	2.55271	1.55505
105	2.04980	1.26432	1.13584	2.58285	1.57466
106	2.09691	1.27754	1.14771	2.61521	1.59570

CASE 2 -- WISH LIST

YR	PWRZ	CIRZ	KRZ	JRZ	AKORPZ
92	1.28421	1.13497	1.10770	1.17435	0.88669
93	1.35656	1.19018	1.16939	1.24342	0.93687
94	1.32995	1.16988	1.14670	1.21802	0.91841
95	1.39646	1.22064	1.20341	1.28152	0.96454
96	1.44365	1.25665	1.24364	1.32656	0.99726
97	1.50278	1.30178	1.29406	1.38301	1.03827
98	1.55916	1.34481	1.34213	1.43683	1.07737
99	1.57114	1.35395	1.35234	1.44826	1.08568
100	1.59915	1.37533	1.37622	1.47500	1.10510
101	1.62876	1.39793	1.40146	1.50327	1.12564
102	1.66036	1.42205	1.42841	1.53343	1.14755
103	1.61556	1.38786	1.39021	1.49067	1.11649
104	1.66011	1.42185	1.42819	1.53319	1.14738
105	1.70320	1.45474	1.46493	1.57433	1.17726
106	1.75018	1.49060	1.50499	1.61918	1.20984

YR	PWPZ	CIPZ	KPZ	JPZ	AKOPPZ
92	0.27536	0.24356	0.26608	0.28689	0.27932
93	0.26778	0.23773	0.25875	0.27941	0.27328
94	0.27027	0.23964	0.26115	0.28186	0.27526
95	0.24813	0.22259	0.23973	0.26001	0.25762

96	0.24904	0.22329	0.24061	0.26090	0.25834
97	0.25880	0.23081	0.25005	0.27053	0.26612
98	0.25494	0.22784	0.24632	0.26673	0.26305
99	0.25975	0.23154	0.25097	0.27147	0.26688
100	0.26824	0.23808	0.25919	0.27986	0.27365
101	0.28530	0.25122	0.27570	0.29670	0.28724
102	0.28486	0.25088	0.27527	0.29626	0.28689
103	0.27906	0.24641	0.26966	0.29054	0.28227
104	0.30488	0.26630	0.29465	0.31603	0.30285
105	0.32515	0.28192	0.31426	0.33604	0.31900
106	0.34134	0.29438	0.32992	0.35202	0.33189

YR	PWCZ	CICZ	KCZ	JCZ	AKOCPZ
92	0.40398	0.41236	0.36489	0.46792	0.33753
93	0.39559	0.40698	0.35556	0.45925	0.33384
94	0.39834	0.40874	0.35862	0.46209	0.33505
95	0.37384	0.39302	0.33135	0.43675	0.32427
96	0.37484	0.39366	0.33246	0.43779	0.32471
97	0.38564	0.40059	0.34448	0.44896	0.32946
98	0.38137	0.39785	0.33973	0.44454	0.32759
99	0.38670	0.40127	0.34565	0.45005	0.32993
100	0.39610	0.40730	0.35612	0.45977	0.33406
101	0.41499	0.41942	0.37714	0.47930	0.34237
102	0.41449	0.41910	0.37659	0.47879	0.34215
103	0.40808	0.41498	0.36945	0.47215	0.33933
104	0.43667	0.43333	0.40127	0.50171	0.35190
105	0.45910	0.44772	0.42624	0.52491	0.36176
106	0.47702	0.45922	0.44618	0.54344	0.36964

YR	PWSZ	CISZ	KSZ	JSZ	AKOSPZ
92	0.77812	0.60062	0.64069	1.02465	0.62600
93	0.81452	0.62637	0.66104	1.07903	0.65515
94	0.80113	0.61690	0.65356	1.05903	0.64443
95	0.83460	0.64058	0.67227	1.10903	0.67123
96	0.85835	0.65737	0.68554	1.14449	0.69025
97	0.88810	0.67842	0.70218	1.18894	0.71407
98	0.91647	0.69849	0.71804	1.23131	0.73679
99	0.92250	0.70275	0.72140	1.24001	0.74162
100	0.93660	0.71273	0.72929	1.26137	0.75290
101	0.95149	0.72326	0.73761	1.28362	0.76483
102	0.96740	0.73451	0.74650	1.30737	0.77757
103	0.94485	0.71857	0.73390	1.27370	0.75952
104	0.96727	0.73442	0.74643	1.30718	0.77746
105	0.98896	0.74976	0.75856	1.33957	0.79483
106	1.01259	0.76649	0.77177	1.37488	0.81376

YR	PWKZ	CIKZ	KKZ	JKZ	AKOKPZ
92	1.50840	1.11246	0.99942	2.21105	1.33281
93	1.57771	1.13191	1.01689	2.25865	1.36378
94	1.55222	1.12476	1.01047	2.24114	1.35239
95	1.61595	1.14263	1.02652	2.28491	1.38085
96	1.66115	1.15531	1.03791	2.31595	1.40105
97	1.71781	1.17120	1.05219	2.35486	1.42636
98	1.77183	1.18635	1.06580	2.39196	1.45049
99	1.78330	1.18957	1.06869	2.39984	1.45561
100	1.81014	1.19710	1.07545	2.41827	1.46760
101	1.83850	1.20505	1.08260	2.43775	1.48027