Exxon Valdez Oil Spill
Restoration Project Annual Report

Port Graham Pink Salmon Project

Restoration Project 98225
Annual Report

This annual report has been prepared for peer review as part of the *Exxon Valdez* Oil Spill Trustee Council restoration program for the purpose of assessing project progress. Peer review comments have not been addressed in this annual report.

Paul McCollum
David Daisy

Port Graham Village Council
P.O. Box 5510
Port Graham, Alaska 99603

for:

Alaska Department of Fish and Game
Habitat and Restoration Division
333 Raspberry Road
Anchorage, Alaska 99518

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Port Graham Pink Salmon Project

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Annual Report

Study History: The project effort was initiated under Restoration Project 96225. This is the third year of a scheduled five year project.

Abstract: This project is helping to supply pink salmon (*Oncorhynchus gorbuscha*) for subsistence use in the Port Graham area during the broodstock development phase of the Port Graham hatchery. Because local runs of coho and sockeye salmon which are the more traditional salmon subsistence resource are at low levels, pink salmon are being heavily relied on for subsistence. This project will help ensure that pink salmon remain available for subsistence use until the more traditional species are rejuvenated.

Key Words: Broodstock development, coded wire tagging, *Exxon Valdez* oil spill, marine survival, otolith marking, pink salmon, Port Graham, subsistence.

Project Data: (will be addressed in final report)

Citation:

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Executive Summary

The goal of this project is to increase subsistence gathering opportunities for the Port Graham and Nanwalek villages by increasing the fry to adult survival of Port Graham hatchery pink salmon during the hatchery's broodstock development phase. Local runs of coho and sockeye salmon, the more traditional subsistence salmon species, are at low levels. This is putting more subsistence pressure on pink salmon at a time when the hatchery is building broodstock and needs to utilize as many of the returning adults as possible for hatchery spawning. Two strategies are being applied to help mitigate this problem. One is an attempt to increase marine survival of hatchery fish, i.e., the number of hatchery released fry that return as adults, and the other is maximizing the use of the adult return through increased monitoring.

The principal strategy being applied to increase marine survival is to increase the size of the fry prior to release into the wild. Port Graham Hatchery pink salmon fry emerge from the incubators weighing 0.23 grams on average. Experiments on pink salmon fry around the state have shown that rearing the fry to at least .75 grams and preferably 1.0 grams before releasing them can significantly improve marine survival.

In 1993 and 1994 the hatchery experimented with growing a batch of pink salmon fry to eight grams before releasing them into the wild. Eight grams was chosen because that is the size that juvenile pinks are believed to leave the near shore area, where predation on them is high, for the high seas where the predation is somewhat less. It was thought that by enhancing survival through the near shore period the survival to the adult stage should be greatly increased. That turned out to be the case. Marine survival of fish reared to the eight gram size before release exceeded 10% compared to the approximately 1% survival to adult that the hatchery was getting from fry that were reared only a short time prior to release. Because of this success it was decided to make producing 8 gram pink fingerling for release the main vehicle for enhancing survival.

An outbreak of a bacterial disease called warm water vibriosis in the group of fish being reared to the 8 gram size curtailed that effort and caused the project to forgo this procedure in the future. Instead, it was decided to produce pink salmon fingerlings in the 1.0 to 1.5 gram range for release in early June which is the preferred release timing and is also before water temperatures reach the point where warm water vibriosis is likely to occur.

The hatchery program released around 6.05 million pink salmon in 1996 in two different groups. The first group contained about 1.5 million fingerling. It was released into the major zooplankton bloom on May 23rd with an average weight of 0.5 grams. The second group contained about 4.5 million fingerlings. It was released on June 10 and had an average weight of 1 gram. None of these fish were tagged because the tagging equipment was not working properly.

Fingerlings released in 1996 returned as adults in July and August of 1997. About 205,000, or 3.3%, of the 6.2 million fingerling released in 1996 survived to return as adults in 1997. This was the highest overall marine survival rate for pink salmon as well as the largest adult return to

the hatchery to date. Although none of the fish in the 1997 adult return were marked it seemed reasonable that the release of larger sized fingerlings increased the marine survival rate.

In 1997 about 920,000 fry emerged from the incubators. The production group of 900,000 reached an average weight of 1.0 gram while the 18,000 experimental accelerated pinks reached 1.4 grams. Both groups were released on June 9. All of the accelerated pinks were marked with an adipose fin clip and a coded wire tag.

Future plans for this project will continue to emphasize the release of larger sized fingerlings. The threat of warm water vibriosis restricts the amount of time that fish can be held before release. It appears that a 1.5 gram fingerling is the practical limit at Port Graham using ambient temperature water. Releasing 1+ gram fingerlings during the early June, optimum release window should greatly enhance their marine survival rate. The hatchery has on hand the heating and heat transfer equipment that could provide limited amounts of both heated fresh and salt water for incubation and rearing.

The availability of heated water allowed the hatchery to initiate an otolith marking program in FY 98. Unfortunately the devastating cannery/hatchery fire in January of 1998 destroyed the hatchery and all of the pink and sockeye salmon. All of the pinks and sockeyes had been successfully marked with thermally induced otilith bands (Table 5).

The additional stream surveys which is the second strategy for maximizing use of the adult return through increased monitoring went quite well in again in FY 98. Both aerial and ground, as well as closer monitoring of pink salmon entering the Port Graham subdistrict was underwritten by this project. This resulted in providing the local Alaska Department of Fish & Game (ADF&G) fisheries manager with additional information with which he was able to allow more subsistence and broodstock harvesting opportunities without jeopardizing the wild escapement.

Introduction

The goal of this project is to increase subsistence-gathering opportunities for the Port Graham and Nanwalek villages by increasing the fry to adult survival of Port Graham hatchery pink salmon during the hatchery's broodstock development phase. Local runs of coho and sockeye salmon, the more traditional subsistence salmon species, are at low levels. This is putting more subsistence pressure on pink salmon at a time when the hatchery is building broodstock and needs to utilize as many of the returning adults as possible for hatchery spawning. One way to help mitigate this problem is to apply strategies that will increase the number of hatchery released fry that return as adults. Another way to lessen this problem is to provide the local ADF&G fisheries manager with additional information which he can use to fine tune management and hopefully allow more harvest or broodstock collection opportunities without compromising the wild escapement goals.

Normally, pink salmon fry emerging from the incubators are placed in saltwater rearing pens put on feed and released during the first mature zooplankton bloom. The bloom normally occurs within two to three weeks after the fry emerge from the incubators. The fry normally experience a 20% to 40% weight gain while waiting in the rearing pens for the bloom. However the marine survival of pink salmon reared and released in this manner has been poor.

In 1993 and again in 1994 the hatchery experimented with growing a small group of pink salmon fry to eight grams before releasing them into the wild. Eight grams was chosen because that is the size that juvenile pinks are believed to leave the near shore area, where predation on them is high, for the high seas where the predation is somewhat less. It was thought that by enhancing the survival through the near shore period the survival to the adult stage should be increased. And that turned out to be the case.

Adult survival of lots reared to the eight gram size before release exceeded 10% compared to the approximately 1% survival to adult that the hatchery was getting from fry that were reared only a short time before release. Although rearing fry to the eight gram size is expensive compared to short term rearing, the additional adults produced from this procedure would allow the hatchery to maintain its broodstock development schedule and allow for a large subsistence harvest.

At the 1996 Hatchery Manager's Workshop several papers were presented by other pink salmon hatcheries in the state that were doing their own experiments with longer term rearing of pink fry to enhance survival to adults. Generally, it was found that rearing pinks to at least 0.5 grams was more important in enhancing survival than releasing into zooplankton blooms. The various tests that were conducted grew fry up to 1.5 grams before release with survivals increasing with the fish size upon release. Adult survivals averaged around 5% for the 0.5 gram fish to over 7% for fish grown to 1.5 grams before release.

Originally the objective for this project was to rear as many fry as possible to the eight gram size before. However, in light of the information presented at the Hatchery Manager's Workshop the objectives were changed to set up a staggered release program that would produce fish of three different sizes (0.5 grams, 1 gram and 8 grams) at release. This approach would allow more fish to be included in the project for the same cost.

Problems arose with producing 8 gram fish in 1996. An outbreak of warm water vibriosis, a bacterial disease that can infect salmon when water temperatures are above around 10° C, occurred in the group of fish being reared to 8 grams. This infection caused these fish to be released much earlier than anticipated and called into question the efficacy of continuing this program in the future. This program required that the fish remain in the rearing pens for the entire summer and water temperatures often exceed 10° C during this time. Because of this it was decided that the risk of a warm water vibriosis infection was too great and was discontinued.

To explore how the management of the Port Graham subdistrict fisheries could be improved to allow more fish to be harvested either for subsistence or hatchery broodstock a meeting was held with the local ADF&G fisheries manager. The department expends a relatively small portion of its resources in the subdistrict because of the low number of fish and minor fisheries that occur

there. By doubling the number of stream surveys and adding an additional aerial survey of the subdistrict each week the manager felt he would have adequate information to maximize the harvest and still protect wild escapement. It was agreed that if funds could be found to pay for the additional surveys the manager would conduct them.

Objectives

Use the Port Graham hatchery to provide pink salmon for local subsistence use while maintaining the hatchery's pink salmon broodstock development schedule and continuing to work towards the best size and timing of released fish for achieving optimum returns.

Methods

Two strategies were employed to meet the objective. The first was to supplement the ADF&G monitoring of the Port Graham pink salmon return and the second was to enhance the marine survival of the hatchery produced pink salmon through an extended rearing program.

The Port Graham River pink salmon run is the source of the hatchery broodstock. A program was established to work closely with ADF&G in monitoring the pink salmon return to Port Graham each year in order to get as precise an estimate as possible on the wild and hatchery return (Tables 2 and 3). This project provided funds that increased the normal management stream and bay surveys of Port Graham that ADF&G conducts. It included conducting additional stream and bay surveys as well as closely monitoring the subsistence fishery harvest. It also established a regular line of communications between Port Graham and ADF&G in order to coordinate the monitoring effort.

The other strategy of this project involved rearing pink salmon fry for extended periods to increase their size at release. One million pink salmon emerged from the incubators in mid April. These fish were split into two groups of more or less equal size. One group was reared in net pens until the peak of the zooplankton bloom on May 24 when they were released. The other group was reared in net pens until the water temperature neared 10° C. They were released on June 9 with an average weight of 1.4 grams. About 10,000 of these fish were marked with an adipose fin clip and a coded wire tag (Appendix 1).

Results

The experimental pinks reared in 1997, which were placed on an accelerated growth program were very successful in their overall growth compared to the non accelerated groups (Table 1). Of particular interest is that the period of over a month that these fish were ponded early and fed in the indoor raceways, very little growth took place and for the first few weeks, it didn't look like these fish were feeding at all. At the end of the indoor phase, these fish were only about .03 grams and 3 millimeters larger than the non-accelerated groups. This size difference is not

really significant and these results seem to point out the extreme importance of how quickly pinks achieve osmoregulatory equilibrium as well as aggressive feeding behavior. While these fish were not significantly larger than their counterparts, they had been feeding for a couple of weeks prior to ponding in the saltwater net pens.

By being pre-acclimated to saltwater where they did not have to spend precious energy converting the osmoregulatory process to salt water and being already used to feeding, these fish immediately began aggressive feeding behavior within a day or two of being placed in the net pens. This "head start" is probably the key factor responsible for their significantly better pen reared growth response. It brings up a potential concept were it may be possible to go ahead and pen up fish in the production pens about a month early while running heated water into the pens surface. It is very difficult to get any significant growth on pinks in temperatures less than 4 degrees when they are first ponded. Preliminary results of this study however suggests that it might be appropriate to revisit this issue and try a couple of test pens using varying amounts and duration's of adding heated water including a control with no heated water at all. This would demonstrate whether or not heated water was necessary which would of course be much more feasible to accomplish at production levels.

Table 1. **Comparison of Accelerated (a) and Normal Production (p) Pink Salmon Rearing Data.**

Brood Year:	1996p	1996a	1998p	1998a
Size at Release	1.00	1.41	1.07	1.63
Date of Release	6-9-97	6-9-97	6-8-99	6-8-99
Number Released	909,527	18,353	3,605,765	1,011,597
Survival to Release	57%		58%	
Growth Rate (mm/TU)	.055	.067	.080	.088
Growth % BW/Day	6.88%	9.98%	5.01%	6.85%
Conversion	1.2	.69	1.2	.99
Condition Factor	.00725	.00687	.00684	.00766
# Marked	6,911	9,986	3,605,765	1,011,597
% Marked	.77%	55.48%	100%	100%
Adult Return Data				
# Scanned for Marks	3,688	3,688		
# Marks	18	51		
% Marks	.49%	1.38%		
Est. Marine Survival	1.41%	2.77%		
Average Size (kg)	1.541	1.885		

Of the 6.2 million fingerling released in 1996 around 205,000, or 3.3%, survived to return as adults in 1997. This was the highest overall marine survival rate for pink salmon as well as the

largest adult return to the hatchery to date. Although none of the fish in the 1997 adult return were marked it seems reasonable to assume that the release of larger sized fingerling was a major factor in the increased the marine survival rate. The 1997 adult return was more than sufficient to meet subsistence needs and provide enough broodstock for a record egg take of 15 million eggs.

A total of about 918,000 pink fry were reared in 1997 from 1996 brood fish. They were all released on June 9th. The rearing went extremely well with excellent growth resulting from warm temperatures and consistent feeding. Net Pen #'s 18 and 22 were the production pens totaling about 900,000 released with an average weight of 1.0 gram and an average length of 51.63 mm for a condition factor of .0073. The EVOS supported accelerated group of 18,000 fry reached 1.41 grams at release due to early ponding into raceways with heated saltwater pumped in.

Figure 1. 1997 Pink Pen Rearing Growth Accelerated vs. Production.

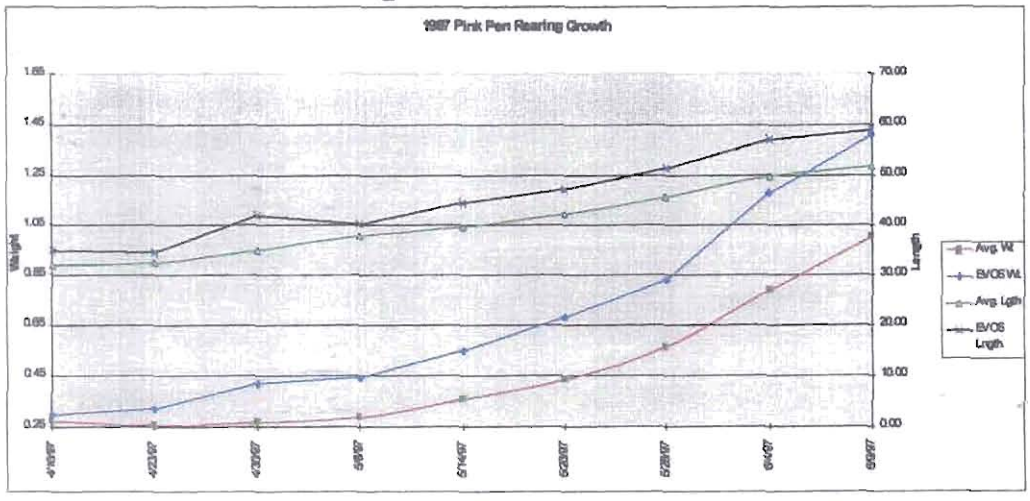


Figure 1 shows the dramatically improved growth achieved by the EVOS funded accelerated pinks compared to the regular production pinks.

The pens were towed out to the outer bay and released late in the evening to minimize predation. A total of 799 kilograms of feed was fed which produced a total biomass gain of 664 kilograms which equates to a conversion factor of 1.2. The initial rearing temperature started out at 5.0 degrees C and gradually increased to a maximum of 8 degrees by May 25th. The average rearing temperature was 6.58 degrees and the average growth rate was .055 mm/TU (length) and 5.01% BW/day. Tagging was conducted from May 30th to June 9th with 16,897 fish coded wire tagged (1.84%) (Table 4).

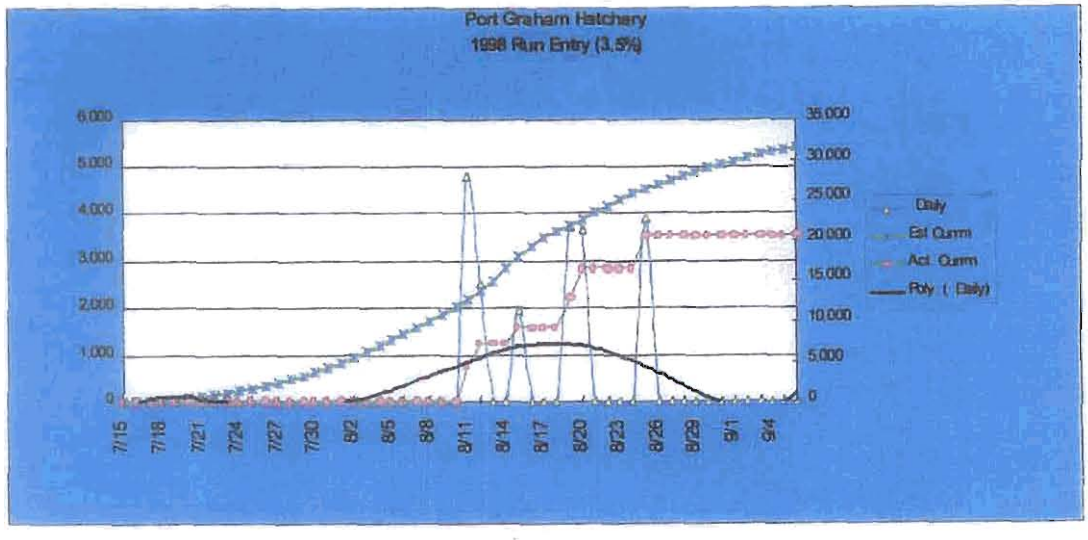
There was an estimated total of 20,471 adult pinks that returned to the hatchery this year which equates to a 2.3 % marine survival. The run was a bit disappointing in that we had expected to get closer to 31,500 or a 3.5 % marine survival from the 910,000 fry that were released (Figure 2).

Table 2. Port Graham Hatchery Production Records.

Brood Year:	1996	1997	1998	1999
# Eggs Taken:	1,501,671	15,489,306	7,620,889	1,177,500
# Brood Stock:	4,900	36,888	12,705	1,270
# Fish Sold:	0	86,562	0	0
# Subsistence Catch:				0
# Commercial Catch:		53,794		0
Total PGH Return:	4,900	177,244	20,500	0

All of the fish were used for brood and there was no cost recovery or commercial fishery on the hatchery pinks. An estimated 2,000 to 5,000 fish were not captured and ended up straying up the bay with the exception of about 500 to 1,000 fish that spawned in Duncan Slough. The escapement up the Port Graham River was 12,559 pinks and 5,092 chums (coho were not counted).

Figure 2. 1998 Adult Pink Run Entry.



Of particular interest is that preliminary analyses of the CWT tag data indicates that the accelerated pinks (EVOS funded project) experienced twice the level of marine survival as the normal production group and were not significantly different in size. This is very important information. The data is still being reviewed but the accelerated program should to be continued and expanded upon to follow up on these very promising initial results.

Table 3. Port Graham River Escapements and Catch Data.

Return Year:	1996	1997	1998	1999
PG River Escapement:	7,039	3,600	12,559	6,150
PG River Subsistence Catch:	400	200	800	400
PG River Commercial Catch:	1,500	4,000	598	0
Total PG River Return:	8,939	7,820	13,957	6,450

Discussion

The strategy of maximizing use of the adult return through increased monitoring went quite well in FY 97. The additional stream surveys, both aerial and ground, as well as closer monitoring of pink salmon entering the Port Graham subdistrict that was underwritten by this project provided the local Alaska Department of Fish & Game (ADF&G) fisheries manager with additional information with which he was able to allow more subsistence and broodstock harvesting opportunities without jeopardizing the wild escapement. It was also very instrumental in establishing a working relationship between the local ADF&G management staff and the village. This may indeed be the longest lasting benefit of the project.

Another method for increasing marine survival was tested in FY 98. This method used heated water to accelerate development in a batch of pink fry to emerge about 4 weeks earlier than normal. These fry were then placed in a raceway with seawater heated to about 5° C. They were reared in the raceway until the production group was ponded out to the net pens in mid April. They were all fed and reared from that point on in exactly the same manner yet the accelerated fish grew significantly faster and larger than the production group. It is estimated that by accelerating fish for early salt water acclimation and feeding behavior, that higher marine survivals will enable large adult returns.

The FY 98 otolith marking was successfully accomplished but the all of the fish were lost in the fire. Otilith marking will be continued to facilitate this projects objectives. The advantage of otolith marking is that all fish in a group are marked rather than a representative sample as in cwt marking. Otolith marking has less impact on the fish, is easier to apply and is cheaper than cwt. The main disadvantage is that the fish are marked as eggs and must kept segregated during incubation and rearing to ensure a particular mark receives the treatment intended for it.

Conclusions

The 1998 pink return provided solid evidence that the accelerated pink program works very effectively. The success of this group of accelerated pinks has opened the door for numerous other opportunities to apply this tool for ultimately improving adult marine survivals The

availability of heated water will also permit the project to use otolith marks to differentiate groups of fish as opposed to the current cwt/ad clip marking. Cooperative management efforts with ADF&G were once again very successful in FY 98 and will be continued.

1997 Port Graham Pink Tagging Records

Date	Time	Unit	Total tagge	Total retagge	Overnight Mortality	% Overnight Mort	Morts	Good Tagged	Accum. Tagged	Tag Code
5/30/97		NP#3	170	-	58	34%		112	112	1301040104
5/31/97		NP#3	278	-	61	22%		217	329	1301040104
6/1/97	11:13	NP#3	1,465		14	1%		1,451	1,780	1301040104
6/2/97	9:15	NP#3	1,301		145	11%		1,156	2,936	1301040104
6/3/97	9:15	NP#3	2,012	4	190	9%		1,822	4,758	1301040104
6/4/97	9:15	NP#3	1,448			0%		1,448	6,206	1301040104
6/4/97	10:43	NP#3	1,425	6	110	8%		1,315	7,521	1301040103
6/5/97		NP#3	1,363	1	52	4%	50	1,311	8,832	1301040103
6/6/97		NP#3	1,347	3	193	14%	65	1,154	9,986	
6/7/97		18 & 22	2,183	1	136	6%	11	2,047	2,047	1301040105
6/8/97		18 & 22	2,855	10	59	2%		2,796	4,843	1301040105
6/9/97		18 & 22	2,127	-	59	3%		2,068	6,911	1301040105
		Total						16,897	16,897	

Tagged per Release

Date Released	Pen #'s	# Tagged	Tag Code	# Released	% Tagged	Size at Release
6/9/97	NP#3	6,206	1301040104	18,000	34.48%	
6/9/97	NP#3	3,780	1301040103	18,000	21.00%	
Total	NP#3	9,986		18,000	55.48%	1.41
6/9/97	18 & 22	6,911	1301040105	900,000	0.77%	1.00
Total		16,897		918,000	1.84%	

Recovered	Adjusted Recovered	Scanned	% Rec	Exp Factor	Equiv # in Scanned	% of Scanned	Equiv # Total	% Surv
8	24	3,688	0.65%		69.61			
9	27	3,688	0.73%		128.57			
17	51	3,688	1.38%	1.803	91.93	2.49%	498.53	2.77%
6	18	3,688	0.49%	130.227	2,344.09	63.56%	12,711.98	1.41%
23	69				2,436.02			
Total Adult Return		20,000						
Total Ad clips		69						

If bad retention and all 69 ad clips had tags and same poor retention in all tag codes then adjusted data would be as below:

Comments
The machine was somehow set to Full Length Tags sometime after the first few days and most of the fish apparently were tagged with full length tags, due to there large size, this may not be any problem

Table 4. 1997 Port Graham Pink Salmon Tagging Records

Thermal Marking Records

1997 Brood Pinks

Cycle #	First Pinks Lot #'s	Date Thermal Start	Ambient Temp	Heated Temp	Temp Diff.	TU's Gained	Date Thermal Ended	Lot #1 T.U.'s Thermal Start	T.U.'s Thermal Ended
1	1,2,3 & 4	11/5/1997 9PM	2.40	6.80	4.40	10.20	11-7-97 9am	316.5	326.70
2	1,2,3 & 4	11/8/97 9PM	3.60	8.20	4.60	12.30	11-10-97 9AM	403.6	415.90
3	1,2,3 & 4	11/11/97 9PM	3.90	7.50	3.60	11.25	11/13/97 11:30AM	416	427.25
4	1,2,3,4	11/14/97 9:00 PM	3.70	7.80	4.10	11.70	11/16/97 9AM	434.5	446.20
5	**1,2,3,4**	11/17/97 9PM	3.70	7.80	4.10	11.70	11/20/97 9PM	454.1	465.80
6	1,2,3,4	11/22/97 9AM	3.20	6.50	3.30	9.75	11/23/97 9PM	483.8	493.55

Cycle #	Second Pinks Lot #'s	Thermal Start	Ambient Temp	Heated Temp	Temp Diff.	TU's Gained	Thermal Ended	Lot #6 T.U.'s Thermal Start	Thermal Ended
1	5 & 6	11/14/97 9:00 PM	3.70	7.80	4.10	11.70	11/16/97 9AM	332.2	343.90
2	5 & 6	11/17/97 9PM	3.70	7.80	4.10	11.70	11/19/97 9:00 AM	343.2	354.90
3	5 & 6	11/20/97 9PM	3.40	8.80	5.40	13.20	11/22/97 9AM	362.4	375.60
4	5 & 6	11/23/97 9PM	2.90	6.10	3.20	9.15	11/25/97 9PM	382.4	391.55
5	**5 & 6**	11/26/97 9pm			0.00	-	11/29/97 12:00 AM		
6	5 & 6	Data missing, last backup before fire destroyed records			0.00	-			

Table 5. 1997 Brood Pinks Thermal Marking Records

Appendix I

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Commercial Fisheries Management and Development
Home

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Agency Report

Year	Survey Site	Sample	Head	Sampling Type Code	Source	Harvester	er Cl	ate (CW	Stat Week (CWT)	Period	Region	Water Type Code	Quadrant	District	Sub-District	A-Stream	Species	Length	Length Type Code	Tag Code	ag Stat	Why Status-T Code	her Bro	State	Agency	Rearing Code	acility or	Site	Tag Rati	pansion Fa	Contribution
1998	ENGLISH B	98DZ0001	80956	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	80957	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	80958	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	80959	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	80960	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	80961	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	80962	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81743	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81744	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81746	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81747	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81748	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81749	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81750	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81941	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81942	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81944	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81945	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81946	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81947	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81948	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81949	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0001	81950	R	COST R	PNP FIS	NR	6/29/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80963	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80964	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80965	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80966	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80967	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80968	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80970	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80971	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80972	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80973	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80974	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80975	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80976	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80977	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80978	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80979	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80981	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80983	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80984	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80985	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80986	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80987	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80988	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ0002	80989	R	COST R	PNP FIS	NR	7/2/98	27		2	F	LC	241	30	241-30-10500	SOCK			312416	OK		1993	AK	PGHC	H	PORT GR	ENGLISH	41.275		
1998	ENGLISH B	98DZ2001	86227	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	432	1	1301040103	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.803		
1998	ENGLISH B	98DZ2001	86212	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	444	1	1301040103	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.803		
1998	ENGLISH B	98DZ2001	86237	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	457	1	1301040103	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.803		
1998	ENGLISH B	98DZ2001	86242	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	457	1	1301040103	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.803		
1998	ENGLISH B	98DZ2002	48551	R	RACK			9/9/98	37		2	S	LC	241	20		PINK	457	1	1301040103	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.803		
1998	ENGLISH B	98DZ2002	48552	R	RACK			9/9/98	37		2	S	LC	241	20		PINK	483	1	1301040103	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.803		
1998	ENGLISH B	98DZ2002	48554	R	RACK			9/9/98	37		2	S	LC	241	20		PINK	483	1	1301040103	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.803		
1998	ENGLISH B	98DZ2002	48559	R	RACK			9/9/98	37		2	S	LC	241	20		PINK	533	1	1301040103	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.803		
1998	ENGLISH B	98DZ2002	202880	R	RACK			9/9/98	37		2	S	LC	241	20		PINK			1301040103	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.803		
1998	ENGLISH B	98DZ2001	86239	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	408	1	1301040104	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.802		
1998	ENGLISH B	98DZ2001	86240	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	419	1	1301040104	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.802		
1998	ENGLISH B	98DZ2001	86230	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	432	1	1301040104	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.802		
1998	ENGLISH B	98DZ2001	86249	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	457	1	1301040104	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.802		
1998	ENGLISH B	98DZ2001	86214	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	483	1	1301040104	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.802		
1998	ENGLISH B	98DZ2002	48556	R	RACK			9/9/98	37		2	S	LC	241	20		PINK	483	1	1301040104	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.802		
1998	ENGLISH B	98DZ2002	48574	R	RACK			9/9/98	37		2	S	LC	241	20		PINK	483	1	1301040104	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.802		
1998	ENGLISH B	98DZ2002	202882	R	RACK			9/9/98	37		2	S	LC	241	20		PINK			1301040104	OK		1996	AK	PGHC	H	PORT GR	PORT GR	1.802		
1998	ENGLISH B	98DZ2001	86226	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	432	1	1301040105	OK		1996	AK	PGHC	H	PORT GR	PORT GR	130.23		
1998	ENGLISH B	98DZ2001	86224	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	483	1	1301040105	OK		1996	AK	PGHC	H	PORT GR	PORT GR	130.23		
1998	ENGLISH B	98DZ2001	86232	R	RACK			9/2/98	36		2	S	LC	241	20		PINK	495	1	1301040105	OK		1996	AK	PGHC	H	PORT GR	PORT GR	130.23		
1998	ENGLISH B	98DZ2002	48567	R	RACK			9/9/98	37		2	S	LC	241	20		PINK	457	1	1301040105	OK		1996	AK	PGHC	H	PORT GR	PORT GR	130.23		
1998	ENGLISH B	98DZ2002	48571	R	RACK			9/9/98	37		2	S	LC	241	20		PINK	457	1	1301040105	OK		1996	AK	PGHC	H	PORT GR	PORT GR	130.23		
1998	ENGLISH B	98DZ2002	48555	R	RACK			9/9/98	37		2	S	LC	241	20		PINK	508	1	1301040105	OK		1996	AK	PGHC	H	PORT GR	PORT GR	130.23		

Recovered Pink CWTs		Avg Length
# Fish 130103	9	466.25
# Fish 130104	8	451.86
# Fish 130105	6	472.00
Total	23	

Recovered Red CWTs	
312416	47

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1997 Tag Recovery Data

Year	Survey Site Sample	Head	S	Sampling Type Code	Source	Harve	Gear Cls	Date (CWT)	Stat Week (CWT)	Period Res	Water Type Code	Quadrant	District	Sub	A-Stream	ROWS	PAN="1"	COL3Code	TRUE N	OWN	stwp	tagID	BCode						
1997	CORDOVA 97NS0072	108891	R		COM PRO	TRAD	DRIFT	6/28/97	26	2	S	PW			212														
1997	ENGLISH E 97DZ0001	86580	S		COM PRO	TRAD	SET	6/26/97	26	2	S	LC			241														
1997	ENGLISH E 97DZ0001	86588	S		COM PRO	TRAD	SET	6/26/97	26	2	S	LC			241														
1997	ENGLISH E 97DZ0001	86605	S		COM PRO	TRAD	SET	6/26/97	26	2	S	LC			241	SOCK	PW	212	312416	OK									
1997	ENGLISH E 97DZ0001	86612	S		COM PRO	TRAD	SET	6/26/97	26	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	1	86580	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0001ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0002	86425	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241	SOCK	PW	212	312416	OK									
1997	ENGLISH E 97DZ0002	86432	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	1	86580	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0002ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0002	86435	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241														
1997	ENGLISH E 97DZ0002	86437	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241	SOCK	T GRAH	AM Y/PORT	G012416	TOK	1	ENGLISH	BAY	L 21999 ROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0002	86439	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241														
1997	ENGLISH E 97DZ0002	86441	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241														
1997	ENGLISH E 97DZ0002	86444	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241														
1997	ENGLISH E 97DZ0002	86445	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86438	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0002ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0002	86456	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86444	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0002	86460	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86438	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0002	86463	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86444	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0002ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0002	86473	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86444	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0002ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0002	86474	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241														
1997	ENGLISH E 97DZ0002	86481	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241														
1997	ENGLISH E 97DZ0002	86482	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241														
1997	ENGLISH E 97DZ0002	86533	S		COM PRO	TRAD	SET	7/1/97	27	2	S	LC			241														
1997	ENGLISH E 97DZ0004	86402	S		COM PRO	TRAD	SET	7/7/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86491	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0002ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0004	86403	S		COM PRO	TRAD	SET	7/7/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86533	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0004	86413	S		COM PRO	TRAD	SET	7/7/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86491	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0005	86539	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86533	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0004ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86541	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	2	86533	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0004ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86544	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86549	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86550	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86552	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86555	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86548	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86565	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86552	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0005	86569	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86548	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0005	86569	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86552	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86573	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86552	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86574	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86578	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86584	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86586	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86589	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86578	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86590	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86586	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0005	86616	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86578	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0005	86620	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86585	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86622	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86586	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86624	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86628	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86636	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86638	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86640	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86628	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86641	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86639	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0005	86642	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86638	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0005	86643	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86638	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86644	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86639	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0005	86645	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86646	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86647	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0005	86654	S		COM PRO	TRAD	SET	7/10/97	28	2	S	LC			241														
1997	ENGLISH E 97DZ0006	86655	S		COM PRO	TRAD	SET	7/11/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86646	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0005ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0006	86660	S		COM PRO	TRAD	SET	7/11/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86654	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0006	86661	S		COM PRO	TRAD	SET	7/11/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86646	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0006	86662	S		COM PRO	TRAD	SET	7/11/97	28	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86654	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0006ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0007	86499	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	5	86654	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0006ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0007	86504	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0007	86509	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0007	86510	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0007	86511	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0007	86512	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86508	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0007ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0007	86514	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86511	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0007	86516	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86508	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0007	86518	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86511	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0007ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0007	86520	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86511	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0007ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0007	86521	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0007	86522	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0007	86523	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0007	86524	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0007	86529	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86522	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0007ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0007	86531	S		COM PRO	TRAD	SET	7/16/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86524	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0008	86477	S		COM PRO	TRAD	SET	7/18/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86522	S	1993 PROP	TAK	PGHC	T	H	
1997	ENGLISH E 97DZ0008	86480	S		COM PRO	TRAD	SET	7/18/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86524	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0008ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0008	86481	S		COM PRO	TRAD	SET	7/18/97	29	2	S	LC			241	SOCK	NGLISH	BAY/PORT	G012416	TOK	7	86524	S	1993 PROP	TAK	PGHC	T	H	19PORT GRAHAM Y/PORT GRAHAM 97DZ0008ENGLISH BAY L 241-3041.276
1997	ENGLISH E 97DZ0008	86482	S		COM PRO	TRAD	SET	7/18/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0008	86483	S		COM PRO	TRAD	SET	7/18/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0008	86484	S		COM PRO	TRAD	SET	7/18/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0008	86485	S		COM PRO	TRAD	SET	7/18/97	29	2	S	LC			241														
1997	ENGLISH E 97DZ0008	86283	S		COST REK	PNP FI	SH NR	7/18/97	29	2	F	LC	241	30	241-30-102		NGLISH	BAYK											
1997	ENGLISH E 97DZ0008	86289	S		COST REK	PNP FI	SH NR	7/18/97	29	2	F	LC	241	30	241-30-102		NGLISH	BAYK											
1997	ENGLISH E 97DZ0008	86846	S		COST REK	PNP FI	SH NR	7/18/97	29	2	F	LC	241	30	241-30-102		NGLISH	BAY F	L312416	OK		30		1993 30-I	D5AK	OCPGHC	I		SH BAYP FPORT GRAHAM 07/18/97 29 ENGLISH BAY L 241-3041.276