

2015 ANNUAL REPORT ALASKA SALMON HATCHERY

Year Ending December 15, 2015

Hatchery name/Location
Permit holder name/Address

TUTKA BAY LAGOON HATCHERY
Cook Inlet Aquaculture Association
40610 Kalifornsky Beach Road
Kenai, AK 99611

Person to contact
regarding this report

Caroline Cherry	name
907-283-5761 Ext. 24	phone

DECLARATION AND SIGNATURE

I declare that the information given in this annual report is, to my knowledge, true, correct, and complete.

Gary Fandrei

Name of Legal Representative

12-7-15

Date


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Signature of Representative

THE FOLLOWING PARTS ARE INCLUDED IN THIS REPORTING FORM.

Part 1. REPORT OF THIS YEAR'S PERFORMANCE

Complete the following schedules of production statistics for this year, for each species/stock/brood year combination:

Schedule A: Annual Broodstock and Initial Survival Report

Schedule B: Annual Fish Culture Production Report

Schedule C: Harvest Management and Hatchery Adult Returns

Note: One Schedule C for each species/stock/project location (release site).

Part 2. PROJECTED RETURNS FOR NEXT YEAR

Complete **Schedule D**, to provide projections for each species and each release site.

Part 3. UPDATED SCHEDULES FOR PRIOR YEAR ANNUAL REPORT

Schedule F is used to update last year's Schedule C reported adult return data.

Use this form to update the information that we have on file, if known changes have occurred or numbers have been finalized since last year's report.

**SCHEDULE A-1
ANNUAL BROODSTOCK AND INITIAL SURVIVAL REPORT**

TUTKA BAY LAGOON HATCHERY

Complete this schedule for each species/stock of eggs taken this year.

Use lines 3-6 to report fish captured and sacrificed as broodstock (fish that died during collection of eggs).

Use line 16 to report and describe captured fish that were released alive (for example, at remote egg-take locations).

1. Species	Pink			
2. Stock (donor stock/ancestral stock)	Tutka/Tutka			
3. Viable broodstock (spawned, eggs in incubators)	23,463	females	14,846	male 38,309 total
4. Inviabile broodstock (green/over-ripe/bad)	11,118	females	2,430	male 13,548 total
5. Unspawned fish (roe recovery, excess males)	22,047			
6. Holding mortalities (raceway, pen mortalities)	91,104			
7. Adults sacrificed for broodstock (sum 3 thru 6)	165,008			
8. Average length and weight of adults used for broodstock				
	females>	cm	1.1	kg
	males>	cm	1.1	kg
9. Average fecundity (eggs/female)	1,241			
10. Egg-take dates:	Aug 2 - Sept 24/15			
11. Number of green eggs taken	29,125,813			
12. Number of eggs transferred out (annotate below)	-			
13. Number of eggs destroyed (annotate below)	-			
14. Number of green eggs retained in hatchery ¹	29,125,813			
15. Number remaining in hatchery at eyed stage	13,672,066		46.94%	% survival ²
16. Describe procedures used for egg takes and evaluation of in-hatchery survivals:				

6 & 16. A number of factors combined to create a less than ideal environment for the broodstock program at Tutka. These included higher than normal water temperature and plankton blooms creating low oxygen levels in the lagoon. Combined with a large return and some tender/catcher boat conflicts and the poor flushing of the lagoon during low tide cycles made the already low oxygen levels even worse. This impacted broodstock survival and resulting egg quality. Additionally the large return to the creek impacted water quality to the hatchery with a heavy fungus load as the fish carcasses built up and started decaying.

1. Provide explanation if greater than number of green eggs taken. 2. Provide explanation for survivals less than 90%.

**SCHEDULE A-2
ANNUAL BROODSTOCK AND INITIAL SURVIVAL REPORT**

TUTKA BAY LAGOON HATCHERY

Complete this schedule for each species/stock of eggs taken this year.

Use lines 3-6 to report fish captured and sacrificed as broodstock (fish that died during collection of eggs).

Use line 16 to report and describe captured fish that were released alive (for example, at remote egg-take locations).

1. Species				
2. Stock (donor stock/ancestral stock)				
3. Viable broodstock (spawned, eggs in incubators)		females		male - total
4. Inviabile broodstock (green/over-ripe/bad)		females		male - total
5. Unspawned fish (roe recovery, excess males)	-			
6. Holding mortalities (raceway, pen mortalities)				
7. Adults sacrificed for broodstock (sum 3 thru 6)				
8. Average length and weight of adults used for broodstock				
	females>	cm		kg
	males>	cm		kg
9. Average fecundity (eggs/female)				
10. Egg-take dates:				
11. Number of green eggs taken				
12. Number of eggs transferred out (annotate below)	-	0		
13. Number of eggs destroyed (annotate below)	-	0		
14. Number of green eggs retained in hatchery ¹				
15. Number remaining in hatchery at eyed stage			#DIV/0!	% survival ²
16. Describe procedures used for egg takes and evaluation of in-hatchery survivals:				

1. Provide explanation if greater than number of green eggs taken. 2. Provide explanation for survivals less than 90%.

SCHEDULE B-1
ANNUAL FISH CULTURE PRODUCTION REPORT

TUTKA BAY LAGOON HATCHERY

Complete this schedule for each species/stock of eggs (or fish) cultured this year from prior brood years. Please provide explanations for any differences in numbers of green and eyed eggs from those reported last year for this species/stock (e.g. reenumeration of inventory at eyed stage, transfers, mortality, etc.).

Species: Stock: Brood Year:

A. Life Stage Information

	Actual number	% cum survival	Annotate transfers between hatcheries, significant mortalities, or provide other descriptive comments.
1. Green eggs	13,495,055	100.0%	
2. Eyed eggs	11,590,416	85.89%	
3. Emergent fry	11,299,808	83.73%	
4. Fed fry	11,249,250	83.36%	All released at Tutka Bay Lagoon
5. Smolts		0	

B. Release Information

Site	Release			Size		Return	
	Number	Date	Life stage	gm/fish	mm/fish	Expected return	Return year(s)
Tutka Bay Lagoon	11,249,240	May 29-31, 2015	Fed Fry	1.07		337,477	2016
Total:	11,249,240						

C. Marking/Tagging

Number of fish marked or tagged (by release group and method of marking)

Release				Marking/Tagging		
Release Group ¹	Release Location	Number	Dates	Otolith Mark Pattern	Tag Code	Valid Tags
SW-Net Pen	Tutka Bay Lagoon	11,249,240	may 29-31	5,3H		

¹Report release group as fresh or salt water; from net pen or raceway; or other rearing/release/site group description.

D. Other

Report any diseases, rearing problems, or significant mortalities among these fish.

No significant issues. Used non-volitional migration and pumped over the sill and released directly into lagoon.
Expected returns assume a 3% survival.

SCHEDULE B-2 ANNUAL FISH CULTURE PRODUCTION REPORT

TUTKA BAY LAGOON HATCHERY

Complete this schedule for each species/stock of eggs (or fish) cultured this year from prior brood years. Please provide explanations for any differences in numbers of green and eyed eggs from those reported last year for this species/stock (e.g. reenumeration of inventory at eyed stage, transfers, mortality, etc.).

Species: Pink Stock: Bruin Bay Brood Year: 2014

A. Life Stage Information

	Actual number	% cum survival	Annotate transfers between hatcheries, significant mortalities, or provide other descriptive comments.
1. Green eggs	1,367,591	100.0%	
2. Eyed eggs	1,176,950	86.06%	
3. Emergent fry	1,139,683	83.34%	
4. Fed fry	1,025,000	74.95%	Unfed Fry
5. Smolts			

B. Release Information

Site	Release			Size		Return	
	Number	Date	Life stage	gm/fish	mm/fish	Expected return	Return year(s)
Upper Paint Lake	1,025,000	8-Apr-15	Unfed Fry	0.28		15,375	2016
Total:	1,025,000						

C. Marking/Tagging

Number of fish marked or tagged (by release group and method of marking)

Release Group ¹	Release			Marking/Tagging		
	Release Location	Number	Dates	Otolith Mark Pattern	Tag Code	Valid Tags
FW-Lake	Upper Paint Lake	1,025,000	8-Apr-15	5H3		

¹Report release group as fresh or salt water; from net pen or raceway; or other rearing/release/site group description.

D. Other

Report any diseases, rearing problems, or significant mortalities among these fish.

No significant issues. Fish transported via float plane and released directly into Upper Paint Lake as unfed fry.
Expected returns assumes a 1.5% survival.

**SCHEDULE C-1
HARVEST MANAGEMENT AND HATCHERY ADULT RETURNS**

Complete a separate schedule for each project (location of release/return), stock (e.g. fall or summer, if applicable), and species.

TUTKA BAY LAGOON HATCHERY

Species: Pink
Location of project: Tutka

A. Hatchery Escapement

1. Cost-recovery fish (line 17a & 17b): traditional harvest and roe-recovery fish	2,141,201
2. Adults sacrificed as broodstock (Schedule A line 7) minus roe-recovery fish (17b)	165,008
3. Escapement for hatchery watershed (as required in permit)	82,400
4. Jacks	-
5. Other ¹ (annotate in comments section)	
6. Other ¹ (annotate in comments section)	
7. Other ¹ (annotate in comments section)	
8. Total hatchery escapement	2,388,609

B. Common Property Harvest

9. Commercial harvest ²		
a. Troll		
b. Gillnet	assume 70% hatchery	11,385
c. Seine	assume 75% hatchery	70,400
d. Other (annotate in comments section)		
Total commercial harvest		81,785
10. Noncommercial harvest ²		
a. Sport		2,000
b. Personal Use		
c. Subsistence		
d. Other (annotate in comments section)		
Total noncommercial harvest		2,000
11. Total Common Property Harvest (sum 9 and 10)		83,785
12. Total Return (sum 8 and 11)		2,472,394

Brood Year	Total # in Run, Current Year	Cumulative Ocean Survival (%)	Complete Return (yes or no)
BY13	2,472,394	4.84%	Y

14. Average size of fish sold length-cm 1.1 wt-kg
 15. Date(s) of harvest July 2 - August 21, 2015
 16. Gear type or method used Purse Seine

17. Disposition of Hatchery Escapement

a. Traditional harvest fish		# fish sold	lbs fish		
	adults	2,084,948	5,884,876		
	jacks				
	total				
b. Roe-recovery fish		# fish	lbs fish	lbs roe	
	Sold	-	-	-	
	Donated				
	Disposed*				
	total number of fish	-	-	-	
c. Carcasses		# Sold	# Donated	# Disposed*	Total
	Spawners		56,253	165,008	221,261
	Other (annotate in comments)				-
	total number of fish	-	56,253	165,008	221,261
	total pounds				

Comments:
 1. A total of 2,084,948 pink salmon were harvested as cost recovery. Additional 56,253 were either donated to food bank or harvested as fish meal because of poor quality.
 9b. A total of 16,624 pinks were harvested in the set net gill fishery. Assume that 70% are hatchery fish.
 9c. A total of 93,866 pinks were harvested in the purse seine fishery. Assume that 75% are hatchery fish.
 13. BY13 pink salmon release was 51,100,000 fry.

**SCHEDULE C-2
HARVEST MANAGEMENT AND HATCHERY ADULT RETURNS**

Complete a separate schedule for each project (location of release/return), stock (e.g. fall or summer, if applicable), and species.

TUTKA BAY LAGOON HATCHERY

Species:
 Location of project:

A. Hatchery Escapement

1. Cost-recovery fish (line 17a & 17b): traditional harvest and roe-recovery fish	-
2. Adults sacrificed as broodstock (Schedule A line 7) minus roe-recovery fish (17b)	
3. Escapement for hatchery watershed (as required in permit)	
4. Jacks	-
5. Other ¹ (annotate in comments section)	-
6. Other ¹ (annotate in comments section)	-
7. Other ¹ (annotate in comments section)	-
8. Total return to hatchery	-

B. Common Property Harvest

9. Commercial harvest ²	
a. Troll	
b. Gillnet	
c. Seine	
d. Other (annotate in comments section)	
Total commercial harvest	
10. Noncommercial harvest ²	
a. Sport	
b. Personal Use	
c. Subsistence	
d. Other (annotate in comments section)	
Total noncommercial harvest	-
11. Total Common Property Harvest (sum 9 and 10)	-
12. Total Return (sum 8 and 11)	-

13. Estimated ocean survival by brood year ²

Brood Year	Total # in Run, Current Year	Cumulative Ocean Survival (%)	Complete Return (yes or no)
BY13	0	0	Y

14. Average size of fish sold
 15. Date(s) of harvest
 16. Gear type or method used

<input type="text"/>	length-cm	<input type="text"/>	wt-kg
<input type="text"/>			

17. Disposition of Hatchery Escapement

a. Traditional harvest fish		# fish sold	lbs fish		
	adults				
	jacks				
	total	-	-		
b. Roe-recovery fish		# fish	lbs fish	lbs roe	
	Sold				
	Donated				
	Disposed*				
	total number of fish	-	-	-	
c. Carcasses		# Sold	# Donated	# Disposed*	Total
	Spawners				-
	Other (annotate in comments)				-
	total number of fish	-	-	-	-
	total pounds				-

Comments:

1. Only 188,000 unfed fry (BY13) were released in 2014. The adult return was expected to be 2,820. While otoliths from eggtake have not been analyzed yet, it is assumed that very few were of hatchery origin based on location where they were caught. If otolith data indicates differently these numbers will be updated in the 2016 Annual report.

SCHEDULE D
PROJECTED RETURNS FOR 2016

TUTKA BAY LAGOON HATCHERY

Please report multiple year class returns seperately by brood year.

Species	Brood Year	Release Site	Total number of fish expected	Range of expected return	
				minimum	maximum
Pink	BY14	Tutka Bay Lagoon	337,477	224,985	449,970
Pink	BY14	Upper Paint lake	15,000	7,500	22,500

COMMENTS:

Tutka stock = Minimum = 2% survival; Maximum 4% survival, Average = 3%. Based on release of 11,249,250 pink fry.

Bruin Bay stock = Minimum = 0.75%, Maximum 2.25%, Average 1.5%. Based on release of 1.0 million unfed pink fry

SCHEDULE F-1
UPDATED 2014 HARVEST MANAGEMENT AND HATCHERY ADULT RETURNS

This form is only required if there are known changes to the previous year's reported Schedule C data.
 Complete a separate schedule for each project and species of fish with updated numbers from last year's annual report.

Species: Pink TUTKA BAY LAGOON HATCHERY
 Location of harvest/return: Tutka

Hatchery Escapement

1. Cost-recovery fish (line 16A & 16B): traditional harvest and roe recovery fish	32
2. Adults captured for broodstock (Schedule A line 7) minus roe recovery fish (line 16B)	22,401
3. Escapement for hatchery watershed (as required in permit)	10,152
4. Jacks	-
5. Other ¹ (annotate in comments section)	57,854
6. Other ¹ (annotate in comments section)	(32,553)
7. Other ¹ (annotate in comments section)	
8. Total return to hatchery	57,886

Common Property Harvest

9. Commercial ²	
A. Troll	
B. Gillnet	
C. Seine	5,502
D. Other (annotate in comments section)	
Total commercial	5,502
10. Noncommercial ²	
A. Sport	3,000
B. Personal Use	
C. Subsistence	
D. Other (annotate in comments section)	
Total noncommercial	3,000
11. Total Return (sum 8,9,10)	66,388

12. Estimated ocean survival by BY²

BY	Total # return in 2013	Cumulative Survival
BY12	66,356	1.52%

13. Average size of fish sold

length-cm 1.5 wt-kg

14. Date(s) of harvest

15. Gear type or method used

16. Disposition of Hatchery Escapement

A. Fish harvested/sold	adults	# fish	32	lbs fish	
	jacks				
	total	32			
B. Roe recovery		# fish	-	lbs roe	
C. Carcasses	Spawners	# Disposed	22,401	# Donated	
	Roe recovery (during egg take)				
	Roe recovery (non-egg take)				
	Other (annotate in comments)				
	total number of fish	22,401	-		
	total pounds				

Comments:

3. Adjusted from 2014 Annual report number to be consistent with ADFG reported number of 10,152.
 5. CIAA physically counted 57,854 fish in total during broodstock.
 6. This is the total of eggtake and escapement which is subtracted from the total count in 5. The difference between #5 and #6 is not reflected in ADFG counts but is what CIAA should be accounted for.
 9C. The seine capture was 11,004. CIAA assumes that 50% of those fish are hatchery origin.
 Note: ADFG reporting does not account for the 5502 in commercial harvest or the difference between #5 and #6 (25,301). There will be a discrepancy in reporting.
 12. A total of 4,353,285 pink fry were released in 2013 (BY12)

¹ "Other": use one line per category (e.g. fish remaining in salt water, sea lion predation, etc.).

² Commercial harvest, noncommercial harvest, and estimated ocean survival: Please provide method used in estimation.

SCHEDULE F-2
UPDATED 2014 HARVEST MANAGEMENT AND HATCHERY ADULT RETURNS

This form is only required if there are known changes to the previous year's reported Schedule C data.
 Complete a separate schedule for each project and species of fish with updated numbers from last year's annual report.

Species: Pink TUTKA BAY LAGOON HATCHERY
 Location of harvest/return: Port Graham

Hatchery Escapement

1. Cost-recovery fish (line 16A & 16B): traditional harvest and roe recovery fish		
2. Adults captured for broodstock (Schedule A line 7) minus roe recovery fish (line 16B)		1,740
3. Escapement for hatchery watershed (as required in permit) assume 45.8% hatchery		14,791
4. Jacks		
5. Other ¹ (annotate in comments section)		
6. Other ¹ (annotate in comments section)		
7. Other ¹ (annotate in comments section)		
8. Total return to hatchery		16,531

Common Property Harvest

9. Commercial ²		
A. Troll		
B. Gillnet		
C. Seine assume 45.8% hatchery		19,896
D. Other (annotate in comments section)		
Total commercial		19,896

10. Noncommercial ²		
A. Sport		
B. Personal Use		
C. Subsistence		
D. Other (annotate in comments section)		
Total noncommercial		-

11. Total Return (sum 8,9,10) **36,427**

BY	Total # return in 2013	Cumulative Survival
BY12	36,427	0.26 %
		%
		%
		%
		%

13. Average size of fish sold length-cm 1.5 wt-kg
 14. Date(s) of harvest
 15. Gear type or method used

16. Disposition of Hatchery Escapement

A. Fish harvested/sold		# fish	lbs fish	
	adults			
	jacks			
	total	-	-	
B. Roe recovery		# fish	lbs roe	
		-		
C. Carcasses		# Disposed	# Donated	# Sold
	Spawners	6,338		
	Roe recovery (during egg take)			
	Roe recovery (non-egg take)			
	Other (annotate in comments)			
	total number of fish	6,338	-	-
	total pounds			

Comments:

2. A total 6338 broodstock were collected. 1,740 is assumed to be of hatchery origin. The remainder (4598) are natural production.
 3. ADFG collected otoliths during the 2014 field season from Port Graham. 45.8% of the otolith collected were identified as CIAA produced fish.
 Total escapement was 32,295.
 9C. Total harvest was 43,442. It is assumed that the % CIAA produced fish is similar to that recovered in Port Graham River from escapement.
 Note: ADFG reporting does not credit any of the escapement to CIAA nor the CPF.

¹ "Other": use one line per category (e.g. fish remaining in salt water, sea lion predation, etc.)

² Commercial harvest, noncommercial harvest, and estimated ocean survival: Please provide method used in estimation.