



July 31, 2012

Ms. Danielle Roberts  
Associated Laboratories  
806 North Batavia  
Orange, CA 92868

Dear Ms. Roberts:

We are pleased to present the enclosed bioassay report. The test was conducted under guidelines prescribed in *Short-Term Methods for Estimating the Chronic Toxicity of Effluents and Receiving Waters to Marine and Estuarine Organisms EPA/600/R-95-136, 1995* "All acceptability criteria were met and the concentration-response was normal. This is a valid test." Results were as follows:

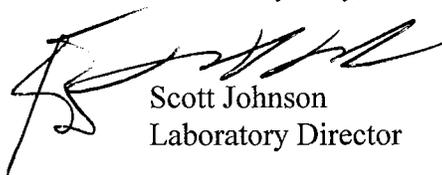
CLIENT: Associated Laboratories  
SAMPLE I.D.: LAB #307119  
DATE RECEIVED: 17 July - 12  
ABC LAB. NO.: ASC0712.129

#### CHRONIC TOPSMELT SURVIVAL & GROWTH BIOASSAY

SURVIVAL NOEC = 100.00 %  
TU<sub>c</sub> = 1.00  
EC25 = >100.00 %  
EC50 = >100.00 %

GROWTH NOEC = 100.00 %  
TU<sub>c</sub> = 1.00  
IC25 = >100.00 %  
IC50 = >100.00 %

Yours very truly,



Scott Johnson  
Laboratory Director

**CETIS Summary Report**

Report Date: 30 Jul-12 14:54 (p 1 of 2)  
 Test Code: ASC0712.129 | 04-8848-3758

**Pacific Topsmelt 7-d Survival and Growth Test**

**Aquatic Bioassay & Consulting Labs, Inc.**

<b>Batch ID:</b> 06-2974-0240	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 17 Jul-12 13:10	<b>Protocol:</b> EPA/600/R-95/136 (1995)	<b>Diluent:</b> Laboratory Seawater
<b>Ending Date:</b> 24 Jul-12 11:20	<b>Species:</b> Atherinops affinis	<b>Brine:</b> Not Applicable
<b>Duration:</b> 6d 22h	<b>Source:</b> Aquatic Biosystems, CO	<b>Age:</b>
<b>Sample ID:</b> 02-0835-4588	<b>Code:</b> ASC0712.129	<b>Client:</b> Associated Laboratories
<b>Sample Date:</b> 14 Jul-12 14:00	<b>Material:</b> Sample Water	<b>Project:</b>
<b>Receive Date:</b> 17 Jul-12 10:00	<b>Source:</b> Bioassay Report	
<b>Sample Age:</b> 71h (7 °C)	<b>Station:</b> LAB # 307119	

**Comparison Summary**

Analysis ID	Endpoint	NOEL	LOEL	TOEL	PMSD	TU	Method
09-1219-6843	7d Survival Rate	100	>100	N/A	9.54%	1	Wilcoxon Rank Sum Two-Sample Test
05-9778-6114	Mean Dry Biomass-mg	100	>100	N/A	17.0%	1	Equal Variance t Two-Sample Test

**Point Estimate Summary**

Analysis ID	Endpoint	Level	%	95% LCL	95% UCL	TU	Method
06-7048-0915	7d Survival Rate	EC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		EC10	>100	N/A	N/A	<1	
		EC15	>100	N/A	N/A	<1	
		EC20	>100	N/A	N/A	<1	
		EC25	>100	N/A	N/A	<1	
		EC40	>100	N/A	N/A	<1	
13-9505-3241	Mean Dry Biomass-mg	IC5	>100	N/A	N/A	<1	Linear Interpolation (ICPIN)
		IC10	>100	N/A	N/A	<1	
		IC15	>100	N/A	N/A	<1	
		IC20	>100	N/A	N/A	<1	
		IC25	>100	N/A	N/A	<1	
		IC40	>100	N/A	N/A	<1	

**Test Acceptability**

Analysis ID	Endpoint	Attribute	Test Stat	TAC Limits	Overlap	Decision
06-7048-0915	7d Survival Rate	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
09-1219-6843	7d Survival Rate	Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
05-9778-6114	Mean Dry Biomass-mg	Control Resp	1.866	0.85 - NL	Yes	Passes Acceptability Criteria
13-9505-3241	Mean Dry Biomass-mg	Control Resp	1.866	0.85 - NL	Yes	Passes Acceptability Criteria
09-1219-6843	7d Survival Rate	PMSD	0.09544	NL - 0.25	No	Passes Acceptability Criteria
05-9778-6114	Mean Dry Biomass-mg	PMSD	0.1702	NL - 0.5	No	Passes Acceptability Criteria

**7d Survival Rate Summary**

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	1	1	1	1	1	0	0	0.0%	0.0%
100		5	0.96	0.9266	0.9934	0.8	1	0.04	0.08944	9.32%	4.0%

**Mean Dry Biomass-mg Summary**

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	1.866	1.77	1.962	1.536	2.216	0.1155	0.2583	13.84%	0.0%
100		5	2.334	2.229	2.439	1.926	2.624	0.1258	0.2813	12.05%	-25.1%

# CETIS Summary Report

Report Date: 30 Jul-12 14:54 (p 2 of 2)

Test Code: ASC0712.129 | 04-8848-3758

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

### 7d Survival Rate Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1	1	1	1	1
100		1	0.8	1	1	1

### Mean Dry Biomass-mg Detail

Conc-%	Control Type	Rep 1	Rep 2	Rep 3	Rep 4	Rep 5
0	Negative Control	1.81	1.758	2.216	2.01	1.536
100		2.318	2.234	1.926	2.624	2.57

**CETIS Analytical Report**

Report Date: 30 Jul-12 14:54 (p 1 of 4)

Test Code: ASC0712.129 | 04-8848-3758

**Pacific Topsmelt 7-d Survival and Growth Test**

Aquatic Bioassay & Consulting Labs, Inc.

<b>Analysis ID:</b> 05-9778-6114	<b>Endpoint:</b> Mean Dry Biomass-mg	<b>CETIS Version:</b> CETISv1.8.1
<b>Analyzed:</b> 30 Jul-12 14:54	<b>Analysis:</b> Parametric-Two Sample	<b>Official Results:</b> Yes
<b>Batch ID:</b> 06-2974-0240	<b>Test Type:</b> Growth-Survival (7d)	<b>Analyst:</b>
<b>Start Date:</b> 17 Jul-12 13:10	<b>Protocol:</b> EPA/600/R-95/136 (1995)	<b>Diluent:</b> Laboratory Seawater
<b>Ending Date:</b> 24 Jul-12 11:20	<b>Species:</b> Atherinops affinis	<b>Brine:</b> Not Applicable
<b>Duration:</b> 6d 22h	<b>Source:</b> Aquatic Biosystems, CO	<b>Age:</b>
<b>Sample ID:</b> 02-0835-4588	<b>Code:</b> ASC0712.129	<b>Client:</b> Associated Laboratories
<b>Sample Date:</b> 14 Jul-12 14:00	<b>Material:</b> Sample Water	<b>Project:</b>
<b>Receive Date:</b> 17 Jul-12 10:00	<b>Source:</b> Bioassay Report	
<b>Sample Age:</b> 71h (7 °C)	<b>Station:</b> LAB # 307119	

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Untransformed	0	C > T	Not Run	Sample passes mean dry biomass-mg endpoint	7.0%

**Equal Variance t Two-Sample Test**

Control	vs	Conc-%	Test Stat	Critical	DF	MSD	P-Value	Decision(α:5%)
Negative Control		100	-2.742	1.86	8	0.3176	0.9873	Non-Significant Effect

**Test Acceptability Criteria**

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1.866	0.85 - NL	Yes	Passes Acceptability Criteria
PMSD	0.1702	NL - 0.5	No	Passes Acceptability Criteria

**ANOVA Table**

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.5484965	0.5484965	1	7.521	0.0254	Significant Effect
Error	0.5834514	0.07293142	8			
Total	1.131948	0.6214279	9			

**Distributional Tests**

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Variance Ratio F	1.186	23.15	0.8728	Equal Variances
Variances	Mod Levene Equality of Variance	0.06725	13.75	0.8041	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.9492	0.7411	0.6590	Normal Distribution
Distribution	Kolmogorov-Smirnov D	0.1357	0.3025	1.0000	Normal Distribution
Distribution	D'Agostino Skewness	0.2953	2.576	0.7677	Normal Distribution
Distribution	Anderson-Darling A2 Normality	0.2784	3.878	0.6785	Normal Distribution

**Mean Dry Biomass-mg Summary**

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	1.866	1.768	1.964	1.536	2.216	0.1155	0.2583	13.84%	0.0%
100		5	2.334	2.227	2.441	1.926	2.624	0.1258	0.2813	12.05%	-25.1%



# CETIS Analytical Report

Report Date: 30 Jul-12 14:54 (p 3 of 4)

Test Code: ASC0712.129 | 04-8848-3758

## Pacific Topsmelt 7-d Survival and Growth Test

Aquatic Bioassay & Consulting Labs, Inc.

Analysis ID: 09-1219-6843      Endpoint: 7d Survival Rate      CETIS Version: CETISv1.8.1  
 Analyzed: 30 Jul-12 14:53      Analysis: Nonparametric-Two Sample      Official Results: Yes

Batch ID: 06-2974-0240      Test Type: Growth-Survival (7d)      Analyst:  
 Start Date: 17 Jul-12 13:10      Protocol: EPA/600/R-95/136 (1995)      Diluent: Laboratory Seawater  
 Ending Date: 24 Jul-12 11:20      Species: Atherinops affinis      Brine: Not Applicable  
 Duration: 6d 22h      Source: Aquatic Biosystems, CO      Age:

Sample ID: 02-0835-4588      Code: ASC0712.129      Client: Associated Laboratories  
 Sample Date: 14 Jul-12 14:00      Material: Sample Water      Project:  
 Receive Date: 17 Jul-12 10:00      Source: Bioassay Report  
 Sample Age: 71h (7 °C)      Station: LAB # 307119

Data Transform	Zeta	Alt Hyp	MC Trials	Test Result	PMSD
Angular (Corrected)	0	C > T	Not Run	Sample passes 7d survival rate endpoint	9.54%

### Wilcoxon Rank Sum Two-Sample Test

Control	vs	Conc-%	Test Stat	Critical	DF	Ties	P-Value	Decision(α:5%)
Negative Control		100	25		8	1	0.3452	Non-Significant Effect

### Test Acceptability Criteria

Attribute	Test Stat	TAC Limits	Overlap	Decision
Control Resp	1	0.8 - NL	Yes	Passes Acceptability Criteria
PMSD	0.09544	NL - 0.25	No	Passes Acceptability Criteria

### ANOVA Table

Source	Sum Squares	Mean Square	DF	F Stat	P-Value	Decision(α:5%)
Between	0.00567079	0.00567079	1	1	0.3466	Non-Significant Effect
Error	0.04536632	0.00567079	8			
Total	0.05103711	0.01134158	9			

### Distributional Tests

Attribute	Test	Test Stat	Critical	P-Value	Decision(α:1%)
Variances	Mod Levene Equality of Variance	1	13.75	0.3559	Equal Variances
Distribution	Shapiro-Wilk W Normality	0.6247	0.7411	0.0001	Non-normal Distribution
Distribution	Kolmogorov-Smirnov D	0.4	0.3025	<0.0001	Non-normal Distribution
Distribution	D'Agostino Skewness	3.335	2.576	0.0009	Non-normal Distribution
Distribution	Anderson-Darling A2 Normality	1.796	3.878	<0.0001	Non-normal Distribution

### 7d Survival Rate Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Control	5	1	1	1	1	1	0	0	0.0%	0.0%
100		5	0.96	0.926	0.994	0.8	1	0.04	0.08944	9.32%	4.0%

### Angular (Corrected) Transformed Summary

Conc-%	Control Type	Count	Mean	95% LCL	95% UCL	Min	Max	Std Err	Std Dev	CV%	%Effect
0	Negative Contr	5	1.345	1.345	1.345	1.345	1.345	0	0	0.0%	0.0%
100		5	1.298	1.257	1.338	1.107	1.345	0.04763	0.1065	8.21%	3.54%













**ASSOCIATED LABORATORIES**  
 806 North Batavia • Orange, California 92868  
 Phone: (714) 771-6900 • Fax: (714) 538-1209

Date \_\_\_\_\_ Page \_\_\_\_\_ of \_\_\_\_\_

**CHAIN OF CUSTODY RECORD**

Assigned LR# \_\_\_\_\_

<b>CLIENT:</b> <u>ABC</u> <b>ADDRESS:</b> _____ Is this the address the final report is to be sent to? Yes ___ No ___ If "No" list mailing address in "Special Instructions" section at the bottom of this Chain of Custody.	<b>PROJECT IDENTIFICATION/LOCATION:</b> <b>PURCHASE ORDER #:</b> <u>#447196</u> <b>SAMPLER:</b> (Print AND Sign) _____	<b>SAMPLE TURNAROUND TIME:</b> Requested Turnaround Time (CIRCLE ONE)* <i>Priority Charges Apply to Rush Turn Around Times</i> RUSH: Same Day 24 Hr 48 Hr 72 Hr STANDARD: Standard TAT** (5 to 10 Working Days) Other _____ * Availability of Same Day/24/48/72 Hr TAT Varies Based Upon Test Method Requirements. **Standard TAT Varies According to Analyses.
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<b>CONTACT PERSON:</b> <u>Danielle R.</u> <b>SAMPLED BY (Circle One):</b> Client Assoc. Lab Personnel	<b>PHONE #:</b> ( ) _____ <b>FAX #:</b> ( ) _____	<b>SAMPLE CONDITION INFO - FOR LAB USE ONLY:</b> Samples Intact: Yes ___ No ___ Sample Seals Intact: Yes ___ No ___ N/A ___ Cooler Seals Intact: Yes ___ No ___ N/A ___
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Sample ID	Sample or Location Description	Date	Time	Matrix (See Codes Below)	# of Containers	Preservatives	Test Required
<u>LAB # 307119</u>		<u>7-14-12</u>	<u>14:00</u>	<u>W</u>	<u>1</u>		<u>TOP SMALL</u>
<u>#001</u>							
							<u>TEMP = 5.1°C</u>

**MATRIX:** GW=Ground Water DW=Drinking Water WW=Waste Water SW=Storm Water S=Solid/Soil A=Air L=Liquid F=Food (Use the codes shown here to identify the matrix above)

Relinquished by: (Print AND Sign)*** <u>[Signature]</u> <u>7-16-12</u>	Received By: (Print AND Sign) <u>[Signature]</u>	Date/Time: <u>7/16/12</u> <u>13:30</u>	<b>Special Instructions:</b>   
Relinquished by: (Print AND Sign)***	Received By: (Print AND Sign)	Date/Time:	
Relinquished by: (Print AND Sign)***	Received by Lab for Analysis: (Print AND Sign)	Date/Time:	

\*\*\*By signing this Chain of Custody you are authorizing the analyses shown above. (Print AND Sign) \_\_\_\_\_

**COC DISTRIBUTION:**  
 White with report. Yellow to AL. Pink to Client's Courier.