

EVOS Annual Project Report

Project Number: 10100132-D

Project Title: PWS Herring Survey: Value of Growth and Energy Storage as Predictors of Winter Performance in YOY Herring from PWS

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Time Period Covered: September 1, 2009 – September 1, 2010

Date of Report: August 20, 2010

Report Prepared By: R. Heintz and J. Vollenweider

Project Website: N/A

Work Performed:

1. A total of 204 samples were processed from fall 2009 and spring 2010 from the Prince William Sound Science Center under the PWS herring survey project:

Table 1. Numbers of samples processed by location

Location	Fall 2009	Spring 2010
Eaglek	37	37
Lower Herring	15	30
Simpson	21	20
Whale	6	10
Zaikof	6	22

2. Morphometrics of all herring were measured and archived in the Nutritional Lab LIPID database, including length, weight and mass of stomach contents. Photos were taken of all stomach contents for identification of prey items, which is currently in progress (Figure 1). Stomachs were fuller in the fall than in the spring, and stomach contents only exceeded 0.5g in 1 fish. Initial analysis indicates that discernable prey species were primarily euphausiids, with a few pteropods and amphipods.

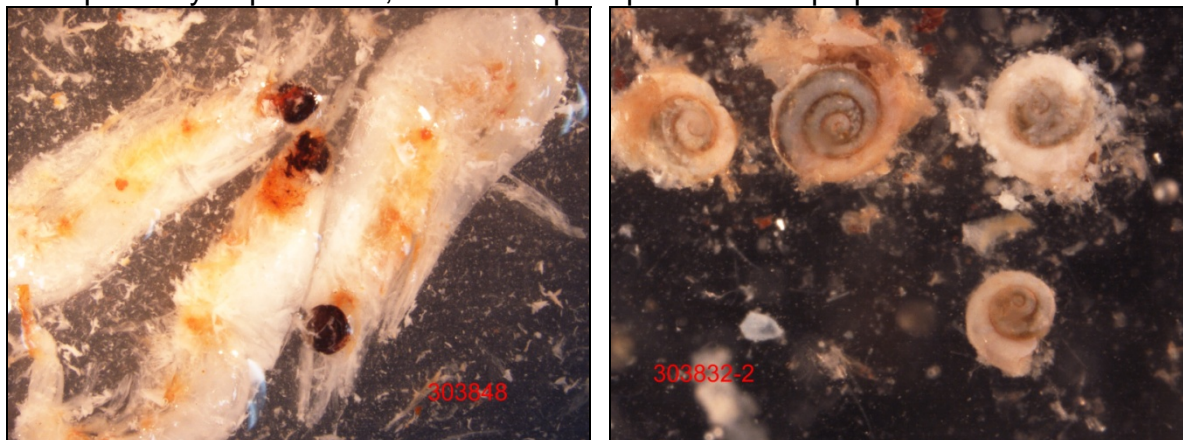


Figure 1. Photos of YOY herring stomach contents (euphausiids and pteropods).

Table 2. Average stomach contents as percent of wet body mass in different locations.

Location	Fall	Spring
Eaglek	0.08%	0.44%
Lower Herring	0.67%	0.48%
Simpson	0.67%	0.18%
Whale	2.77%	0.25%
Zaikof	0.13%	0.68%

Table 3. Percentage of stomachs appearing devoid of food (empty) or displaying evidence of food (foraging).

	Fall		Spring	
	Empty	Foraging	Empty	Foraging
Eaglek	100%	0	0	100%
Lower Herring	73%	27%	73%	27%
Simpson	60.0%	40%	100%	0%
Whale	0	100%	100%	0
Zaikof	83%	17%	0%	100%

3. Muscle plugs were dissected from each fish for RNA/DNA analysis, which is complete. Data have undergone Quality Assurance measures and are archived in the Nutritional Lab LIPID database. Initial analysis indicates growing conditions in fall varied across locations (Figure 1). Herring in both Lower Herring and Zaikof Bays experienced relatively high growth while growth in Eaglek and Simpson Bays was depressed or nil. In spring herring in Eaglek Bay had the highest average growth while growth in Simpson Bay remained depressed. Growing conditions in Lower Herring and Zaikof remained constant over winter.
4. Chemical analysis of proximate composition is underway. Protein measurements are done and lipid analysis is expected to be completed by the end of September 2010. All data will be archived in the Nutritional Lab LIPID database.
5. 2 batches of samples from fall and spring in Eaglek Bay have been analyzed for lipid class analysis.

Future Work:

We will continue with the chemical analysis of proximate composition of all samples from year 1, which will be complete by October 30, 2010.

We will obtain the fall samples from year 2 in November 2010 from the Prince William Sound Science Center, after which time we will commence morphometric measurements and analysis of RNA/DNA content and proximate composition. Spring samples from 2011 are anticipated to arrive in March or April.

Coordination/Collaboration:

Herring collections for this project rely on the sampling conducted and organized by the Prince William Sound Science Center (PWSSC). Fall 2010 samples were obtained from chartered cruises conducted by the PWSSC.

Community Involvement/TEK & Resource Management Applications:

Spring 2010 samples were obtained from the spring “blitz” effort in which Cordova community members aided PWSSC in collections throughout the Sound. A short description of the project was included in the overall project website.

Information Transfer:

PIs Heintz and Vollenweider attended AK Marine Science Symposium, Anchorage, AK January 2010.

Heintz attended PI meeting in Cordova in May.

Budget:

Budget expenditures are proceeding as per projections; no problems are anticipated.

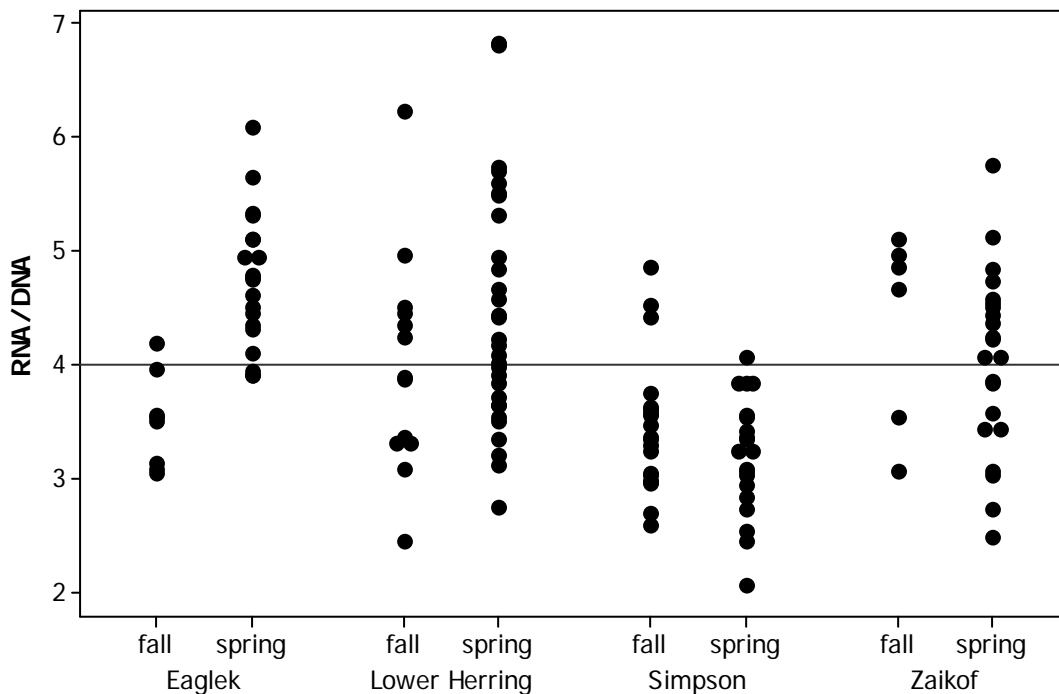


Figure 1. RNA/DNA values for fish collected from different bays in Prince William Sound in 2008 and 2009. Horizontal line shows threshold for positive growth in Pacific herring.

