

NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
(NOAA)

Species Recovery Grants to States (Section 6 Program)

Pursuant to NOAA Award No. **NA14NMF4720011**

Studies of Eulachon in Oregon and Washington

Report Period: **July 1 - December 31, 2016**



Submitted by:

Christine Mallette, Editor

Ocean Salmon and Columbia River Program

4034 Fairview Industrial Dr. SE

Salem, Oregon 97302

(503) 947-6213

christine.mallette@state.or.us

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Studies of Eulachon in Oregon and Washington

Semi-Annual Performance Progress Report July 1 to December 31, 2016

ODFW COST CODE: 55000 420009-02

Personnel

Both permanent and seasonal personnel worked on these tasks.

Adam J. Storch, Project Leader, Ocean Salmon and Columbia River Program, 17330 SE Evelyn Street, Clackamas, OR 97015, (971) 673-6069, Adam.J.Storch@state.or.us;

Project Accomplishments by Objective

A) Stock Assessment Objective

1. *Complete larval sampling in the Columbia River and Oregon and Washington coastal rivers December 1- May 31.*

Season One: December 1, 2014–May 31, 2015

(See previous progress report for time period 1 January through 30 June, 2015)

Season Two: December 1, 2015 – May 31, 2016

(See previous progress report for time period 1 January through 30 June, 2016)

Season Three: December 1, 2016 – June 21, 2017

Staff from ODFW visited three Oregon coastal streams – Cummins, Tenmile and Big creeks – during December of 2016 to: (1) collect ichthyoplankton samples to quantify outflow of larval eulachon smelt (Big, Cummins and Tenmile creeks) and (2) collect water quantity data to develop models relating discharge and water level (Big and Cummins creeks; see sub-objective 2). During this reporting period, staff from ODFW visited Big, Cummins and Tenmile creeks on 3 different occasions, collecting 6 ichthyoplankton samples from Big and Tenmile creeks and 4 ichthyoplankton samples from Cummings creek. In addition, three and two discharge samples were collected from Big and Cummins creeks, respectively; water quantity information and ichthyoplankton samples were not collected during every sampling trip due to constraints related to site conditions (i.e., excessive flows). Throughout the first five reporting periods, field personnel collected a total of 337 ichthyoplankton samples and 101 water quantity samples from Big and Cummins creeks (Table 1). As described previously (Malette 2014b), typical conditions in Tenmile Creek (i.e., high water levels and velocity)

preclude effective collection of information necessary to estimate instantaneous discharge and thus only larval outflow will be quantified in that stream.

Table 1. Distribution of sampling episodes and ichthyoplankton and stream discharge samples collected in Big, Cummins and Tenmile creeks, Jul. 2014–Dec. 2016.

Reporting Period	Water Body	Sampling Period	Sampling Trips	Ichthyoplankton Samples	Discharge Samples
Jul.–Dec., 2014	Big Cr. ^a	n/a	n/a	n/a	n/a
	Cummins Cr.	12/09/2014–12/30/2014	4	7	3
	Tenmile Cr.	12/09/2014–12/30/2014	3	7	n/a ^b
Jan.–Jun., 2015	Big Cr.	03/04/2015–05/05/2015	13	26	10
	Cummins Cr.	01/08/2015–05/05/2015	28	56	25
	Tenmile Cr.	01/08/2015–04/28/2015	27	53	n/a ^b
Jul.–Dec., 2015	Big Cr.	12/16/2015–12/31/2015	4	8	1
	Cummins Cr.	12/16/2015–12/31/2015	4	8	2
	Tenmile Cr.	12/17/2015–12/31/2015	4	8	n/a ^b
Jan.–Jun., 2016	Big Cr.	01/04/2016–04/29/2016	25	50	20
	Cummins Cr.	01/04/2016–04/29/2016	25	50	38
	Tenmile Cr.	01/04/2016–04/29/2016	25	48	n/a ^b
Jul.–Dec., 2016	Big Cr.	12/13/2016–12/31/2016	3	6	3
	Cummins Cr.	12/22/2016–12/31/2016	2	4	2
	Tenmile Cr.	12/13/2016–12/31/2016	3	6	n/a ^b
Total			170	337	101

Notes: ^a sampling did not commence until March 4, 2015 due to delays in permitting (i.e., the permit was not received until 3/3/2015).

^b Conditions (i.e., water level and velocity) precluded the installation of a water-level logger and the collection of data necessary to estimate instantaneous discharge. Thus, only larval outflow was/will be quantified.

2. *Complete calculations of river discharge by July 31.*

Season One: December 1, 2014 – May 31, 2015

(See previous progress report for time period 1 January through 30 June, 2015)

Season Two: December 1, 2015 – May 31, 2016

(See previous progress report for time period 1 January through 30 June, 2016)

Season Three: December 1, 2016 – June 21, 2017

The approach adopted to calculate river discharge during seasons one and two of field sampling in Big and Cummins creeks (Malette 2015a) will once again be applied in the third season. For sampling events during which ichthyoplankton tows are conducted, water velocity ($\text{m}\cdot\text{sec}^{-1}$) and depth measurements will be collected at regular intervals along a transect. These data, and measurements of stream width (i.e., transect width),

will be used to calculate instantaneous discharge. Instantaneous discharge values estimated throughout the sampling period will then be used in conjunction with water level measurements recorded by water-level data loggers to develop a relationship between discharge and water level. The model will ultimately be applied to water-level data to predict discharge during intervals when it was not quantified directly. To provide for model development, during the current reporting period we collected data necessary to calculate instantaneous discharge in Big Creek on 13, 22 and 28 December and Cummins Creek on 22 and 28 December. Results of model development and discharge estimation/prediction will be presented in the next progress report.

3. *Complete laboratory work (larval densities in samples) by August 31.*

Season One: December 1, 2014–May 31, 2015

(See previous progress report for time period 1 January through 30 June, 2015)

Season Two: December 1, 2015 – May 31, 2016

(See previous progress report for time period 1 January through 30 June, 2016)

Season Three: December 1, 2016 – June 21, 2017

From December 13-31, 2016, we collected a total of 16 individual samples from Big, Cummins and Tenmile creeks. Processing of these samples in the laboratory will commence in January of 2017.

4. *Complete calculation of Spawning Stock Biomass calculations by September 30.*

Season One: December 1, 2014 – May 31, 2015

(See previous progress report for time period 1 January through 30 June, 2015)

Season Two: December 1, 2015 – May 31, 2016

(See previous progress report for time period 1 January through 30 June, 2016)

Season Three: December 1, 2016 – June 21, 2017

We collected information necessary to calculate Spawning Stock Biomass (e.g., ichthyoplankton densities and stream discharge) in Cummins Creek and Big Creek from December 13- 31, 2016. ODFW staff plans to continue collecting these data regularly throughout season three and model results of spawning stock biomass will be presented in the next progress report.

B) Genetic Analysis Objective.

1. *Complete collection of genetic samples in conjunction with activities under objective A by June 30.*

Season One: December 1, 2014 – May 31, 2015

(See previous progress report for time period 1 January through 30 June, 2015)

Season Two: December 1, 2015 – May 31, 2016

(See previous progress report for time period 1 January through 30 June, 2016)

Season Three: December 1, 2016 – June 21, 2017

As samples are processed in the laboratory (above), Eulachon larvae encountered will be preserved in individual vials and labelled with water body- and date-specific identifiers. These samples will be transferred to the Washington Department of Fish and Wildlife's Molecular Genetics Laboratory for future genetic analysis.

2. *Complete all laboratory work (genetic sample processing) by August 31, 2017.*

Eulachon larvae collected from Oregon coastal streams for genetic analysis (see above) will be transferred to the Washington Department of Fish and Wildlife's Molecular Genetics Laboratory to allow for subsequent genetic analysis. To date, ODFW has submitted for genetic analysis nine individual Eulachon larvae (Malette 2015a).

3. *Complete all genetic analyses by September 30, 2017.*

Eulachon larvae collected from Oregon coastal streams for genetic analysis (see above) during season one of sampling will be transferred to the Washington Department of Fish and Wildlife's Molecular Genetics Laboratory to allow for subsequent genetic analysis.

C) Outreach and Education Objective.

1. *Complete webpage development and populate webpages with information from previous studies by December 31, 2014.*

(See previous progress report for time period 1 January through 30 June, 2015)

2. *Complete annual webpage update by October 31.*

Year One: July 1, 2014 – June 30, 2015

(See previous progress report for time period 1 January through 30 June, 2015)

Year Two: July 1, 2015 – June 30, 2016

(See previous progress report for time period 1 January through 30 June, 2016)

Year Three: July 1, 2016 – June 30, 2017

Progress reports for the July–December, 2015 (Storch and Mallette 2015b) reporting periods have been uploaded to the interim project webpage (<http://www.dfw.state.or.us/fish/OSCRP/CRI/publications.asp#Eulachon>). Project staff and web developers at ODFW continue to work toward development of a stand-alone, eulachon-specific, webpage.

3. *Incorporate more eulachon information into the displays and activities at the City of Vancouver, WA/WDFW Annual Sturgeon Festival.*

Year One: July 1, 2014 – June 30, 2015

(See previous progress report for time period 1 July through 31 December, 2014)

Year Two: July 1, 2015 – June 30, 2016

(See previous progress report for time period 1 January through 30 June, 2016)

Year Three: July 1, 2016 – June 30, 2017

ODFW staff participated in, and developed material for, the Vancouver, WA/WDFW Annual Sturgeon Festival held on September 17th 2016.

4. *Attend and present work at a regional meeting and a conference or workshop annually.*

Year One: July 1, 2014 – June 30, 2015

(See previous progress reports for time periods 1 July through 31 December, 2014 and 1 January through 30 June, 2015)

Year Two: July 1, 2015 – June 30, 2016

(See previous progress report for time period 1 July through 31 December, 2015 and 1 January through 30 June, 2016)

Year Three: July 1, 2016 – June 30, 2017

This task was not addressed in this reporting period

5. *Present findings of previous work and preliminary year one work at the national meeting of the American Fisheries Society at Portland, OR in August 2015.*

(See previous progress report for time period 1 July through 31 December, 2015)

D) Reporting.

1. *Complete semi-annual progress reports for each objective by June 30 and December 31.*

Year One: July 1, 2014 – June 30, 2015

(See previous progress reports for time periods 1 July through 31 December, 2014 and 1 January through 30 June, 2015)

Year Two: July 1, 2015 – June 30, 2016

(See previous progress reports for time periods 1 July through 31 December, 2015 and 1 January through 30 June, 2016.

Year Three: July 1, 2016 – June 30, 2017

This is the fifth progress report for the current grant prepared and submitted by the Oregon Department of Fish and Wildlife. The co-awardee (WDFW) will be filing separate progress reports as separate awards were granted to both agencies listed in the joint-state proposal

2. *Complete comprehensive report of study by December 31, 2017.*

(Work not scheduled to occur during this reporting period).

3. *Document and distribute datasets from the study by December 31, 2017.*

(Work not scheduled to occur during this reporting period).

4. *Complete submission of articles to peer reviewed journals by December 31, 2017.*

No articles were submitted during this reporting period.

Expenditures (Estimated; ODFW only, excludes expenditures by co-awardee):

Total expenditures 1 July – December 31, 2016: **\$ 18,472**

References

- Malette, C. 2014. Studies of eulachon smelt in Oregon and Washington. Project completion report by the Oregon Department of Fish and Wildlife and the Washington Department of Fish and Wildlife. Submitted to the National Oceanic and Atmospheric Administration.
- Malette, C. 2014b. Studies of eulachon smelt in Oregon and Washington. Report of progress for 1 July 2014 through 31 December 2014 by the Oregon Department of Fish and Wildlife and the Washington Department of Fish and Wildlife submitted to the National Oceanic and Atmospheric Administration
(http://www.dfw.state.or.us/fish/OSCRP/CRI/docs/section_6_eulachon_interim_report_jul_dec_2014.pdf).
- Malette, C. 2015a. Studies of eulachon smelt in Oregon and Washington. Report of progress for 1 January 2015 through 30 June 2015 by the Oregon Department of Fish and Wildlife and the Washington Department of Fish and Wildlife submitted to the National Oceanic and Atmospheric Administration
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- Storch, A.J. and C. Malette 2015b. Studies of eulachon smelt in Oregon and Washington. Report of progress for 1 July 2015 through 31 December 2015 by the Oregon Department of Fish and Wildlife and the Washington Department of Fish and Wildlife submitted to the National Oceanic and Atmospheric Administration
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This report has been prepared by:

Charles M. Barr

Predation Studies Project Leader

Phone: 971-673-6081

E-mail: Charles.m.Barr@state.or.us