NOAA 2015 Protected Species
Studies of Eulachon in Oregon and Washington

PROGRESS REPORT

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Reporting Period: July 1, 2015 to December 31, 2015

Prepared by: **Adam Storch** and **Christine Mallette**
Oregon Department of Fish and Wildlife (ODFW)
Ocean Salmon and Columbia River Program
17330 SE Evelyn Street
Clackamas, OR 97015

Project accomplishments by objective are:

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

   Staff from ODFW visited three Oregon coastal streams – Cummins, Tenmile and Big creeks – during December of 2015 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 4 different occasions, collecting 8 ichthyoplankton samples from each water body. In addition, one and two discharge samples were collected from Big and Cummins creeks, respectively; water quantity information was not collected during every sampling trip due to constraints related to site conditions (i.e., excessive flows). Throughout the first three reporting periods, field personnel collected a total of 173 ichthyoplankton samples and 41 water quantity samples from Big and Cummins creeks (Table 1). As described previously (Mallette 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. 2015.

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]
		Total	87	173	41

note: [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.

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

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

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

The approach adopted to calculate river discharge during season one of field sampling in Big and Cummins creeks (Mallette 2015a) will once again be applied in the second season. For sampling events during which ichthyoplankton tows are conducted, water velocity ($m \cdot sec^{-1}$) 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 16 December

and Cummins Creek on 16 and 28 December. Results of model development and discharge estimation/prediction will be presented in the next progress report.

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

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

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

   From December 16- 31, 2015, we collected a total of 24 individual samples from Big, Cummins and Tenmile creeks. Processing of these samples in the laboratory will commence in January of 2016.

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

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

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

   We collected information necessary to calculate Spawning Stock Biomass (e.g., ichthyoplankton densities and stream discharge) in Cummins Creek from December 16- 31, 2014. ODFW staff plans to continue collecting these data regularly.

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

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

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

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.

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

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

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 (Mallette 2015a).

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

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

   Progress reports for the July–December, 2014 (Mallette 2014b) and January–June, 2015 (Mallette 2015a) 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.

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

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

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 January through 30 June, 2015)

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

   ODFW staff participated in, and developed material for, the Vancouver, WA/WDFW Annual Sturgeon Festival held on September 19th 2015.

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

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

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 report for time period 1 January through 30 June, 2015)

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

   (This task was not addressed in this reporting period.)

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

   (Work not scheduled to occur during 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.*

   Staff from ODFW attended the national meeting of the American Fisheries Society and discussed informally with other researchers the details/preliminary findings from the current study.

D) Reporting.

6. *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 report for time period 1 January through 30 June, 2015)

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

This is the third 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.

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

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

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

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

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

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

9. *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 July 1 – December 31, 2015**:** **$ 24,269**

References

Mallette, 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).

Mallette, 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 (http://www.dfw.state.or.us/fish/OSCRP/CRI/docs/section_6_eulachon_interim_report_jan_jun_2015.pdf).