

NOAA 2011 Protected Species Studies of Eulachon Smelt in Oregon and Washington

PROGRESS REPORT

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Reporting Period: January 1 through June 30, 2011

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Project accomplishments by objective are:

A) *Stock Assessment Objective*

1. Complete larval sampling at mainstem Columbia River stations January 1- May 31, during 2011, and 2012

Washington field staff conducted larval sampling through a transect of six sites in the main-stem Columbia River downstream from all major production areas. Samples were collected on 30 separate occasions beginning on January 13, 2011 and continuing through May 26, 2011. Larval sampling was also conducted on 15 occasions in the Grays River, once per week at two locations beginning on January 12, 2011 and continuing through May 12, 2011.

2. Complete calculations of river discharge by July 31, during 2011, and 2012

(Task not scheduled to be completed during this reporting period).

3. Complete laboratory work (larval densities in samples) by June 30, during 2011, and 2012

To date, 191 larval samples have been processed by WDFW staff. Preliminary larvae counts per sample show much greater larval densities than originally anticipated. Work continues to process the remainder of samples that were collected this season (approximately 60 samples) by early August 2011.

4. Complete sampling of adult smelt December 1, 2010- March 31, 2011, and December 1, 2011- March 31, 2011

A lack of fishery sampling opportunities prevented the collection of returning adult eulachon. Pursuit of this task will remain suspended with smelt fishery closures in Oregon and Washington, unless alternative means, and sufficient funding to implement those means, are identified to acquire adult eulachon.

5. Complete fecundity, sex, and age determinations on adult samples by July 31, during 2011 and 2012

This task will not be completed during 2011 (See Task A4). Assessments during 2012 are contingent with the availability of adult eulachon samples.

6. Compile environmental correlates by August 15, during 2011 and 2012

(Task not scheduled to be completed during this reporting period.)

7. Complete calculation of Spawning Stock Biomass calculations by August 31, during 2011 and 2012

(Task not scheduled to be completed during this reporting period.)

8. Complete retrospective analysis and report on performance of indicators relative to SSB by September 30, 2012

(Task not scheduled to be completed during this reporting period.)

B) Freshwater Distribution Objective.

1. Complete plankton tows and spawning substrate sampling at Columbia River and tributary stations January 1- May 31, 2011-2013

Oregon Department of Fish and Wildlife (ODFW) staff conducted both artificial substrate and vertical larval tows in the main-stem Columbia River and the Sandy River during the reporting period (Figure B1). In the mainstem Columbia River, we conducted 125 artificial substrate sets and 201 vertical larval tows 10 January–31 May 2011. During this period, 144 eggs were captured on artificial substrates, while 566 eggs and 2,114 larvae were captured in vertical larval tows. In the Sandy River, 4 artificial substrate sets and 27 vertical larval tows were conducted 27 January–2 June 2011. During this period, two eggs were captured on artificial substrates while six eggs and seven larvae were captured in vertical larval tows.

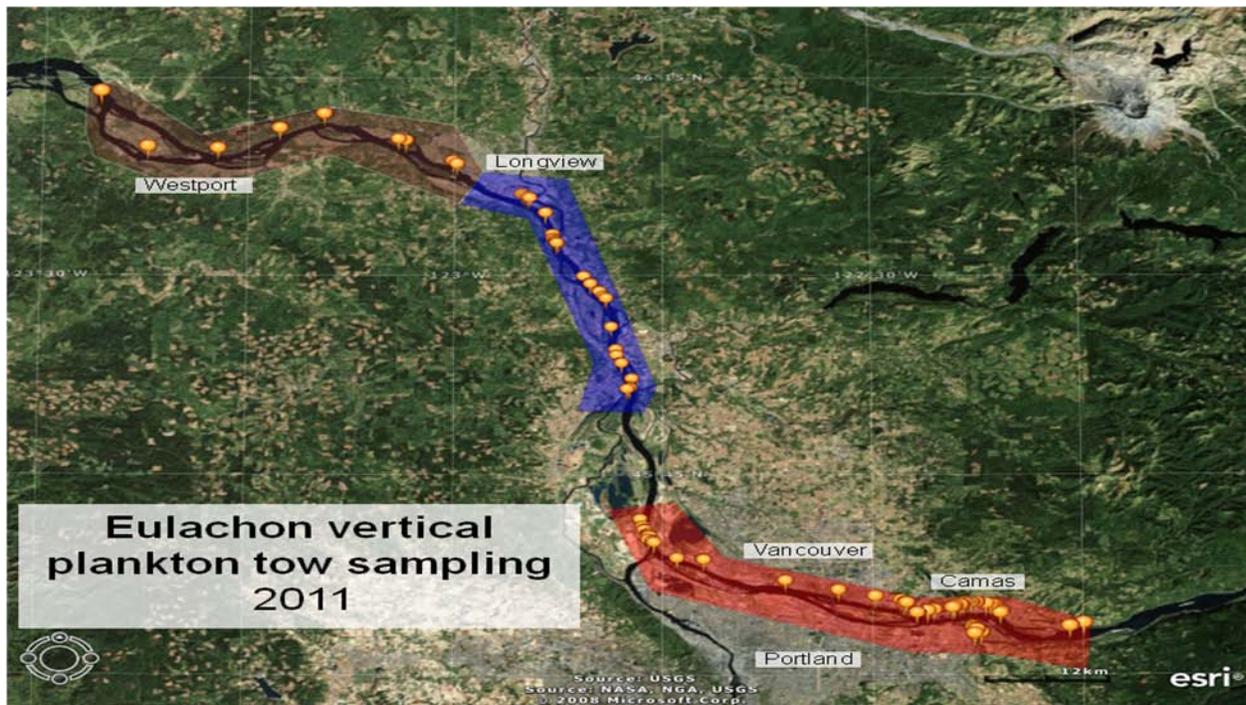


Figure B1. The spatial distribution of main-stem Columbia River and Sandy River collection sites for artificial substrates and vertical plankton tows during 2011. Color banners represent primary areas of interest demarcated by the area downstream of the Cowlitz River (brown), the area between the mouths of the Cowlitz and Lewis rivers (blue), and upstream of the Lewis River (orange).

Additional plankton tow sampling occurred to collect eulachon larvae from Washington tributaries to the Columbia River, including the Grays, Cowlitz, Elochoman, Kalama, and Lewis Rivers, as well as Skamokawa Creek.

2. Complete plankton tows and spawning substrate sampling from coastal streams outside the Columbia Basin January 1- June 30, 2011-2013

Opportunistic sampling was completed in two streams along the Oregon coast and three streams along the Washington coast during this reporting period. Coos River District biologists opportunistically conducted nine artificial substrate sets in the Coos River 24 January–28 February 2011 . No eulachon eggs were observed in any of these sets. Umpqua River District biologists opportunistically conducted 12 artificial substrate sets and 16 larval tows 20 January–8 June 2011. No eggs were observed in artificial substrate sets, while one egg and 15 larvae were collected during vertical plankton tows in the Umpqua River.

Field staff from WDFW used plankton tows to sample for eulachon larvae in the Naselle and Bear rivers. Sampling equipment was also provided to biologists of the Lower Elwha Klallam Tribe, and sampling was conducted in the Elwha River, but to our knowledge, samples have not yet been processed.

3. Complete surveys in the Sandy and Cowlitz rivers for extent of spawning activity January 1-May 31, 2011-2013

No adult eulachon were observed by project staff entering the Sandy River 1 January through 31 June 2011. However, artificial substrate and vertical larval tows revealed two eggs and seven larvae in the Sandy River between the Interstate 84 bridge crossing and just upstream of the Historic Columbia River highway bridge crossing (Figure B2).



Figure B2. The spatial distribution of Sandy River collection sites during 2011.

C) *Marine Life-stage Objective.*

1. Complete experiments on gear-related bycatch reduction
 - a. Pilot phase: August 1-October 31, 2010

(See previous progress report for time period 1 July through 31 December 2010.)

- b. Season 1: April 1-October 31, 2011

Due to progress to date using state funds to evaluate effects of grid spacing in bycatch reduction devices (BRDs) and modified footropes on eulachon bycatch in shrimp trawls, we decided to use Section 6 vessel charter funds to begin investigating eulachon behavior as they are excluded by BRDs to try and understand physiological condition. In June

we completed the development of a high-definition, stop-motion underwater video system for viewing eulachon behavior as they interact with BRDs in shrimp trawls. Bids were solicited for several days of vessel time to field test this system and determine if eulachon behavior can be evaluated this way. A contract for 3 days of work with the fishing vessel Miss Yvonne is being developed currently and field work is expected to be completed in late July or August 2011.

c. Season 2: April 1- October 31, 2012

(Task not scheduled to be completed during this reporting period.)

2. Complete observation of Washington ocean shrimp trawl fisheries

a. Pilot phase: August 1-October 31, 2010

(See previous progress report for time period 1 July through 31 December 2010.)

A lead technician was hired and completed preseason preparations. Several meetings were held with shrimp trawl fishers and processors in January and March at Westport and Ilwaco, Washington. In addition, project information was distributed through mailings and in-person contacts.

b. Season 1: April 1-October 31, 2011

Four observers were hired and trained during March 2011 in advance of the commercial shrimp trawl fishery which opened April 1, 2011. Coverage of the fishery through June has been approximately 25% at the tow level, or about 300 observed tows out of an estimated 1,200 for the season through June. A trip is typically four or five days in duration including run time to and from the fishing grounds. Shorter trips have occurred when fishing is especially productive. Fleet activity has been regulated somewhat by processors limiting the number of landings a vessel can make. This is intended to limit the amount of product flow through the processing facility. These estimates are preliminary and don't include those vessels in the fleet carrying a West Coast Groundfish observer.

The fleet, for this project, is comprised of vessels operating from the ports of Westport and Ilwaco. On occasion, an observer will board a vessel departing from Warrenton, Oregon, if the vessel intends to land in Washington. Vessels selected for observer coverage include those making more than one landing into Washington. Regulations require skippers to report anticipated departures to the lead technician. Vessels

licensed by both Oregon and Washington have been observed. Observed trips have been primarily off the coast of Washington.

Data collected include skipper logbooks, observer logbooks, catch composition, and biological information. Skipper logbooks are mandatory for all trips. Observers sample bycatch for each tow. Tow, date, location, duration, and depth are recorded. For most tows, bycatch is separated completely to category or species and weighed. Sub-sampling procedures are followed when the quantity of bycatch makes complete sampling impractical, e.g. large numbers of juvenile hake. Eulachon are given priority for sampling. A maximum of 50 individual eulachon are sampled per trip for lengths. Approximately 350 eulachon genetic samples have been collected and preserved for later analysis. At sea, rockfish (most are juveniles due to exclusion of adults by excluders or BRDs) are sorted and weighed as a category when species identification is not certain. However, efforts to identify to the species level have been undertaken.

c. Season 2: April 1- October 31, 2012

(Task not scheduled to be completed during this reporting period.)

3. Complete processing of the observation data from the Washington ocean shrimp trawl fisheries by December 31, 2010-2012

Given the limited field time in 2010, no significant observations were made, and those few insights will be reflected upon in the next semi-annual progress report. Sampling of the 2011 Washington ocean shrimp trawl fishery is ongoing.

4. Complete processing of the data from the gear experiments by December 31, 2010-2012

2010 data processing was performed outside of this grant (See previous progress report for time period 1 July through 31 December 2010.)

5. Complete outreach education for the ocean shrimp trawl fishers

a. Project Launch: July 31, 2010

The 2010 season was limited to a single cruise by the principle investigator due to the delayed start of the grant.

b. Pilot Phase Review: February 28, 2011

Given the limited observations made in 2010, no review was warranted. Insights from 2010 will be incorporated in the review due February 2012.

c. Season Review: February 29, 2012

(Task not scheduled to be completed during this reporting period.)

d. Project Completion: December 31, 2013

(Task not scheduled to be completed during this reporting period.)

D) Genetic Analysis Objective.

1. Complete collection of genetic samples in conjunction with activities under objectives 1-3

To date, roughly 600 eulachon larvae have been preserved from samples collected in the Columbia, Grays, Elochoman, Kalama, Bear, Sandy, and Lewis rivers, as well as Skamokawa Creek. Eulachon larvae were collected from the Columbia River from late-December 2010 through May 2011.

An additional 517 samples from adult and juvenile eulachon have been retained from marine by-catch, the Columbia River, and the Cowlitz River.

2. Complete laboratory work (genetic sample processing) by June 30, 2011-2013

Beyond preservation of genetic samples, genetic analysis has been curtailed due to cuts to the project budget. The WDFW Molecular Lab is in the process of pursuing funds outside this project to standardize their laboratory protocol to the Canadian Department of Fish and Oceans' Laboratory. This task must be completed before the samples can be processed.

3. Complete all genetic analyses by September 30, 2013.

Genetic analyses will be pursued if sufficient funds are made available during FFY 2013. Priority will be given to genetic analysis of the shrimp trawl eulachon bycatch.

E) Reporting.

1. Complete annual progress reports for each objective by June 30, 2011-2013
2. Complete comprehensive report of three year study by December 31, 2013
3. Document and distribute datasets from the study by December 31, 2013
4. Complete submission of articles to peer reviewed journals by December 31, 2013

We are beginning to compile the first annual progress report. There were no articles or presentations made to peer groups during 2010-2011.

F) Expenditures:

ODFW, January 1 – June 30, 2011:	\$ 63,167
ODFW Subcontract to WDFW, January 1 – June 30, 2011:	\$230,770
Subtotal January 1 – June 30, 2011:	\$293,937