

NOAA 2011 Protected Species  
Studies of Green Sturgeon along the West Coast of the  
U.S. to Guide the Design and to Implement a Monitoring  
Program to Track Coast-Wide Status and Trends for  
Future Population Viability Assessments

**PROGRESS REPORT**

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Reporting Period: July 1, 2011 through December 31, 2011

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Project accomplishments by objective are:

**A) Database Development**

Due to the late start of the contract in 2010, and NOAA's May 2011 notice to substantially reduce project funds for FY2012, progress on database development has been delayed. After attending a meeting of HYDRA database users in February 2011, we were made aware of the potential to integrate our essential database needs for acoustic data with this existing data exchange system, as opposed to creating an entirely new green sturgeon database encompassing biological, acoustic telemetry, and tagging data. To help us make an informed decision on how to proceed on the objective of developing a data exchange system, we will form and convene a steering committee (task E1) of database development and green sturgeon experts to guide further data exchange activities.

In addition, we had a discussion with the Supervisory IT Specialist at the NWFSC about the potential of using their Oracle Beehive collaboration suite as a tool in the development of our data exchange system.

- 1. Solicit and select a contractor to oversee the development of the database by August 31, 2010.*

(See past progress reports for time periods of 1 July through December 31, 2010 and 1 January through 30 June 2011, respectively.)

2. *Convene a conference to define needs and standards by November 30, 2010.*

(See past progress report for time period 1 January through 30 June 2011.)

With the reduced resources for FY2012 available, it is likely that input by the steering committee will serve as the primary means to define data needs and standards for the data exchange system.

3. *Build a beta-version of the database system by March 31, 2011.*

(See past progress report for time period 1 January through 30 June 2011.)

4. *Incorporate feedback from researchers by April 30, 2011.*

(See past progress report for time period 1 January through 30 June 2011.)

5. *Complete the database with sample/historical data by August 31, 2011.*

An interim database has been developed to house all green sturgeon data collected by ODFW and WDFW since 2003.

6. *Input tagging information until web application is completed.*

Tagging information is being input into the ODFW/WDFW database until a web application is available. We are also utilizing the HYDRA system for storage of acoustic tag data and PTAGIS for the storage of PIT tag data.

7. *Roll out green sturgeon tagging data website for accessing coast-wide data by February 29, 2012.*

(Task is not scheduled for completion during this reporting period.)

8. *Roll out enhanced green sturgeon tagging data website for input and access to coast-wide data (including interface to other databases) by October 31, 2012.*

(Task is not scheduled for completion during this reporting period.)

9. *Develop a maintenance plan for the website by October 31, 2012.*

(Task is not scheduled for completion during this reporting period.)

10. *Maintain the website, and make improvements November 1, 2012 – June 30, 2013.*

(Task is not scheduled for completion during this reporting period.)

## **B) Critical Habitat**

1. *Deploy acoustic receivers at the entrance to the main estuaries (in concert with Abundance/Survival objective) by July 15, 2010.*

Three receivers deployed near the mouth of Grays Harbor in the fall of 2010 remained deployed until 4/13/11. Efforts to tend these receivers earlier in the winter were hampered by rough seas and weather. Of these three receivers, only one was successfully retrieved. On 6/8/11, after replacement receivers were acquired, four receivers were deployed near the mouth of Grays Harbor (Figure 1). These receivers remained in the estuary for most of the season with the exception of times when one or two receivers had to be removed for maintenance activities. We intend to leave the three northern most Grays Harbor receivers in place for the duration of the winter using an improved mooring system developed and tested during the 2011 field season.

One receiver was deployed near the mouth of the Umpqua River on 4/22/11 (Figure 2, Umpqua 1), and an additional two receivers were deployed on 5/6/11 (Figure 2, Umpqua 2 and 4). These stations were replaced with four stations, Umpqua 1a, 2a, 3a, and 4a on 6/8/11 (Figure 2). These receivers have monitored the system continuously since their deployment. We plan to leave these receivers in place through 2012 (including regular maintenance).

One receiver was deployed near the mouth of Tillamook Bay on 8/25/11 (Figure 3). We intend to leave this receiver in place for the duration of the winter. Again, we intend to check the receiver regularly, and will leave receiver in place through 2012.

Researchers at the NWFSC maintained an array of 10 receivers in Willapa Bay (Figure 4). These receivers were present from the beginning of the year until 12/6/11, when seven of the ten receivers were retrieved. The remaining three receivers were the three receivers that were closest to the mouth of Willapa Bay, and were left in place to monitor movements into and out of the system over the winter.

The Pacific Ocean Shelf Tracking (POST) network maintains an array of receivers that crosses that Columbia River estuary at the Hwy 101 (Astoria-Megler) bridge. Additionally, the USGS and the Columbia River Inter-Tribal Fish Commission (CRITFC) also maintain receiver arrays in the Columbia River, below Bonneville Dam. Furthermore, we expect to gather information about acoustic tagged green sturgeon that migrate up into the tidal freshwater area of

the lower Columbia River using an array of receivers managed by another ODFW project.

2. *Complete download of all gateway receivers yearly in November-December.*

Receivers in Grays Harbor, Willapa Bay, were last downloaded during the first week of December, 2011. Receivers in the Umpqua River were last downloaded in September 2011 and receivers in the Umpqua River and Tillamook Bay are scheduled to be downloaded in early spring 2012. We are in the process of acquiring detection data from receivers deployed in the Columbia River Estuary by other research groups.

3. *Complete year one acoustic tagging of fish (in concert with Abundance/Survival objective) by mid-September 2010.*

(See previous progress report for time period of July through December 2010)

4. *Deploy and monitor non-gateway receivers in the Columbia River July 16-November 30.*

The Columbia River estuary had numerous receivers deployed by other entities (CRITFC, POST, USGS, etc.). We are working with these groups to share detection data.

5. *Complete year two acoustic tagging of fish by mid-September 2011.*

We tagged 187 green sturgeon with acoustic tags in 2011, including 35 tags that were provided by Mary Moser at the NWFSC, and Jason Romine at USGS (Table 1).

6. *Deploy and monitor non-gateway receivers in Willapa Bay May 1-November 30.*

The acoustic array in Willapa Bay was operated by NWFSC and we assisted in the maintenance of this array in 2011. No additional receivers were deployed to supplement this array.

7. *Complete year three acoustic tagging of fish (in concert with Abundance/Survival objective) by mid-September 2012.*

(Task is not scheduled for completion during this reporting period.)

8. *Deploy and monitor non-gateway receivers in Grays Harbor May 2-November 30.*

This task has been curtailed due to substantial reduction in available funds for FY 2012.

9. *Complete assessment of fine scale critical habitat use in the three estuaries by January 2013.*

This task has been curtailed due to substantial reduction in available funds for FY 2012.

### **C) Abundance/Survival**

1. *Complete year one tagging of fish (in concert with Critical Habitat objective) by mid-September 2010.*

(See previous progress report for time period from July through December 2010)

2. *Present a stratified sampling approach for the mark-recapture study to the green sturgeon steering committee for their critical review by January 2011. (This will be informed by year one acoustic tagging and other distribution information).*

Due to the late start of sampling in 2010, distribution data from 2010 is sparse and sampling design will be informed by 2011 sampling data.

There have been discussions about the study design with our biostatisticians and the green sturgeon steering committee. The steering committee has identified members for a work group which will convene in February 2012, to focus on the sampling approach.

3. *Complete year two tagging and recovery of fish by mid-September 2011.*

During the 2011 field season, we encountered 477 green sturgeon, of which 448 were marked with a new PIT tag (table 1).

4. *Complete initial (year two) abundance estimates by January 2012.*

(Task is not scheduled for completion during this reporting period.)

5. *Complete year three tagging and recovery of fish by mid-September 2012.*

(Task is not scheduled for completion during this reporting period.)

6. *Complete assessment of alternative survival and abundance estimates by January 2013.*

(Task is not scheduled for completion during this reporting period.)

## **D) FMEP**

1. *Complete a review of what Washington fisheries would benefit from having an FMEP.*

(See previous progress report for time period from July through December 2010)

2. *Determine how WDFW can meet the essential elements of the FMEP.*

(See previous progress report for time period from July through December 2010)

3. *Gather or generate supporting documentation.*

(See previous progress report for time period from July through December 2010)

4. *Complete and circulate a draft of the FMEP.*

(See previous progress report for time period from July through December 2010)

5. *Complete revisions and submit a final FMEP to NMFS by the 120-day deadline.*

The final Twin Harbors Region FMEP was submitted by WDFW on January 7, 2011, thereby meeting the 120-day deadline.

The ODFW intends to develop a complimentary draft FMEP during FY2012 that will address those Oregon coastal and estuary fisheries that are not authorized by either, (1) federal permit or regulation and managed according to Pacific Fishery Management Council (PFMC) fishery management plans and are subject to future Section 7 consultations between PFMC and NMFS or, (2) fisheries in the Columbia River or its estuary, that are subject to an existing Biological Opinion.

6. *Complete review of what Oregon fisheries would benefit from having an FMEP and determine how ODFW can meet the essential elements of the FMEP.*

*Planning and reviewing activities associated with this task are ongoing.*

7. *Gather and generate supporting documentation to complete and circulate a draft FMEP by 30 June 2012.*

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

8. *Complete revisions and submit a final FMEP to NMPS by 30 June 2013*

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

## E) Reporting and coordination

1. *Form, and convene at least semiannually, the green sturgeon steering committee, July 2010, January & June 2011, January & June 2012, and January & June 2013.*

The steering committee was formed and has met via teleconference on two occasions since July 2011. The next meeting will be scheduled for February 2012, and will focus on the sampling approach for abundance estimates, and data exchange.

2. *Complete annual progress report for each objective by June 2011-2013.*

This is the third semi-annual progress report.

3. *Complete a comprehensive report of the three-year study by December 2013.*

(Task is not scheduled for completion during this reporting period.)

4. *Document and distribute datasets from the study by December 2013.*

(Task is not scheduled for completion during this reporting period.)

Project biologists share raw biological sample and tag information with staff from NMFS-NWFSC and USGS-WRL. The acoustic receiver and tag information is currently being entered into a temporary regional acoustic database.

5. *Complete submission of articles to peer-reviewed journals by December 2013.*

No journal article has been submitted.

## F) Expenditures:

ODFW, July 1 to December 31, 2011	\$ 27,428
Subcontract to WDFW:	
July 1, 2010 to June 30, 2011 (revised total)	\$ 254,028
July 1, 2011 to December 31, 2011	\$ 131,127
Total expenditures July 1 to December 31, 2011:	\$ 158,555

**Figures:**



Figure 1: Map of Grays Harbor with orange circles indicating receiver locations.





Figure 2: Map of Umpqua River with receiver locations indicated by yellow circles and orange tacks.

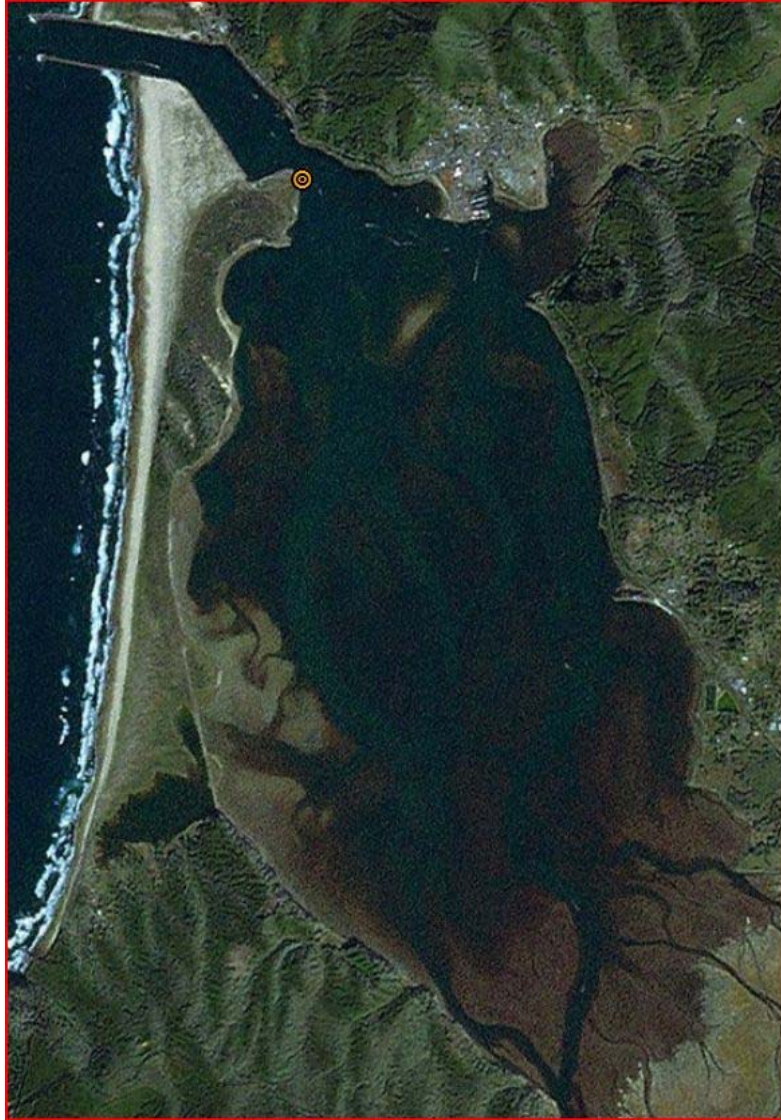


Figure 3: Map of Tillamook Bay with orange circle indicating receiver location.

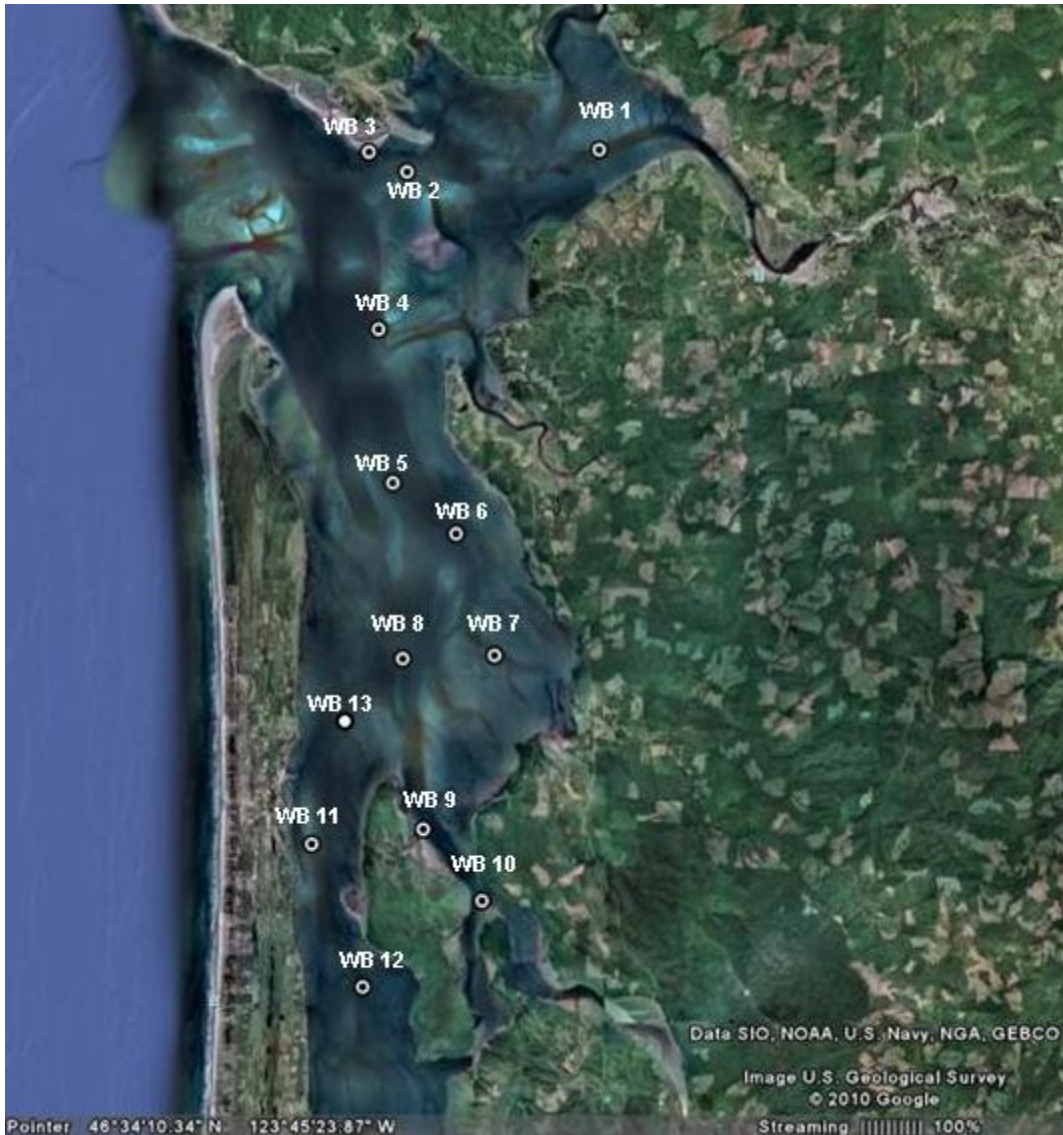


Figure 4: Map of Willapa Bay with circles indicating NWFSC receiver locations. Note that receivers were not deployed at WB 1, WB 3, and WB 10 in 2011. (Image provided by Steve Corbett, NWFSC).

Table 1: Summary of the numbers of green sturgeon encountered, PIT tagged, and acoustic tagged from each estuary sampled during the 2011 field season.

<b>Estuary</b>	<b>Encountered</b>	<b>PIT Tagged</b>	<b>Acoustic Tagged</b>
Grays	257	240	56
Willapa	105	101	51
Columbia	78	73	60
Umpqua	37	34	20
<b>Total 2011</b>	<b>477</b>	<b>448</b>	<b>187</b>
<b>Cumulative 2010-2011</b>	<b>685</b>	<b>577</b>	<b>231</b>
<b>Active Tag (incl. 2003-9)</b>	<b>N/A</b>	<b>1,276</b>	<b>231</b>