**Winchester 2013 Drawdown Notes**

September 3, 2013:

ODFW-

* Started draw down at 7:00am.
* Upper sediment on the fish ladder side exposed around 10:30am and The Cow Creek Tribe (Tribe) started salvage activities which lasted to approximately 7:00pm.
* A pump was provided by the ODFW by 1:30 to help keep exposed sediment moist
* Basco Logging (Basco) provided a tanker truck, personnel, and pump to help keep exposed sediment moist and Basco continued to spray the area all night.

Daniel Meyer (DM)-

* Winchester Ladder closes at 7:30am; ladder boards were pulled while checking for fish in each step and the jail as the pools began to dry-out quickly.
* For ladder salvage, fish that were above the counting camera were passed above the dam and fish that were below the camera were passed below the dam.
* Ammocoetes were observed in the ladder.

Cow Creek Tribe (Tribe)-

* Met at 7:30am with ODFW and Basco to discuss: proposed 2-day drawdown, area of concern around fish ladder exit where ammocoetes were observed stranded in 2009, possibility of pushing sediment on the construction site access road into the deeper non-dewatered area, using sprinklers to keep exposed sediment moist, opposition of ODFW to wanting to use hay bales and backpack e-fishing, the lack of an ammocoete salvage plan, future need for advanced notice of drawdown events, the cultural importance of the lamprey to the Tribe, and using salvaged ammocoetes for a smallmouth bass study
* Salvage cannot occur on the exposed bar on the south side of the river because it is private property, no nighttime salvages will occur due to safety issues (per ODFW), no lamprey salvage will occur inside the dam due to repairs made in 2009 which should prevent lamprey from getting inside the dam (per ODFW), and salvage will not occur upstream of first boat ramp above the dam.
* Around 11:30 after the meeting, the Tribe noticed lamprey stranding on the exposed sediment bar above the ladder exit, prompting salvage initiation with the Tribe and ODFW. Salvage was still needed in the ladder so the Tribe took the lead on ammocoete salvage above the ladder. A “control” area was designated and to be left undisturbed. Additional representatives from the Tribe, USFWS, and ODFW stopped out to observe and help with the salvage efforts. No backpack e-fishing occurred due to deep sediment and unsafe conditions. Salvage continued until 7:00pm, and ammocoetes were collected at the end of the day for a smallmouth bass study.
* Basco and ODFW set-up two pumps and four hoses to saturate exposed sediment, which continued through the night. Basco also manually salvaged stranded ammocoetes.

September 4, 2013:

ODFW-

* Salvage continued and de-watering was finished by mid-morning.
* Basco set-up first 1200ft of irrigation pipe on south-side exposed bank, a total of 3000ft of irrigation pipe was eventually installed and left running continuously throughout the drawdown to keep exposed sediment moist.
* A “control” area is set-up in the exposed sediment in front of the fish ladder exit and spraying continues on the control and treatment areas. ODFW gets the waterline fixed and sets up two sprinklers which are used to keep the control area moist in conjunction with the Basco pumps.
* Basco cleared the access road and most of the treatment area of sediment and placed it within the wetted channel to hopefully allow ammocoetes that were still in the sediment to escape.
* Spraying in the treatment area was stopped but spraying continued in the control area and the south side exposed bank. Dead ammocoetes were observed in puddles near the work trailer and along the interface of the dam and control area. A few were noticed on the weed surface, and 6-10 dead with a couple of live specimens were observed when an area of weeds was lifted up in the control area.

DM-

* Mass salvage all day.
* Set-up sprinklers in control area.
* Excavator cleaned sediment of the road and work was done on the road structure.
* Lamprey and salmonids were observed in bottom ladder pools.

Tribe-

* Meeting with ODFW to discuss keeping the control area undisturbed and moving sediment from the road and treatment area into the wetted channel area.
* Sprinklers were up and running on the south side bar by Wednesday afternoon (4th).
* It appeared that using sprinklers and hoses to keep the sediment moist encouraged ammocoetes to emerge from the sediment.
* Representatives from the USFWS were on-site to observe and help salvage.
* Salvage occurred in the de-watered area along the dam. Freshwater mussels and transformer lamprey were observed and moved.
* Approximately 1600 ammocoetes were salvaged over 8hrs on the 3rd with 270 dead upon release. Approximately 650-675 live and 350 dead ammocoetes were released on the 4th (salvage number was visually estimated to limit additional handling stress on already stressed ammocoetes). A total of 300 ammocoetes were kept for the smallmouth bass study.
* Salvaged ammocoetes were released at the Paige Road boat ramp above Winchester Dam. Water levels at the ramp were observed to be 5-10ft less than normal and large boulders were exposed. All ammocoetes were placed near sediment banks suitable for lamprey burrowing.
* It was estimated that for every 1 live lamprey observed there were 10 dead lamprey in the surrounding area. Total estimated mortality would be determined by multiplying the area of exposed sediment in square meters by 10. The estimate would include only what was on top of the sediment and not possible mortality throughout the vertical distribution. Lamprey ammocoetes continued to emerge from the sediment as salvage crews dug down into the material, and multiple age classes of lamprey were observed in areas as small as 1 square meter.

September 5, 2013:

DM-

* A lot of lamprey in bottom pool of ladder and a few in bedrock pools below the ladder

Tribe-

* No salvage due to heavy machinery use and lack of observed ammocoete survival overnight in salvageable area. One sprinkler was being used to saturate the control area.
* Sediment was removed from the treatment area in a manner different than what was discussed as the excavator drove across the sediment without removal of the sediment. Some sediment was scraped as opposed to scooping from underneath and sediment depths in the area ranged from 6in to 3ft.
* Sprinklers used in the control area were turned off by the construction crew from 8:15-8:55am to allow access to a temporary along the dam face.
* Roughly 20 lamprey were observed surfacing and attempting to egress on water surface after each dump truck load was dumped to create temporary road. No lamprey attempted to cross the thalweg to the main channel and more than 80% of the egress attempts resulted in observed predation by fish.
* Meeting held with LJ to discuss the use of single sprinkler in control area and possible mortality in the control area. It was noted that most mortality observed was below dried aquatic vegetation but per request the control area had not been disturbed. There was discussion of a confused ODFW mortality estimate as well.

September 6, 2013:

DM-

* Dam repairs were started in the middle of the structure.
* Not much for salvage in the morning, but 5 dead juvenile summer steelhead and 11 dead ammocoetes (8 by the work trailer) were collected.

Tribe-

* Tribe representatives on-site to observe but no salvage took place due to heavy machinery activity and lack of observed ammocoete survival.

September 7, 2013:

DM-

* Repairs were being done from the middle of the dam all of the way to the attraction gate.
* A total of 58 dead ammocoetes were removed from along the dam adjacent to the control area. An additional live ammocoete and 8 adult lamprey were removed from the ladder, and 1 dead juvenile steelhead and 3 dead adult lamprey were also removed.

Tribe-

* Observed approximately 15 dead stickleback and approximately 25 dead lamprey on top of the aquatic vegetation in the control area. Two sprinklers were on in the control area.
* Construction crew indicated that they were done tearing apart the dam and building additional road. Work stopped at the concrete wall, and it was estimated that work would take up to another 2 weeks.
* Construction crew commented that they believed the sprinklers were working on the south side and that they were still seeing live lamprey in puddles on that side.

September 9, 2013:

Tribe-

* Representatives from the Tribe floated from the Paige Road boat ramp to the dam to document and observe the upstream extent of dewatering. Lamprey were observed along the south bank but most of the current river bank on private lands is altered by rip-rap, etc. and less than 5 natural sediment banks exist between the Paige Road boat ramp and the dam. A couple of GPS points were taken at possible lamprey habitat areas.

September 11, 2013:

ODFW-

* Observed ammocoetes emerging in the pool in front of the fish exit in the control area, and they appeared stressed. Water was added to the pool to increase depth and oxygen levels which appeared to reduce stress on ammocoetes.

DM-

* Noticed ammocoete die-off in the pool above the ladder exit. Water was added and everything looked good after that. Water was to be added to the pool from then on.

September 12, 2013:

ODFW-

* ODFW, Basco, and the Tribe tour the south side sediment bar.

DM-

* Water was added to the pool above the ladder exit as water had dropped quickly overnight.
* Water was added to the bottom pools of the ladder, which took approximately 1hr and 15mins.
* Weather conditions were overcast and cool so there was little worry of ammocoete die-off in the control area.

Tribe-

* The Tribe, ODFW, and Basco got together in the morning for a meeting and after went out on the south side bar to observe current conditions. ODFW dug tests plots for lamprey. The Tribe talked with Basco about the mussels that were seen along the dam and Basco indicated that the material in which the mussels were located was pit-run quarry rock.
* Basco indicated that the lamprey die-off on the south side bar likely happened immediately after the drawdown began and before the sprinklers were running. Basco checked the south side bar right after the drawdown began and observed live lamprey, but when Basco came back after a few hours dead lamprey were observed. More ammocoetes were seen initially than what was seen dead meaning that some had likely moved to deeper water areas. Basco indicated that if the sprinklers had been up and going right away the die-off would likely not have happened, and that the sprinklers had only been off for 30mins at a time. Basco also indicated that they would be open to reviewing future Winchester lamprey salvage documents.

September 13, 2013:

DM-

* The pool above the ladder exit was re-filled with water for 25-30mins.

September 14, 2013:

DM-

* Bottom pools of the ladder and the pool above the ladder exit were re-filled with water.

September 15, 2013:

DM-

* A live ammocoete was observed next to the sprinkler in the control area and pool above the ladder exit was re-filled with water.

September 16, 2013:

DM-

* Approximately 20 live ammocoetes were observed in the ladder jail and water was added to the area and pool above the ladder exit.

September 17, 2013:

ODFW-

* Dam repairs are completed and reservoir re-watering begins. Samples are taken in the control area, and the lamprey ramp is removed with help from Basco.

DM-

* Samples are taken at 3 different sites in the control area.
* Basco cleared the area in front of the fish ladder exit. After sediment removal, 2 dead and 3 live ammocoetes were observed on top of the moved material with 5 live ammocoetes observed above the dig line.
* Approximately 20-30 live ammocoetes were observed in front of the ladder exit and sprinklers were started again to keep the area moist.

Tribe-

* Dam work ended and the lamprey ramp was removed. Live and dead lamprey were observed in the construction area upstream of the fish ladder in puddles created by rain that morning. Basco indicated that they would be open to a lamprey talk at the next Homeowners Board meeting and that information could possibly be put in the annual newsletter.

September 18, 2013:

DM-

* The top pool above the ladder exit was fully submerged but there was no path to the river yet. A dead ammocoete was observed on some displaced sediment, and approximately 100 dead ammocoetes were observed by the attraction flow gate. Approximately 5 live ammocoetes were noticed by the attraction flow area as water continued to inundate the area.
* Water started to go over the road and trickle into the ladder. Live ammocoetes were still observed in the ladder.

September 19, 2013:

DM-

* Water was going through the ladder but the ladder wasn’t passing fish yet in the morning. Water crested over the dam around 11:00am and the ladder started passing fish around 2:00pm.

Some Salvage Numbers:

* The Tribe salvaged approximately 2675 ammocoetes of which approximately 620 were dead upon release and 300 were used in a smallmouth bass study. This equated to approximately 23% mortality of salvaged ammocoetes (2055 live).
* The Tribe estimated conservatively that for every one live lamprey salvaged there were approximately 10 dead in the same area (about 1ft2).
* ODFW salvaged 453 adult lamprey of which 8 were dead (2% mortality), and 281 ammocoetes of which 179 were dead (64% mortality). A total of 16 adult spring chinook were collected as well as 14 juvenile spring chinook of which 2 were dead. For steelhead, 4 adults were collected of which 1 was dead as well as 149 juveniles of which 85 were dead. No coho were observed.
* For measurements in the control area, ODFW used a 1.19ft2 board to set-up sample locations within 3 different areas of the control section. On September 7th, 1 sample from the control edge had 7 dead ammocoetes, 1 sample from the saturated area had 0 dead ammocoetes, and 1 sample from the dam edge had 10 dead ammocoetes for an overall average of 5.7 dead ammocoetes per 1.19 ft2. The control area was roughly 2340ft2 meaning that approximately 11208 ammocoetes perished in the control area (this is only on the surface as no digging took place during this sampling event so this is likely an underestimate). On September 17th, the same board was used to resample the control area. For this sampling event, 3 samples were taken in each area of the control section to get averages and ODFW dug down about 8in in each spot to get an idea of what survival was like below the surface. Across the 3 samples for each area, 2 live ammocoetes were collected in the control edge area, 25 live ammocoetes were collected in the saturated area, and 8 live ammocoetes were collected in the edge area by the dam for an overall average of 3.88 live ammocoetes per 1.19ft2. With that average, roughly 7630 ammocoetes were still alive in the control area on the 17th (almost 2 weeks after de-watering).
* For the south side bar sampling, 13 holes from 10in to 1.5ft deep were dug. No live or fresh dead were observed. Additionally 5 test plots measuring 24in by 24in at sites that were anywhere from 15ft to 106ft from the river’s edge were developed to look for live or dead ammocoetes. Results were: 11 dead 18ft from the river, 0 dead 15ft from the river, 2 dead 45ft from the river, 8 dead 48ft from the river, and 2 dead 106ft from the river. This equates to rough average of 1.15 dead ammocoetes per 1ft2 on the south side bar. Another 32 dead ammocoetes were observed in a puddle during the sampling event.