

## **Platte River State Fish Hatchery**

### **Summary of 2012 Production and Operational Activities**

#### **Antibiotic Use**

The antibiotic use at the Platte River State Fish Hatchery (Hatchery) in 2012 only focused on disease treatment. In the past, Chinook salmon were fed oxytetracycline coated feed to produce a readable mark on the vertebra of hatchery produced fish. In 2012, all Chinook salmon were coded wire tag marked by mass marking trailers.

In March 2012, Atlantic salmon in the outdoor raceway complex contracted bacterial gill disease. The recommend treatment was 15 mg/L Chloramine-T flow-through for one hour per day for three consecutive days. These fish, located in one large raceway (C-1) were treated March 21 through March 23, 2012. There was a total of 6.51 kg of Chloramine-T used for treating fish. The hatchery discharge during the treatment period averaged 7.20 million gallons per day (MGD).

In April 2012, the same group of Atlantic salmon contracted bacterial cold water disease. The recommend treatment was 15 mg/L Chloramine-T flow-through for one hour per day for three consecutive days. These fish were treated April 24 through April 26, 2012. There was a total of 6.51 kg of Chloramine-T used for treating fish. The hatchery discharge during the treatment period averaged 7.37 MGD.

In May 2012, the same group of Atlantic salmon contracted bacterial cold water disease and furunculosis. The recommend treatment was 15 mg/L Chloramine-T flow-through for one hour per day for three consecutive days. These fish were treated May 4 through May 6, 2012. There was a total of 6.51 kg of Chloramine-T used for treating fish. These same fish were prescribed and fed, a feed top dressed with Florenicol (antibiotic). The fish received 200 kg (0.4% Florenicol) of treated feed for a 10 day period from May 4 through May 13, 2012. The hatchery discharge during the treatment period averaged 7.30 MGD.

In July 2012, coho salmon in the outdoor raceway complex contracted bacterial gill disease. The recommend treatment was 15 mg/L Chloramine-T bath for one hour per day for three consecutive days. These fish, located in four large raceways (A-8, A-9, B-5, B-10) were treated July 25 through July 27, 2012. There was a total of 11.43 kg of Chloramine-T used for treating fish. The hatchery discharge during the treatment period averaged 6.94 MGD.

In August 2012, coho salmon in the outdoor raceway complex contracted bacterial gill disease. The recommend treatment was 15 mg/L Chloramine-T bath for one hour per day for three consecutive days. These fish, located in four large raceways (A-6, A-6, B-7, B-8) were treated August 8 through August 10, 2012. There was a total of 11.43 kg of Chloramine-T used for treating fish. The hatchery discharge during the treatment period averaged 6.98 MGD.

In August 2012, Atlantic salmon in the hatchery building contracted bacterial gill disease. The recommend treatment was 15 mg/L Chloramine-T bath for one hour per day for three consecutive days. These fish, located in four starter tanks (S-1, S-2, S-3, S-4) were treated August 17 through August 19, 2012. There was a total of 0.90 kg of Chloramine-T used for treating fish. The hatchery discharge during the treatment period averaged 6.94 MGD.

In August 2012, coho salmon in the outdoor raceway complex contracted bacterial gill disease. The recommend treatment was 15 mg/L Chloramine-T bath for one hour per day for three consecutive days. These fish, located in four large raceways (A-6, A-7, A-8) were treated August 29 through August 31, 2012. There was a total of 8.57 kg of Chloramine-T used for treating fish. The hatchery discharge during the treatment period averaged 7.06 MGD.

### **Disinfectant Use**

Parasite-S and Formacide-B were used in 2012 to control bacterial biofilm and fungus on fish eggs. Parasite-S is Western Chemical's and Formacide-B is B.L. Mitchell's trade name for formalin that consists of 37% formaldehyde by weight in water and is FDA approved for use in aquaculture. The standard treatment used is a 15-minute flow-through with formalin at a concentration of 1,667 ppm. Formalin was used from January 1, 2012 through February 14, 2012 and again from October 3, 2012 through December 7 2012 to treat fungus on salmon eggs. There was a total of 352.8 gallons of formalin used. The maximum treatment was 7.8 gallons per day, during a 30 minute period. Hatchery flows averaged 7.55 MGD during the 2012 salmon incubation season.

### **Weir Operations**

The Consent Agreement with the Platte Lake Improvement Association (PLIA) allows 20,000 adult coho salmon to be passed upstream of the Lower Platte River Weir during the fall salmon run. This number ensures that sufficient eggs and milt can be obtained in order to maintain the coho salmon production program. The Consent Agreement also allows for passage of up to

1,000 adult Chinook salmon to maintain the feral run in this stream and to provide sportfishing opportunities.

The Lower Weir grates were installed on August 16, 2012 and removed for the season on November 13, 2012, after consultation with the Consent Agreement parties. As fish collected below the weir in sufficient numbers, coho salmon were passed upstream for egg take purposes, and surplus Chinook and coho salmon were harvested and removed from the watershed by the American-Canadian Fisheries Inc. of Traverse City, Michigan under contract to the DNR. Fish were passed upstream of the weir by raising the boat gate slightly and manually counting the number of fish by species that swam upstream under the gate. For harvest operations, the pumps were turned on and fish were allowed into the holding pond, where they were later removed. Members of the PLIA were contacted prior to passing fish upstream and were invited to observe the passage and harvest operation.

In 2012, a total of 628 adult and 33 jack Chinook salmon, and 18,942 adult and 2,755 jack coho salmon, 63 steelhead trout, and three brown trout were passed upstream of the Lower Weir during the period from August 16 to November 13, 2012. A total of 367 adult and four jack Chinook salmon, and 13,408 adult and 140 jack coho salmon were harvested at the Lower Weir and removed from the watershed by American-Canadian Fisheries Inc. Biological sampling of the spawning fish was conducted at the Traverse City processing plant by DNR Fisheries Division staff.

All of the dam boards for the Upper Weir were installed by August 27, 2012, after consultation with the Consent Agreement parties. Any migrating salmon were directed to the maturation ponds after this time. Coho salmon egg take occurred between October 16 and October 24, 2012. After eggs and milt were collected, all fish were harvested and shipped to the American-Canadian Fisheries Inc. processing plant in Traverse City. In 2012, a total of 100 adult and three jack Chinook salmon, and 17,737 adult and 3,525 jack coho salmon were harvested from the Upper Weir and shipped to the same processing plant. On October 25, 2012, the ponds were harvested for the final time, and Upper Weir operation was suspended for the season.

The total number of fish that were unaccounted for between the Lower and Upper Platte River Weirs included 528 adult and 30 jack Chinook salmon, and 1,205 adult and (770) jack coho salmon. This year class was below the state average size. Therefore, adults may have been counted as jacks or vice versa while passing at the Lower Weir. It is assumed that these fish were either caught by anglers, or spawned and died in the river prior to reaching the Upper Weir. Normally, approximately 75% of the adult coho passed above the Lower Weir are harvested at

the Upper weir. In 2012, 96% of the salmon passed at the Lower Weir were harvested at the Upper Weir.

### **Egg Take and Egg Incubation**

The coho salmon egg take operation occurred at the Hatchery between October 16 and October 24, 2012. A total of 5,984,553 coho salmon eggs were collected and fertilized. This included 2,736,717 green eggs for the Hatchery, 3,163,836 green eggs for other state fisheries agencies (Bodine State Fish Hatchery in Indiana, Jake Wolf State Hatchery in Illinois and the State of WI), and 84,000 for the continuing Thiamine Deficiency Study at Wolf Lake State Fish Hatchery. The number of green eggs taken for the Hatchery was similar to the number taken in the fall of 2011 because the rearing assignment for coho salmon was scheduled to remain at full production of approximately 1.57 million yearlings for the spring of 2014.

Chinook salmon eggs were taken at the Little Manistee River Weir and transferred as green eggs to the Hatchery in October 2012. A total of 1,813,999 eggs were incubated at the Hatchery, a number decreased 35% from 2011 due to reduced stocking requirements for Lake Huron and Lake Michigan. Incubation took place during the months of October, November and December, and the earliest hatching Chinook salmon were put in tanks at the end of December 2012.

### **Fish Production**

There were 3,299,043 (1,099.9 kg) Chinook and coho salmon fry put down in to rearing units at the end of December for the 2013 production cycle.

The Chinook and coho salmon were reared for production purposes, and during calendar year 2012, the Hatchery raised and stocked 908,911 (27,395.07 kg) spring yearling coho salmon in the Platte River below the Upper Weir. In addition, 2,365,900 (35,608.57 kg) fish were raised and shipped to other locations outside the Platte River watershed. This includes 1,469,400 (7090.78 kg) spring fingerling Chinook salmon, 841,774 (26,295.86 kg) spring yearling coho salmon, and 54,726 (2,221.93 kg) spring yearling Atlantic salmon that were part of the continuing experimental Atlantic salmon rearing program at the Hatchery.

During the course of the year a total of 59,846 kg of feed was fed to the production lots of coho and Chinook salmon and the experimental lot of Atlantic salmon. This feed was predominantly BioOregon BioDry 1000 LP diet (96.4% of the annual food fed). BioOregon medicated feeds were fed to the experimental lots of Atlantic salmon (0.4% of the annual food fed), and these

diets contained between 1.2% and 1.4% phosphorous. A small amount of BioOregon BioVita Starter (3.2% of the annual food fed) was fed to fry and this diet was approximately 1.4% phosphorous.

At the end of the calendar year there were 1,487,196 (45,801.45 kg) yearling coho and Atlantic salmon on hand. There were also 3,412,570 (1,056.16 kg) coho and Chinook salmon fry that had just been put down in to the hatchery building rearing and starting tanks.

### **Waste Handling**

Throughout the production cycle, all egg and fish mortalities were removed from the incubators and rearing units on a daily basis. Mortalities were weighed or counted and disposed of at a certified landfill, or in the case of egg mortalities, to the salmon harvest contractor.

Fish waste was removed daily from the rearing units either by manual cleaning or automatic filtering of the wastewater by the disk filters. The filters were hot water (steam) power washed quarterly, while remaining in place during the year. Any filters (1) that received damage during the quarterly cleanings were replaced immediately. There were approximately 11 occasions where broken filters were discovered during daily preventative maintenance walk a rounds, these filters were replaced the same day.

Filtered waste was first treated with ferric chloride at the clarifier for phosphorus precipitation. This material was then stored in a sludge tank until disposal. The top six feet of sludge tank (ten feet total depth) was decanted and directed back to the clarifier, after consultation with all Consent Agreement parties. This process (decanting the top water) was achieved by slowly lowering the stand pipe during the week prior to emptying. The sludge tank was pumped out by BioTech Agronomics, Inc. on August 30 and 31, 2012 and a total of 96,000 gallons of sludge was removed. All sludge was land applied per the Michigan Department of Environmental Quality's (DEQ) Manure, Paunch and Pen Waste Exemption guidelines at a site (N 44 36'12" W 86 01'06") outside of the Platte River watershed.

### **Ferric Chloride**

A full scale ferric chloride injection system is located at the sludge tank and clarifier pump building. The system injects 37% ferric chloride solution into the center of the clarifier to precipitate additional phosphorus. During 2012, the Hatchery injected 1,951 gallons of ferric

chloride to the effluent management system and the monthly use of ferric chloride in the clarifier in 2012 is shown in Table 1.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gallons	171	212	214	178	147	100	154	165	147	153	167	143

Table 1. Monthly use of ferric chloride in clarifier for 2012.