APPENDIX E – PRODUCTION ACTIVITIES 2013

Platte River State Fish Hatchery
Summary of 2013 Production and Operational Activities

Antibiotic Use

The antibiotic use at the Platte River State Fish Hatchery (Hatchery) in 2013 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 2013, all Chinook salmon were coded wire tag marked in trailers by mass marking equipment.

In June 2013, the Atlantic salmon fry 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 Starter Tanks 1 through 4 were treated June 11 through June 13, 2013. There was a total of 0.9 kg of Chloramine-T used for treating fish. The hatchery discharge during the treatment period averaged 7.46 million gallons per day (MGD).

In September 2013, the same group of Atlantic salmon contracted bacterial gill disease again. The recommended treatment was 15 mg/L Chloramine-T bath for one hour per day for three consecutive days. These fish, now located in indoor Rearing Tanks 2 and 3, were treated September 4 through September 6, 2013. There was a total of 3.2 kg of Chloramine-T used for treating fish. The hatchery discharge during the treatment period averaged 5.67 MGD.

In November 2013, the same group of Atlantic salmon contracted external Flavobacteriosis. The recommended treatment was 15 mg/L Chloramine-T bath for one hour per day for three consecutive days. These fish, located in indoor Rearing Tanks 1, 2 and 4, were treated November 28 through November 30, 2013. There was a total of 4.7 kg of Chloramine-T used for treating fish. The hatchery discharge during the treatment period averaged 5.53 MGD.

Disinfectant Use

Parasite-S and Formacide-B were used in 2013 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, 2013 through January 23, 2013 and again from October 8, 2013 through December 26, 2013 to treat fungus on salmon eggs. There was a total of 387.1 gallons of formalin used. The maximum treatment was 6.75 gallons

per day, during a 30 minute period. Hatchery flows averaged 5.51 MGD during the 2013 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 15, 2013 and removed for the season on November 12, 2013, 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 2013, a total of 158 adult and 24 jack Chinook salmon, and 17,859 adult and 1,544 jack coho salmon, 116 steelhead trout, and one brown trout were passed upstream of the Lower Weir during the period from August 15 to November 12, 2013. A total of 809 adult and 93 jack Chinook salmon, and 13,558 adult and 952 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, 2013, 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 15 and October 22, 2013. After eggs and milt were collected, all fish were harvested and shipped to the American-Canadian Fisheries Inc. processing plant in Traverse City. In 2013, a total of 13 adult and three jack Chinook salmon, and 13,558 adult and 952 jack coho salmon were harvested from the Upper

Weir and shipped to the same processing plant. On October 24, 2013, 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 145 adult and 21 jack Chinook salmon, and 5,629 adult and (21) jack coho salmon. This year class was slightly 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 2013, 71% 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 15 and October 22, 2013. A total of 4,860,038 coho salmon eggs were collected and fertilized. This included 2,859,077 green eggs for the Hatchery, 1,927,341 green eggs for other state fisheries agencies or research studies (Bodine State Fish Hatchery in Indiana and Jake Wolf State Hatchery in Illinois, and 73,620 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 2012 because the rearing assignment for coho salmon was scheduled to remain at full production of approximately 1.57 million yearlings for the spring of 2015.

Chinook salmon eggs were taken at the Little Manistee River Weir and transferred as green eggs to the Hatchery in October 2013. A total of 1,766,536 eggs were incubated at the Hatchery, a number decreased slightly from 2012 due to reduced stocking requirements for 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 beginning of January 2014.

Fish Production

There were 3,104,183 (1,027.6 kg) Chinook and coho salmon fry put down in to rearing units at the end of December 2013 and the beginning of January for the 2014 production cycle.

The Chinook and coho salmon were reared for production purposes, and during calendar year 2013, the Hatchery raised and stocked 788,541 (27,413.79 kg) spring yearling coho salmon in the Platte River below the Upper Weir. In addition, 2,243,131 (33,255.83 kg) fish were raised and

shipped to other locations outside the Platte River watershed. This includes 1,340,561 (7052.22 kg) spring fingerling Chinook salmon, 579,897 (19,584.41 kg) spring yearling coho salmon, 221,808 (3967.82 kg) fall fingerling coho salmon, 100,865 (2,651.38 kg) spring yearling Atlantic salmon and 36,453 (318.00 kg) fall fingerling Atlantic salmon. The Atlantic salmon are part of the continuing experimental rearing program at the Hatchery.

During the course of the year a total of 59,027 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 (96.9% of the annual food fed) and has phosphorus percentages below 0.9%. A small amount of BioOregon BioVita Starter (3.1% of the annual food fed) was fed to fry. This starter diet contained approximately 1.4% phosphorous.

At the end of the calendar year there were 1,729,052 (46,230.12 kg) yearling coho and Atlantic salmon on hand. There were also 2,503,462 (842.84 kg) coho and Chinook salmon fry that had just been put down in to the hatchery building rearing and starting tanks. Please note that the Chinook salmon fry were put down on January 2, 2014 and are included in these numbers.

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 October 3 and 4, 2013 and a total of 112,000 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 39'47" W 86 05'34") 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 2013, the Hatchery injected 1,638 gallons of ferric chloride to the effluent management system and the monthly use of ferric chloride in the clarifier in 2013 is shown in Table 1.

Month	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
Gallons	160	136	151	133	111	63	150	143	159	157	126	149

Table 1. Monthly use of ferric chloride in clarifier for 2013.