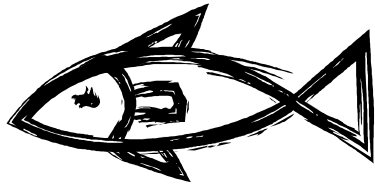


Union Street Dam

The fish ladder at Union Street Dam was constructed in 1987. The purpose of the fish ladder is to extend the length of available habitat for anadromous trout and salmon upstream to Sabin Dam, which provides additional natural reproduction and increased angling opportunities. This fish ladder is a series of pools and waterfalls. Fish use this type of structure in the same way that we use a ladder to ascend heights. Fish immediately below the dam are attracted to the increased velocity of water coming for the ladder's entrance. Once fish enter the ladder they are able to jump the small waterfalls until they exit the ladder at the top of the dam. Height of the waterfall is maintained by a metal plate with a curved notch in the center. The water flow created by this notched weir aids fish movement through the ladder. These metal plates also contain an overhanging lip which prevents sea lamprey from migrating through the ladder.

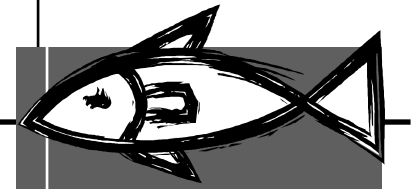


The Boardman Weir/ James P. Price Trap & Transfer harvest Facility is a cooperative effort of Traverse City Light & Power, the City of Traverse City, and the Michigan Department of Natural Resources, Fisheries Division.

Visit us at 118 Hall Street, Traverse City MI 49684
Call 231-922-5280 for information on harvest dates and times

Boardman Weir Totals

Year	Chinook	Coho	Steelhead	Brown Trout	Total Salmon Harvested
1987	4,902	306	17	12	5,208
1988	6,129	477	66	8	6,606
1989	5,809	288	36	21	6,097
1990	6,236	141	66	10	6,377
1991	5,556	64	38	9	5,620
1992	3,139	25	57	28	3,164
1993	2,299	182	30	14	2,481
1994	3,025	1,530	21	2	4,555
1995	4,546	146	15	10	4,692
1996	5,705	207	25	16	5,912
1997	3,040	3,804	11	2	6,844
1998	2,665	1,124	29	12	3,789
1999	6,008	97	6	18	6,105
2000	4,549	5,934	6	4	10,483
2001	5,231	596	14	1	5,827
2002	5,412	1,345	12	5	6,757
2003	6,165	162	7	1	6,327
2004	7,765	1,432	22	5	9,197
2005	7,783	61	13	3	7,844
2006	12,651	1,077	29	3	13,728
2007	5,018	1,764	20	0	6,782
2008	3,071	43	11	3	3,114
2009	2,636	58	11	2	2,694
2010	2,964	212	12	5	3,176
2011	7,257	11,168	46	14	18,425
2012	4,516	2,534	13	14	7,050
Total	134,077	21,075	633	222	168,854



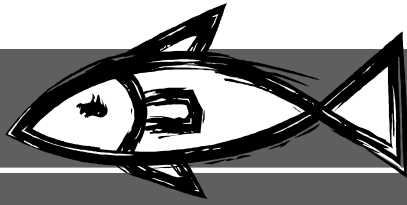
Boardman Weir

James P. Price
Trap & Transfer Harvest
Facility



TRAVERSE CITY
LIGHT & POWER

Investing Our Energy In You



The Traverse City Light & Power Department (TCL&P), City of Traverse City, and the Michigan Department of Natural Resources (DNR) became partners in the management of the Boardman River's fisheries when an agreement was signed in 1984. By the next year the DNR had begun annual stocking of Chinook salmon in the Boardman River to enhance the Bay fishery. TCL&P then constructed a fish ladder at the Union Street Dam and the trap/ transfer harvest facility between the Union Street Dam and the mouth of the Boardman River. Under this agreement the trap/transfer harvest facility, or weir, will be operated by the DNR and their contractors. The cost to build both facilities was approximately 1 million dollars. As outlined in the fisheries management plan for Grand Traverse Bay and the Boardman River, the DNR will continue to stock brown trout, steelhead, Chinook salmon, and coho salmon as needed. Lake trout, brown trout, steelhead, and Atlantic salmon will be passed upstream of the weir so that they can swim to the fish ladder at the Union Street Dam and then migrate upstream to Sabin Dam.

Because large numbers of returning salmon would lead to major problems in the short section of river between Union and Sabin Dams, the salmon will be harvested at the weir during September and October. The harvested salmon are sorted and iced at the weir, then transported for immediate processing. At the processing site the heads and entrails are removed, and the fish are cleaned and flash frozen. None of the useable portions of the fish are wasted—the fish is processed into multiple marketable products.

The salmon are stored until they are sold to brokers, re-processors, or wholesalers. Depending on the quality of each individual fish, the final product that the fish are used for can be anything from salmon fillets, smoked salmon, or pet food product. The eggs are processed for caviar or bait. These products are sold here in the United States as well as worldwide.

Anesthetic Tanks— These metal tanks contain water in which carbon dioxide and oxygen are bubbled. This calms the fish for sorting.

Lift Basket— Fish are crowded into the basket, then the basket filled with fish is hoisted into the anesthetic tanks

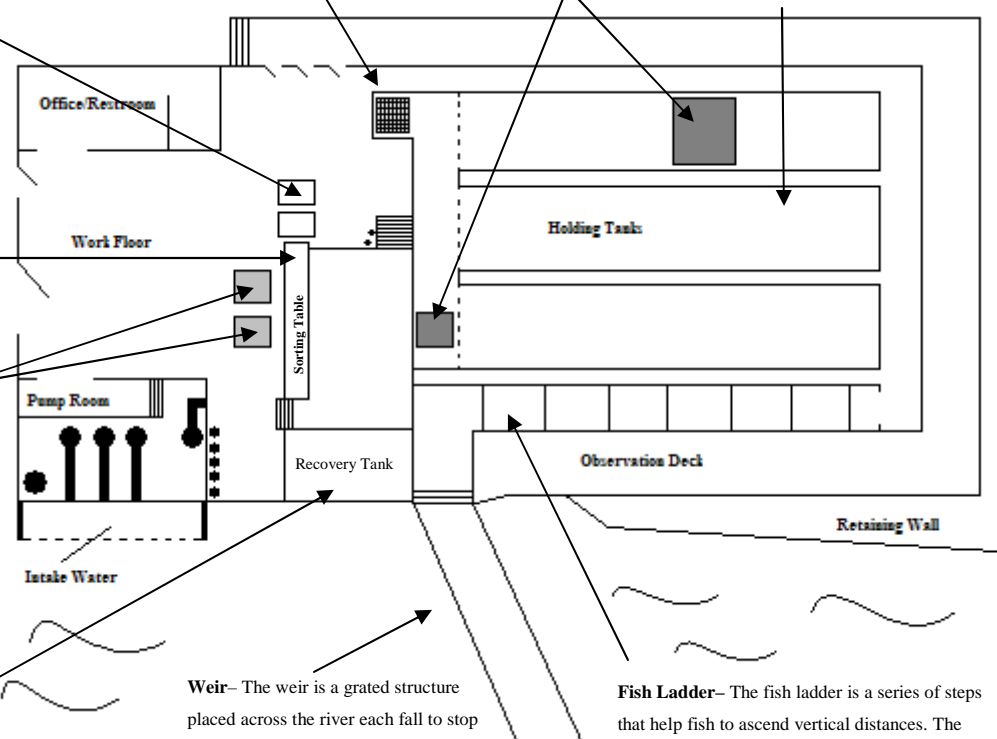
Crowders— mechanical devices that physically move the fish in the ponds into the lift basket.

Holding Tanks— After the fish come up the fish ladder, they remain in the holding ponds until they are harvested

Sorting Table— The basket and fish are lifted from the anesthetic tanks and placed on the sorting table. The basket is opened and the fish slide out onto the table. The fish are then sorted by species. Chinook and coho salmon are placed in totes and packed on ice, while all other species go into the recovery tank.

Totes— All Chinook and coho salmon that are harvested are sent from the sorting table to large plastic totes on the work floor, where they are packed on ice before being sent to the processing plant.

Recovery Tank— This cement tank is filled with fresh river water. All species that are not harvested (steelhead, brown trout, lake trout, Atlantic salmon) are placed in here to recover before being released. These fish are released upstream of the weir so that they can continue to migrate upstream.



Weir— The weir is a grated structure placed across the river each fall to stop all fish migrating upstream

Fish Ladder— The fish ladder is a series of steps that help fish to ascend vertical distances. The entrance to the ladder is downstream of the weir, and the outflow of water leads fish to believe that they can bypass the obstruction in the river