

## Conservation Biology

### Imperial Dam/Timeline Project

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**1800's:** The Sea Lamprey is a parasitic lamprey that is found in the Northern Atlantic Ocean. It made its way up the Hudson River and through the Hudson/Champlain canal during the 1800's. It attaches itself to the fish with its mouth, punctures its skin, and drains its bodily fluids which can kill its host.

**1819:** Plattsburgh founder Zephaniah Platt became a defendant in a case still being argued today. Platt was indicted on three counts of nuisance after he allowed the building of a dam on the Saranac River.

Those opposing this dam believed that it was an unlawful obstruction of the course and passage of the fish.

The Dam was rebuilt in the early 1900s, and was named Imperial Dam.

Brown/Rainbow trout, and some species of salmon, have used the Saranac River to spawn for hundreds of years.

Gas was being manufactured from 1896-1944 by the Plattsburgh Light, heat and power company, and then until 1960 by NYSEG (New York state electric and Gas corporation). Coal/petroleum products produced byproducts of the manufactured gas.

These byproducts such as coal tar, purifier wastes, and coal ash all were left behind after the plant close. NYSEG removed around 7,342,031 gallons of contaminated liquids, however, it is very possible that some of this contaminant could still be behind the dam or in the soil on both sides.

**1903:** Imperial wallpaper Mill Inc. opened in Plattsburgh NY

**1903:** Imperial Dam was built for the Imperial Paper Mill.

**1907:** Imperial Wallpaper began to purchase paper stock and pigment for its wallpaper operation and started to manufacture its own inorganic pigment.

**Jan 29th, 1931:** Imperial Wall Paper Co. employs more workers to run 24 hours per day.

**Feb 24th, 1937:** One hundred truckloads of sand and cinder blocks added to Saranac River embankment to prevent flooding of lowlands.

**June 12th, 1937:** 8,000 Black Bass released in Saranac River between Plattsburgh and Morrisonville to improve fishing conditions.

**Feb 8th, 1944:** 18,000+ brown trout released into Saranac in the towns of Plattsburgh, Schulyer Falls, Black Brook and Saranac.

**1944:** Manufactured Zinc Yellow, Chromium Oxide, Napalm, and Magnesium powders for the army during WW2 at the Imperial Paper Co.

Imperial company received Army-Navy "E" award for achieving excellence in war production.

**Feb 8th 1946:** Man falls from truck into ice at Imperial Mill and is fatally injured.

**June 2nd 1953:** 20 year old student of Plattsburgh State University Teachers College student saved an 8 year girl from drowning of 122 Brinkerhoff near the dam

**September 2nd 1954:** Imperial and Paper Color Corp granted water rights to the City of Plattsburgh to help supply the Plattsburgh Air Force base with five and a half million gallons of water per day. (with help from Diamond Match Co. and New York State and Electric Gas Corp.)

**1960:** Imperial paper company merged with Hercules Powder Company and sold the Plattsburgh paper mill to a business group in Cleveland.

**1965:** The Product line of Imperial Wall Paper Co. has expanded, including the following pigments.

Aside from being a major consumer of electricity from Plattsburgh's municipal power company, the factory accounts for half of the annual budget of the water pollution control plant. Originally, the company dumped waste into Lake Champlain, then for a decade deposited it into deep lagoons in Altona.

The phthalocyanine blues and greens analyzed so far have tended to contain higher-chlorinated PCB congeners (those with more chlorines) than the diarylide yellows tested. The combination of chlorinated hydrocarbons and salts processed at certain high temperatures is what leads to the creation of PCBs.

**Chromium Oxide (Cr):** discharged directly from imperial plant. Cr exists in several oxidation states such as Cr(0), Cr(III), Cr(VI).

Cr(VI) is considered a human carcinogen, and is toxic to plants, aquatic organisms, and microorganisms.

Impact Cr(VI) has on plant life: Decrease seed germination, reduction of growth, decrease of yield, inhibition of enzymatic activities, impairment of photosynthesis, nutrient and oxidative imbalances, and mutagenesis.

**April 12th 1969:** Residence were forced to flee their homes after a wooden dam burst near Imperial Mill.

**July 13th 1970:** Common Council wants to fence of area around Imperial dam to prevent further drowning.

**1979:** Polychlorinated biphenyls (PCBs) were commercially manufactured until their production was

banned under toxic substance control act due to bioaccumulation and severe environmental impacts.

- These PCBs were predominantly used in carbonless copy paper.
- Unintentionally produced PCB's were known to be present in inks and dyes when the U.S. EPA announced the final rule barring commercial PCB Production.
- Chemical stability of PCBs that made them so useful as industrial products also made them environmentally persistent and gives them properties that pose potentially serious health hazards.
- They are slow to degrade, and also, are lipophilic (fat soluble) so they can bioaccumulate and move up the food web. Some of these PCBs have been identified as carcinogens.

**May 30th 1980:** The city applies for a grant to have a park built along the side of the Saranac River, ending at the imperial dam

**August 7th 1984:** The DEC is satisfied stocking the river with trout and landlocked salmon, but proposes Atlantic Salmon a possibility, as well as an addition of a fish ladder to Imperial Dam

**1903:** Dam built, serves Imperial Mill in Plattsburgh

**1983:** Lake Champlain Chapter Trout Unlimited (TU), advocates salmon fish ladder at Dam again

**1986:** Last hydroelectricity generated at the dam

**1989:** Federal Energy Regulatory Commission approves re-licensing of Dam, condition on installation of fish passage by Collins & Aikman.

**1994:** Collins & Aikman get re-hearing on compliance with re-licensing conditions. TU intervenes. Collins and Aikman relinquishes hydro license. Dam is now unlicensed by FERC, under DEC jurisdiction.

**1995:** Northern Hydro, a Malone-based company, decided not to renew the license for ownership of the dam due to financial reasons. The sole reason they relinquished their contract was that a new permit had been applied to the dam, making it necessary for any organization, company, etc. to build a fish ladder so that trout could spawn farther up the river. Only nine acres of spawning grounds exist from the Imperial Dam to Lake Champlain. 27 acres exist between the Imperial Dam and Treadwell's mills, and then 110 acres found from there to Kent Falls. If this area were open it would give the salmon and trout much more room to reproduce and spawn.

**1996: Environmental Bond act passes, includes \$1.5 million for fish ladder. TU lobbies successfully and gets Governor Pataki to include this in the Act.**

**1997: DEC buys four acres on north bank, prepares fish ladder plan.**

**1999:** DEC Division of Dam Safety hires consultant to review safety factors at Dam.

**2002:** DEC begins round of conferences with Collins & Aikman, and now potential new owners, to resolve safety issues, get agreement to lower dam and install fish passage/lamprey barrier.

**2015:** The DEC will be lowering the Imperial Dam to 8.5 feet and adding a fish ladder to the dam. The fish ladder will allow the passage of Salmon and Trout to swim to spawning grounds upstream. Before lowering the dam, the dam will be repaired to meet the safety requirements. Approximately 91,600 cubic yards of sediment will be dredged from behind the dam to prevent excess sediment from flowing downstream. The total cost for the project will exceed \$5 million which is part of the NYS Environment Bond Act and NYS budget items for the North Country. It is estimated that the income to the community from better fishing habitat and other recreational activities will be around \$1 million per year.

**Summary:**

The Imperial Paper Co. employed hundreds of North Country citizens since it opened in Plattsburgh. It was a main focal point in the town and it produced many paper products nationwide. The Imperial Dam was built to provide hydroelectric power to the Imperial Paper Company. This dam has very adverse effects, including altered turbidity, turbulence and hydrology. The product line of The Imperial Paper Co. expanded, resulting in production of inorganic chemicals and dyes, which would be dumped into the river when they were done with them. Chemicals such as phthalocyanine blue and greens had high levels of chlorinated PCB congeners, and the chromium discharged from the plant impacted aquatic plants and organisms, as well as microorganisms. This also changed the color of the river and would cause harmful damages to the river and lake ecosystems. The DEC will be lowering the dam and adding a fish ladder to allow salmon and trout to go to their once spawning grounds while preventing the invasive species, sea lamprey, from swimming upstream. In all, the imperial Paper Co. was a vital part of the economy for Plattsburgh but caused harmful environmental effects to the Saranac River and Lake Champlain

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