Exelon Power
Hydroelectric Generation

Conowingo Hydroelectric Project

Muddy Run Pumped Storage
The Susquehanna River is approximately 450 miles long and passes through 3 states.

Drainage Basin covers 27,500 square miles.

River flows vary from 1,700 cubic feet per second (cfs) to greater than 1,000,000 cfs.

Higher volume river flows traditionally occur during winter and spring.

Basin has Hydroelectric plants and flood control dams.

Conowingo is the last dam on river thus must pass whatever comes down river (run of river).

Numerous recreational activities including bird watching, fishing, boating, hiking, and swimming.
Conowingo Dam and Muddy Run Pumped Storage

Conowingo Dam
- Constructed 1926 to 1928 at a cost of $73M (1928 $s)
- 4,468 feet long and 104 feet tall
- 11 generators with a base-load capacity of 572 MWs
- Contributes approximately 1.8 billion kilowatt-hours annually to the grid
- Generating hydraulic capacity is 85,000 cfs; flows greater than 85,000 cfs are managed by opening crest gates

Muddy Run Pumped Storage Station
- Built in 1967
- 8 units with a capacity of 1,070 MW
- When electric demand is low (e.g., overnight), pumps water up from the Susquehanna River
- When electric demand is high, generates by releasing water from the upper reservoir (1000 acres) to the Susquehanna River
Conowingo Crest Gates

- 50 crest gates used to control pond elevation, after full operation of the 11 generating units
- Run of the River – must pass river flows
  - PJM schedules generation to maintain pond elevation
  - Elevation restrictions are related to Peach Bottom Atomic Power Station and seasonal recreation requirements
- Each crest gate passes 16,000 cfs
- 3 cranes used to lift crest gates
- If more than 14 crest gates are opened, downstream notifications are made as downstream roads and the town of Port Deposit are affected
Fishing at Conowingo

- Conowingo Dam is unique in that it operates two “Fish Lifts”, specialized elevators that Exelon uses to transport American Shad and other fish species
- West Fish Lift Constructed in 1972
  - Primary use is for US Fish and Wildlife Service hatchery stocking
- East Fish Lift Constructed in 1991
  - Primary use is for downstream to upstream movement of fish for spawning
- All upriver dams have some form of fish passage
- Conowingo Fish Passage

<table>
<thead>
<tr>
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<th>American Shad</th>
<th>Total All Fish</th>
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<tbody>
<tr>
<td>2009</td>
<td>29,272</td>
<td>915,417</td>
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<tr>
<td>2010</td>
<td>37,757</td>
<td>857,272</td>
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- Fisherman’s catwalk was closed in 2001 after 9/11/2001 due to vulnerability and security risk assessments of the Dam
- Exelon completed the Octoraro Creek Trail in 2008 and the Fisherman’s Wharf in 2009