UNITED STATES ENVIRONMENTAL PROTECTION AGENCY
Region 1
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Boston, MA 02109-3912

FROM: John H. Nagle, Industrial Permits Section

TO: Schiller Station NPDES Permit File

DATE: January 19, 2018

RE: Salinity in the Action Area of Schiller Station –
ESA NMFS Concurrence Letter, Dated January 2, 2018

The National Marine Fisheries Service Protected Resources Division of the Greater Atlantic Regional Fisheries Office (NMFS) submitted a letter to the Environmental Protection Agency Region 1 (EPA), dated January 2, 2018 (AR-379), concurring with EPA's determination that the National Pollutant Discharge Elimination System (NPDES) proposed permit action at Schiller Station is not likely to adversely affect any ESA listed species or designated critical habitat under NMFS jurisdiction and that no further consultation pursuant to ESA Section 7 was required.

As part of that concurrence letter, NMFS stated the following:

> While it does not affect the validity of your conclusions, we note that you seem to have misinterpreted the definition of physical feature two of the Atlantic sturgeon critical habitat designation. Feature two includes all aquatic habitat within the salinity gradient between 0.5 up to as high as 30 parts per thousand (ppt) between the river mouth and spawning sites that also contains soft substrate. You state that because salinity fluctuates between 15 and 33 ppt, that the action area does not contain feature two. While we agree that the lack of soft substrate in the action area would mean that feature two is not present, the salinity of the action area is consistent with the description of feature two.

EPA agrees that NMFS's assessment above does not affect the validity of EPA's Section 7 informal consultation conclusions. Both agencies agree that physical feature two (PF2) is not present in the action area because of a lack of soft substrate. Contrary to the NMFS description above, however, EPA maintains that PF2 is also not present in the action area because it does not meet the salinity gradient requirements of 0.5 up to 30 ppt. The following in-river Piscataqua River salinity sampling data support this assessment.

The tide in the Piscataqua River is semi-diurnal, with an average period of 12.4 hours. Tidal flushing requires six to 12 tidal cycles (i.e., 3 to 6 days) and tidal mixing forces cause the water column to be vertically well mixed. Flow velocities in the vicinity of Schiller Station range from approximately 4.9 fps during ebb tide and 4.4 fps during flood tide. The peak tidal flows are approximately 117,000 cubic feet per second ("cfs") and the average freshwater discharge rate is approximately 1570 cfs.

To obtain Piscataqua River salinity data, EPA first reviewed a study conducted to support the NPDES permit renewal of the EP Newington Energy, LLC, power plant, which is less than a mile upstream from Schiller Station (TRC, January 2006). This report documented a one-week period in August of 2003 where the salinity ranged from a low of 31.5 ppt to a high of 34.9 ppt. This is well above the 30 ppt upper limit of the PF2 salinity gradient. Data collected from April 1990 through November 2005 show salinity values within a mile of Schiller Station that reach or exceed 30 ppt 48% of the time.

More recent salinity sampling data, collected by EPA in the Piscataqua River within a mile of Schiller Station, show a salinity range of 30.4 ppt to 31.9 ppt from September 16 through October 1, 2015 (EPA Data Report, March 2017). Sonde readings were taken every 15 minutes. Salinity readings were seen below 30 ppt, usually at low tides under wet weather conditions. However, the relatively high saline concentration of the salt water in Portsmouth Harbor has been documented to cause a rise in salinity levels above 30 ppt (the upper limit of the PF2 salinity gradient) in the vicinity of Schiller Station twice a day, as this lens of marine water rushes upstream as part of the high energy incoming tidal cycle, approximately every 12 hours.

EPA concludes that these frequent salinity concentration swings above 30 ppt in the Schiller Station action area are inconsistent with the salinity description of PF2. Therefore, PF2 is not present in the action area of Schiller Station because of both the lack of soft substrate and the high salinity of the action area.