



How ODRM
directs releases
from the NYC
Reservoirs

Office of the Delaware River Master

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Photos source: USGS

1954 Supreme Court Decree



General duties for the Office of the Delaware River Master (established in Decree):

- (a) Administer the provisions of this decree relating to yields, diversions and releases so as to have the provisions of this decree carried out with the greatest possible accuracy;
- **(b) Conserve the waters in the river, its tributaries and in any reservoirs maintained in the Delaware River watershed by the City of New York or any which may hereafter be developed by any of the other parties hereto;**
- (c) Compile and correlate all available data on the water needs of the parties hereto;
- (d) Check and correlate the pertinent stream flow gagings on the Delaware River and its tributaries;
- (e) Observe, record and study the effect of developments on the Delaware River and its tributaries upon water supply and other necessary, proper and desirable uses; and
- (f) Make periodic reports to this Court, not less frequently than annually, and send copies thereof to the Governors of Delaware, New Jersey, New York and Pennsylvania, and to the Mayor of the City of New York.

Montague Formula

Item 7, part B 2, "Specific Duties with respect to the Montague Formula" describes the process to be followed and inputs to be considered in directing releases from the NYC reservoirs



(a) Determine the average times of transit of the flow between the release works of the several reservoirs of the City and Montague and between the release works of other storage reservoirs in the watershed and Montague;



(b) *Make a daily computation of what the average flow observed on the previous day at Montague would have been, except for that portion previously contributed by releases of the City or as affected by the contributing or withholding of water at other storage reservoirs*, for the purpose of computing the volume of water that would have had to be released in order to have maintained precisely the basic rate on that day;



(c) *Take account of all changes that can be anticipated in the flow from that portion of the watershed above Montague not under the City's control* and allow for the same by making an appropriate adjustment in the computed volume of the daily release; and



(d) After taking into consideration (a), (b) and (c), direct the making of adjusted daily releases designed to maintain the flow at Montague at the applicable minimum basic rate.



Office of the Delaware River Master (ODRM)

- Duties include:
 - Operations
 - Directed reservoir release design process
 - Reporting
 - Annual Reports per Supreme Court Decree
 - Daily, weekly, and monthly products
 - Website
 - Communication/Coordination
 - Advisory Committee
 - FFMP workgroup
 - RFAC meetings
 - Stakeholder listening sessions

ODRM 5-year plan



Improve daily directed release design process



Communicate timely analysis and accurate, streamlined, accessible information



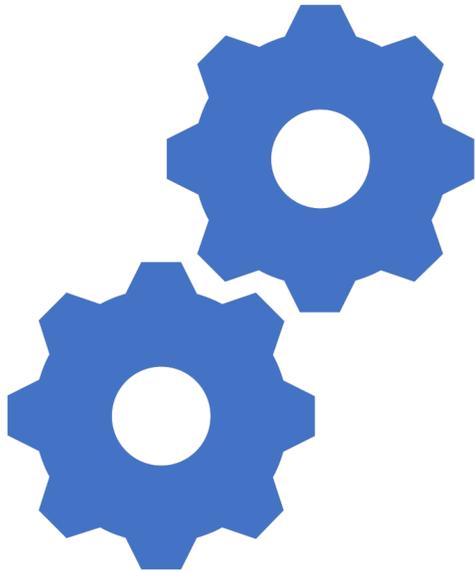
Produce overdue annual reports by 2020



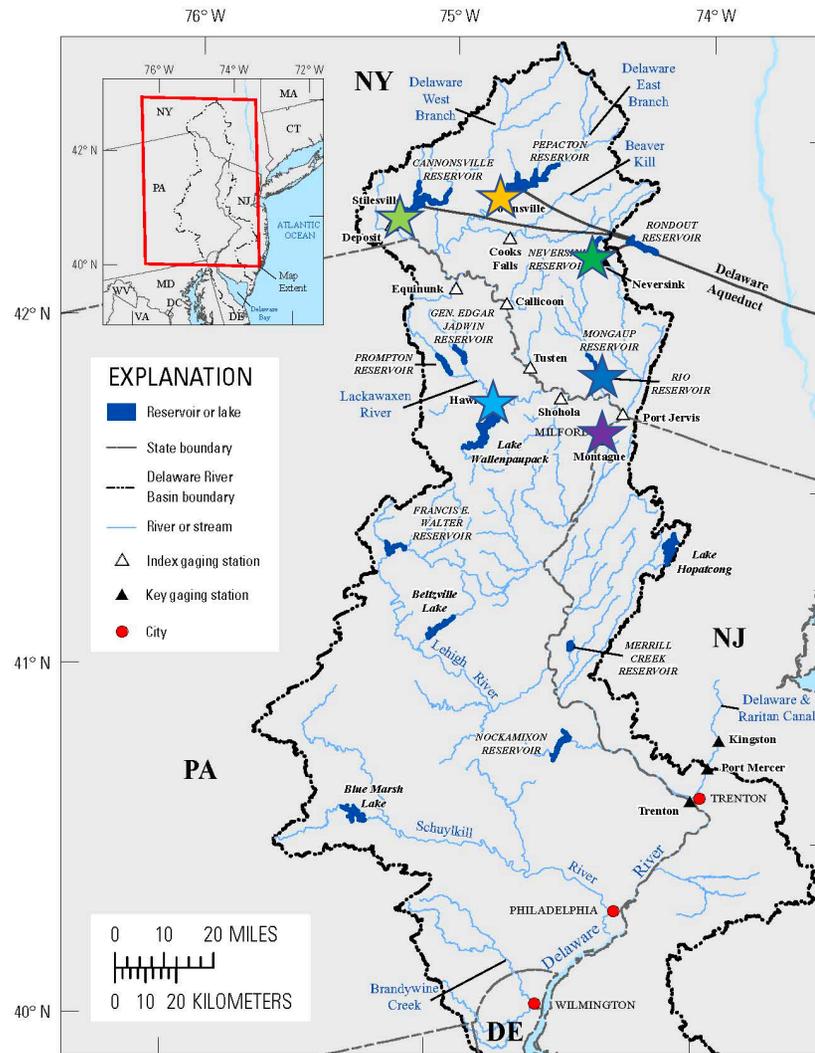
Improve basin water management by providing scientific context and arranging and facilitating meetings of the Decree Parties and associated workgroups



Engage with others (WSCs, NGWOS, 2WP, IWAA, etc) to pilot tools, etc. in the Delaware River Basin

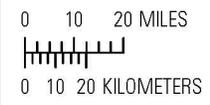


Current Design Process

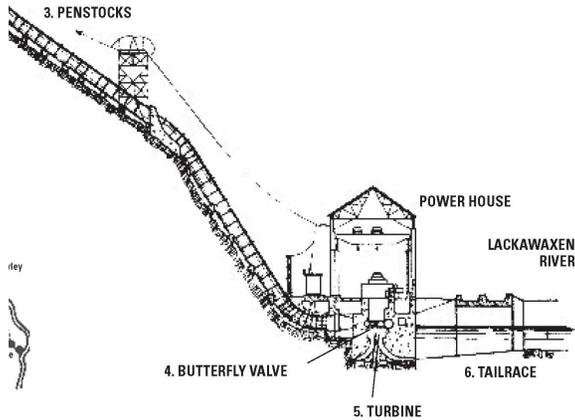


EXPLANATION

- Reservoir or lake
- State boundary
- Delaware River Basin boundary
- River or stream
- Index gaging station
- Key gaging station
- City

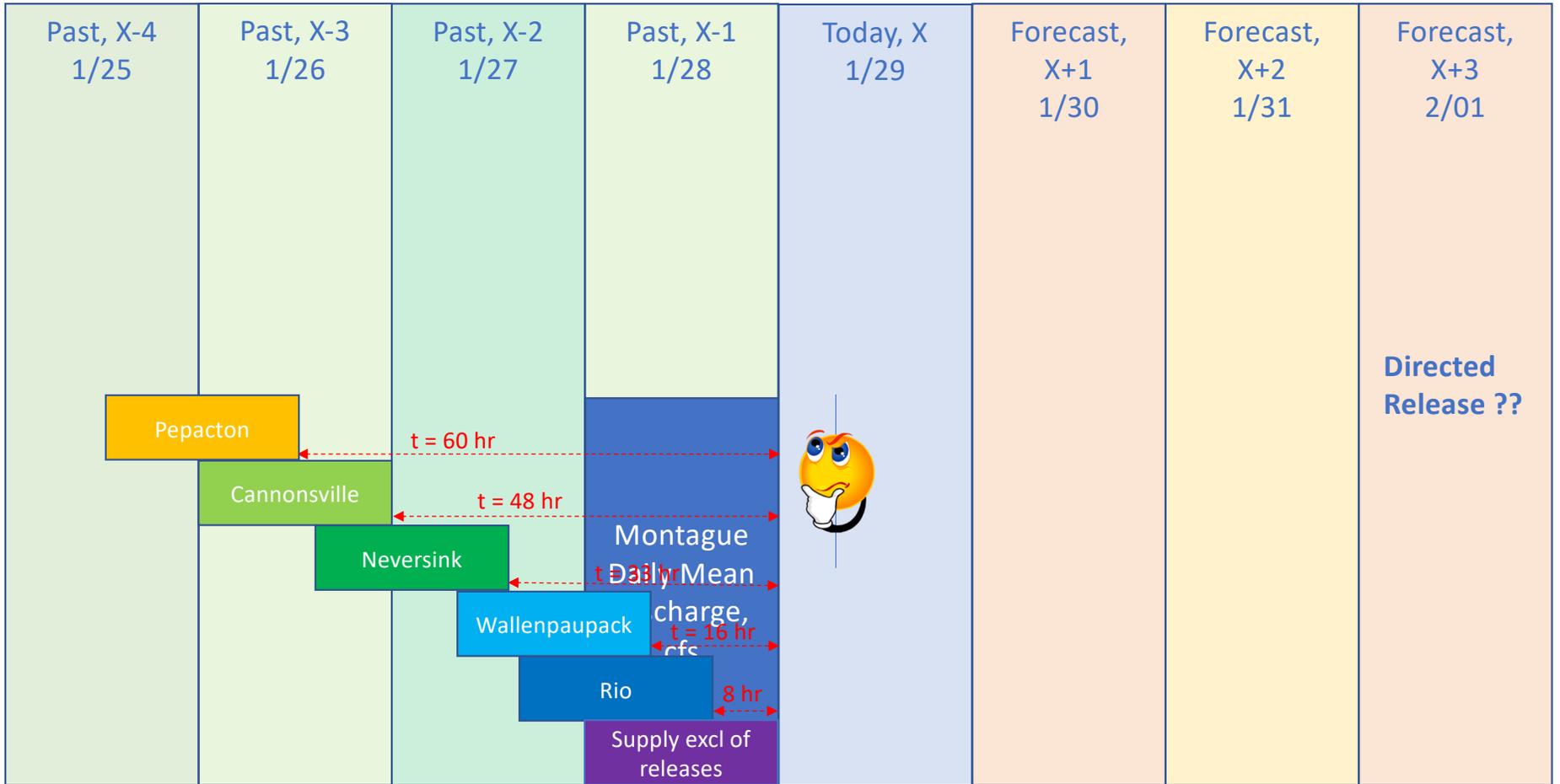


Base from USGS The National Atlas 1:1,000,000 scale
 Projection: USA Contiguous Albers Equal Area Conic
 North American Datum of 1983



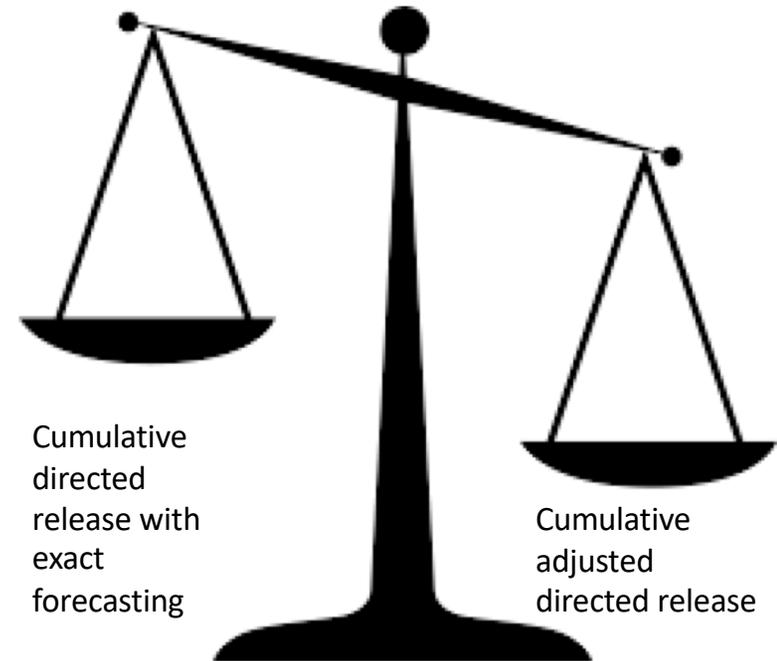
Powerplants

- Incorporated into Montague Design per Supreme Court Decree
- Forecasts and generation provided by powerplant operators
- USGS gage downstream of Rio reservoir

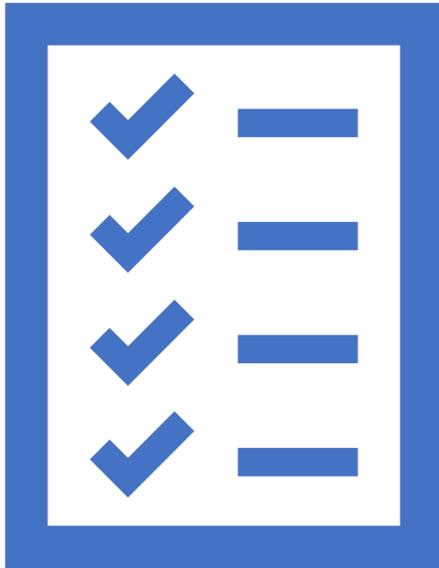


Balancing Adjustment

- Correct inadequacies inherent in the design of releases from NYC reservoirs due to forecasting to meet the Montague Flow Objective
- Resets on June 15th

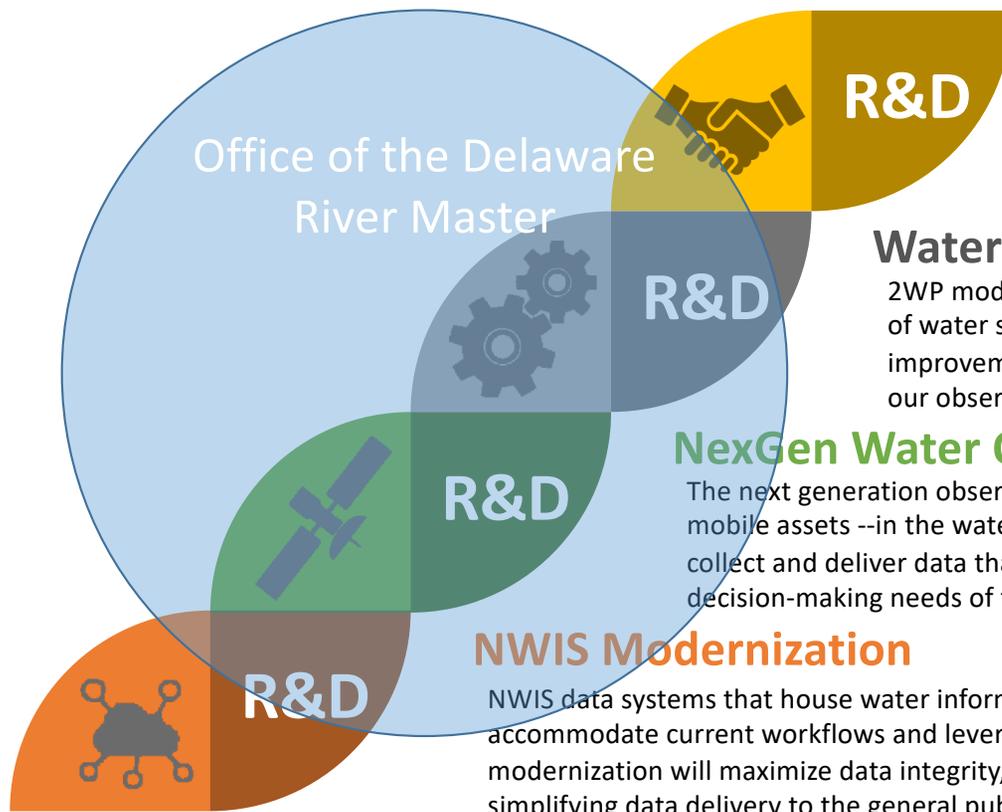


10% of the difference, limited to 50 cfs per day (positive or negative)



USGS WMA Priorities

Water Mission Area Priorities



Integrated Water Availability Assessments

IWAAs evaluate water availability in terms of the spatial and temporal distribution of water quantity and quality in both surface and groundwater, as related to human and ecosystem needs and as affected by human and natural influences.

Water Prediction Work Program

2WP model predictions will support daily to decadal forecast-based management of water supplies and infrastructure at a regional and National extent through improvement of existing tools and development of new capacity supported by our observational data and data collected by other monitoring organizations.

NexGen Water Observing System

The next generation observing systems (NGWOS) is an integrated set of fixed and mobile assets --in the water, on the ground and in the air-- that will measure, collect and deliver data that can help address water resource challenges and decision-making needs of the future.

NWIS Modernization

NWIS data systems that house water information will be modernized to accommodate current workflows and leverage latest technology. NWIS modernization will maximize data integrity, reliability, and accessibility while simplifying data delivery to the general public.

Questions?



Neversink



Pepacton



Cannonsville