

The New England Dams Database

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The Importance of Geospatial Data

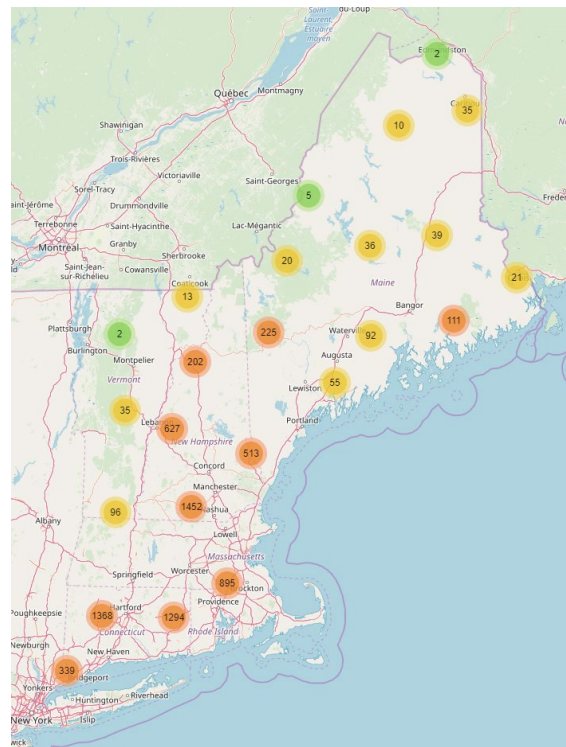
Decisions related to dam removal or renovation lead to a cascade of changes on river networks and the surrounding landscape. Geospatial data is an essential tool in determining the fate of dams in New England and beyond. Geospatial data which consist of "mappable features" such as watershed boundaries, rivers, fish habitat quality, land use information, locations of dams and their characteristics, demographic and census data, etc. – enriches the conversation and helps to analyze the trade-offs in dam decision making. Having these resources available in one spot – the New England Dam Database (<http://ddc-dams.sr.unh.edu/metadata/data-description/>) located in the UNH Data Discovery Center (<https://ddc.unh.edu/projects/>) – can be helpful to land managers, stakeholder and researchers.

Data Discovery Center

Early in the Future of Dams (FoD), URI staff, working with the UNH Data Discovery Center, merged all the New England geospatial data related to dam-related decisions. Data were derived from USGS, Nature Conservancy and state sources of information. For each state, these data include:

- Point location of the dam (lat-long coordinates)
- The river the dam bisected
- Name of the dam
- State identification number,
- City and state of where the dam resided
- Dam safety hazard class (different classification for each state).

Some states had other attributes in their database, such as dam height or dam purpose, that were maintained in the newly emerging database.



The Data Discovery Center features a spatial query tool where you can browse the dams on an interactive map.

Dam locations were combined with the powerful USGS hydrographic database (NHDPlusV2) and fish passage data from Northeast Aquatic Connectivity Tool (NCAT, by the Nature Conservancy). These databases enabled:

- Shape files that delineate the watersheds of each dam
- River order and river flow at the dam site
- Watershed features such as area, land use
- Upgradient barriers to fish passage (dams)
- Presence and area of dam impoundment
- Extent and quality of upstream fish habitat
- Hydropower information

The database continues to be a living resource. The database will be updated again in February 2019. This enhancement includes updated and new attributes for the removed dams taken from the 2018 American Rivers Dam Removal Database, including the American River Dam ID, descriptive notes about the dam removal process, and year removed. This update will bring the current count of New England dams within the database to 7176 (2089 in Connecticut; 1778 in Massachusetts; 644 in Maine; 1969 in New Hampshire; 433 in Rhode Island; and 263 in Vermont). The current count of removed dams within the database will be 266 (37 in Connecticut; 50 in Massachusetts; 36 in Maine; 62 in New Hampshire; 6 in Rhode Island; and 75 in Vermont).

Publications

Two publications have used the New England Dam Database to date:

- Gold et al. 2016. Will dam removal increase nitrogen flux to estuaries? *Water* 8:522, <https://doi:10.3390/w8110522>
- Roy et al. 2018. A multiscale approach to balance trade-offs among dam infrastructure, river restoration, and cost. *PNAS* 115:12069-12074, <https://doi.org/10.1073/pnas>

The New England database http://ddc-dams.sr.unh.edu/ddc_data/variables/list/ along with detailed metadata http://ddc-dams.sr.unh.edu/media/projects/metadata/New%20England%20Dams%20Database/NE_Dams_Metadata_081018.pdf and methods <http://ddc-dams.sr.unh.edu/metadata/method-description/> resides at the UNH Data Discover Center.

Anyone can access this database, but they are kindly asked to submit their email address into the form to receive updates on changes to the database. The Data Discovery Center also features a spatial query tool <https://ddc-nedams.sr.unh.edu/> where you can browse the dams on an interactive map.

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