Data Dictionary

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Hudson River Features:

Hudson River Estuary Shoreline (2004)

This data layer represents the border of the Hudson River in the study area.

New York State Department of Environmental Conservation. 2004. Hudson River Estuary Projects. Albany, NY. https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1136. Accessed 28 January 2014.

Flood Scenario

These data layers display the extent of the flooding predicted by the flood model developed by Stevens Institute of Technology. The model includes both sea level rise and return period (storm intensity).

Orton, P., MacManus, K., Fico, A., Mills, J., F. Conticello, F. Cioffi, T. Hall, N. Georgas, U. Lall, A. Blumberg. 2018. Hudson River and Western Long Island Sound Flood Elevations from Tides, Storm Surge and Rainfall. New York.

Emergency Services:

Police Stations

This data layer shows the locations of police stations in the study area.

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data. 2009. Local Law Enforcement Locations. https://hifld-dhs-gii.opendata.arcgis.com/datasets/ea846777adba48b180962f1a0f71d81d_0?uiTab=table Accessed 13 November 2017.

Fire Stations

This data layer shows the locations of fire stations in the study area.

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data (HIFLD). 2010. Fire Stations. United States. https://hifld-dhs-gii.opendata.arcgis.com/datasets/b3b43d27b8454a039eb2f7187415cdef_0. Accessed 13 November 2017.

EMS

This data layer shows the locations of Emergency Medical Services in the study area. These include ambulance services, emergency transportation services, volunteer ambulances, etc.

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data (HIFLD). 2010. Emergency Medical Service (EMS) Stations. New York, United States. https://hifld-dhs-

gii.opendata.arcgis.com/datasets/8001f13c8d0040efab0fec64de9ecc0f_0?geometry=-105.715%2C36.307%2C-22.087%2C46.188. Accessed 9 November 2017.

Emergency Operations Centers

This data layer shows the locations of Emergency Operations Centers in the study area. EOCs are run by the Office of Emergency Management, and are locations where officials coordinate and respond to emergencies.

New York State Division of Homeland Security & Emergency Services. 2015. State Emergency Operations Centers. Albany, New York. https://hifld-dhs-gii.opendata.arcgis.com/datasets/f8cb383fe0f045ae9d616038459eafac_0. Accessed 9 November 2017.

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data (HIFLD). 2009. Local Emergency Operations Centers. Washington, DC. https://hifld-dhs-gii.opendata.arcgis.com/datasets/db3cb0002e664b3e8b64f92dd8510365_0. Accessed 9 November 2017.

Health Services:

Nursing Homes

This data layer shows the locations of nursing homes in the study area.

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data (HIFLD). 2017. Nursing Home and Assisted Care. Washington, DC. https://hifld-geoplatform.opendata.arcgis.com/datasets/nursing-homes. Accessed 9 November 2017.

Hospitals

This data layer shows the locations of hospitals in the study area.

New York State Department of Health, Center for Health Care Facility Planning, Licensure, and Finance. 2017. Albany, NY. Health Facilities. https://health.data.ny.gov/Health/Health-Facility-Map/875v-tpc8. Accessed 13 November 2017.

Water and Wastewater:

SPDES Wastewater Facilities

This data layer displays the locations of wastewater treatment facilities that are issued permits by the State Pollutant Discharge Elimination System to regulate discharge.

New York State Department of Environmental Conservation. 2011. Albany, NY. State Pollutant Discharge Elimination System. https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1010. Accessed 14 November 2017.

Wells

This data layer represents the locations of water wells in the study area collected by the DEC.

New York State Department of Environmental Conservation. 2016. Water Wells. Albany, NY. https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1203. Accessed Feb 2018.

Water Withdrawal Locations

This data layer represents the locations of facilities that use water for any purpose and have the capacity to withdraw 100,000 gallons or more per day in the study area.

New York State Department of Environmental Conservation, Division of Water. 2017. Water Withdrawals. Albany, NY. https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1265. Accessed Feb 2018.

Dams

This data layer shows the locations of dams in the study area.

New York State Department of Environmental Conservation, Division of Water. 2017. Dams. Albany, NY. http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1130. Accessed 9 November 2017.

Energy Production:

EIA Power Plants

This data layer displays the locations of power plants within the study area. It includes nuclear, hydroelectric, coal, petroleum, natural gas, and biomass plants with a capacity of 1 MW or more.

U.S. Energy Information Administration. 2017. Power Plants. Washington, DC. https://www.eia.gov/maps/layer_info-m.php. Accessed 14 November 2017.

Transportation Infrastructure:

Airports

This data layer represents the locations of airports within the study area.

United States Department of Transportation, Federal Aviation Administration. 2017. Airport Data. Silver Spring, MD. https://www.faa.gov/airports/airport_safety/airportdata_5010/. Accessed 9 November 2017.

Boat Launches

This data layer represents the locations of boat launches within the study area.

New York State Office of Cyber Security (OCS). 2005. NYS Landmarks. Albany, NY. http://gis.ny.gov//gisdata/inventories/details.cfm?dsid=929. Accessed 9 November 2017.

Bridges

This data layer shows the locations of bridges in the study area.

New York State Department of Transportation, Structures Division. 2016. Bridge Point Locations & Select Attributes. Albany, NY. http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=397. Accessed 9 November 2017.

Bus Stations

This data layer displays the locations of the inter-city bus stations in the study area.

Williamson, Ann, New York State Department of Transportation, Public Transportation Bureau. 2016. Bus Stations Intercity. Albany, NY. Accessed 25 October 2017.

Large Culverts

This data layer represents the locations of large (5 to 20 feet) culverts within the study area.

New York State Department of Transportation, Structures Division. 2016. NYS Large Culverts. Albany, NY. https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1255. Accessed 17 October 2017.

Railroad Junctions

This data layer displays the locations of railroad junctions in the study area.

Federal Railroad Administration. 2017. Rail Junctions. Washington, DC. https://hifld-geoplatform.opendata.arcgis.com/datasets/rail-junctions/data?where=STATE%20like%20%27%25NY%25%27. Accessed 14 November 2017.

Railroad Passenger Stations

This data layer shows the locations of railroad stations in the study area.

New York State Department of Transportation. 2013. NYS Railroad Passenger Stations. Albany, NY. https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1263. Accessed 14 November 2017.

Heliports

This data layer represents the locations of heliports within the study area.

Institutions:

Schools

This data layer shows the locations of schools in the study area. It includes public, private, and charter schools with grades ranging from kindergarten to high school and special (ungraded).

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data (HIFLD). 2015. Private Schools. Washington, DC. https://hifld-dhs-

gii.opendata.arcgis.com/datasets/36695bf035fb4e98a88dbdcbaca2c40d_0. Accessed 14 November 2017.

New York State Education Department and New York State GIS Program Office. 2017. Public Schools K-12. Albany, NY. https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1326. Accessed 12 December 2017.

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data (HIFLD). 2015. Colleges and Universities. Washington, DC. https://hifld-dhs-gii.opendata.arcgis.com/datasets/4061dcd767c340d4a42fb7a0c6c5d5b4_0. Accessed 14 November 2017.

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data (HIFLD). 2016. Supplemental Colleges. Washington, DC. https://hifld-dhs-gii.opendata.arcgis.com/datasets/7a44152bc7a74e2684871934da5c086b_0. Accessed 14 November 2017.

Public Libraries

This data layer shows the locations of public libraries in the study area.

Heebner, Amy, New York State Library, Division of Library Development. 2017. Libraries and Branches. Albany, NY. Accessed 18 December 2017.

Prisons

This data layer shows the locations of prisons in the study area.

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data (HIFLD). 2016. Prison Boundaries. Washington, DC. https://hifld-dhs-gii.opendata.arcgis.com/datasets/2da5b9dfb7ea40099860b028723ccfe9_0. Accessed 14 November 2017.

Places of Worship

This data layer shows the locations of places of worship in the study area. It includes churches, mosques, and synagogues.

Department of Homeland Security, Homeland Infrastructure Foundation-Level Data (HIFLD). 2016. All Places of Worship. Washington, DC. https://hifld-dhs-gii.opendata.arcgis.com/datasets/ece7900854a443c28e1351a2eb3d7e7c_0. Accessed 9 November 2014.

Social Vulnerability:

Social Vulnerability Index
This data layer displays the vulnerability of census block groups in the study area relative to each other. It was developed to map populations at risk from predicted storm events and climate-change-induced sea level changes.

Center for International Earth Science Information Network - CIESIN - Columbia University. 2015. Social Vulnerability Index, 2007-2011, Hudson River Valley, version 1. Palisades, NY.

Additional Information:

Power Transmission Lines
This data layer depicts the power lines in the study area. The data set includes the different amounts of electric potential difference (voltage measured in kilovolts) for each power station or line.

Oak Ridge National Laboratory, Homeland Infrastructure Foundation-Level Data (HIFLD). 2017. Transmission Lines. One Bethel Valley Rd, MS. https://hifld-geoplatform.opendata.arcgis.com/datasets/electric-power-transmission-lines. Accessed 9 November 2017.

Surface Water
This data layer represents hydrographic features (lakes, ponds, reservoirs, major rivers) in the Hudson River Valley.

New York State Office for Technology. 2013. NYS Hydrography. Albany, NY. http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=906. Accessed 27 October 2017.

United States Geological Survey. 2017. National Hydrography Dataset. Reston, VA. ftp://rockyftp.cr.usgs.gov/vdelivery/Datasets/Staged/Hydrography/NHD/State/HighResolution/. Accessed 16 November 2017.

Rivers and Streams
This data layer represents the rivers and streams in the Hudson River Valley.

U.S. Geological Survey, National Geospatial Program. 2017. NYS Hydrography. Reston, VA. https://nhd.usgs.gov/ftp://rockyftp.cr.usgs.gov/vdelivery/Datasets/Staged/Hydrography/NHD/State/HighResolution/. Accessed 15 November, 2017.

Railroads
This data set displays the locations of all railroad lines in the study area.

Federal Railroad Administration, Homeland Infrastructure Foundation-Level Data (HIFLD). 2017. Railroads. Washington, DC. https://hifld-geoplatform.opendata.arcgis.com/datasets/railroads. Accessed 14 November 2017.

Bus Routes

This data set displays the locations of bus routes in the study area and includes the names of companies that use them.

New York State Department of Transportation. 2007. Bus Routes Intercity. Albany, NY. https://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1116. Accessed 9 November 2017.

Ecology:

Forest Cover (2010)

Forest cover and fragmentation is displayed based on an analysis of 2010 NOAA Coastal Change Analysis Program satellite land cover data that may help identify large patches of contiguous forest to inform local conservation priorities.

Forest size classifications follow the Orange County Open Space Plan (2004). **Globally important** forests (greater than 15,000 acres) support characteristic, wide-ranging and area-sensitive wildlife species, especially those that depend on interior forest, and provide sufficient area to maintain population genetic diversity. These extensive forests are more resilient to large-scale disturbance such as blowdowns and fire that maintain forest health over time. **Regionally important** forests (6, 000 to 14,999 acres) provide habitat to area-sensitive species and can accommodate large-scale disturbances, but may not have the habitat diversity of globally important forests. **Locally important** forests (2,000 to 5,999 acres) often represent the lower limit of intact, viable forest size for forest-dependent birds. Such bird species often require 2,500 to 7,500 acres of intact interior habitat. These forests, like the larger regionally important forests, also provide important corridors and connectivity among forest ecosystems. **Stepping stone** forests (200 to 1,999 acres) provide valuable relatively broad corridors and linkages to larger patches of habitat such as the local, regional, and global forests. These smaller forests, therefore, enable a large array of species, including wide-ranging and area-sensitive species, to move from one habitat to another across an otherwise fragmented landscape. These forests should be considered the minimum size for intact forest ecosystems. Nevertheless, smaller **Neighborhood forests** may have local importance and help reduce stormwater runoff and flood risk.

Cornell University Department of Natural Resources and the NYSDEC Hudson River Estuary Program. 2014. Hudson Valley Forest Patches. Received 23 March 2015. For questions regarding the Forest Cover data set, contact the DEC Hudson River Estuary Conservation and Land Use Specialist: Ingrid Haeckel, ingrid.haeckel@dec.ny.gov, (845) 256-3829

National Wetland Inventory

This data layer displays the extent and type of wetlands and deepwater habitats in the study area. Wetlands on NWI maps are grouped into five major systems: the **Marine System** comprises open ocean areas with salinities in excess of 30%. **Estuarine System** areas are semi-enclosed by land, have sporadic or obstructed access to the open ocean, and salinities ranging from 0.5 to 30.0 %. **Riverine Systems** are

associated with all freshwater rivers and streams. **Lacustrine Systems** are primarily associated with lakes and include bodies of open water that are greater than 20 acres with depths exceeding 6.6 feet. **Palustrine Systems** are non-tidal marsh and swamp associated wetlands dominated by trees, shrubs, or persistent emergent herbaceous plants.

U.S. Fish and Wildlife Service. 2014. Wetlands and Deepwater Habitats of the United States. Washington, DC. http://www.fws.gov/wetlands/data/State-Downloads.html. Accessed 28 January 2014.

Hudson River Estuary Tidal Wetlands (2007)

The extent and composition of Hudson River Estuary tidal wetlands were mapped from Hastings-on-Hudson to Troy based on an aerial photo inventory. Wetlands were further classified based on ecological community type.

Hudson River National Estuarine Research Reserve (HRNERR) and NYS Department of Environmental Conservation. 2007. Hudson River Estuary Tidal Wetlands 2007. http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1210

Important Areas for Rare Animals, Rare Plants, and Significant Natural Communities

Important Areas are lands and waters that support the continued presence and quality of *known* populations of rare animals and rare plants, documented examples of rare ecological communities, and/or documented high-quality examples of common ecological communities. Important Areas include the specific locations where rare animals, plants, and/or significant ecological communities have been observed, as well as areas important for sustaining them based on habitat requirements and the associated areas critical for maintaining ecological communities and processes.

New York Natural Heritage Program, NYS Department of Environmental Conservation. 2013. Important Areas Digital Data Set. http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=1297 Received 6 February 2015. For questions regarding the Important Areas data set, contact the DEC Hudson River Estuary Conservation and Land Use Specialist: Ingrid Haeckel, ingrid.haeckel@dec.ny.gov, (845) 256-3829

Administrative:

Full Study Area

This data layer represents the full extent of the study area, the lower Hudson River Valley.

NYS GIS Program Office. 2014. NYS Civil Boundaries. Albany, NY. http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=927. Accessed 7 February 2014.

County

This data layer depicts the ten counties bordering the lower Hudson River that make up the study area (Albany, Columbia, Dutchess, Greene, Orange, Putnam, Rensselaer, Rockland, Ulster, and Westchester counties).

NYS GIS Program Office. 2014. NYS Civil Boundaries. Albany, NY.
http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=927. Accessed 7 February 2014.

Municipality

This data layer depicts the 164 municipalities contained in the study area. Results will be summarized and displayed according to municipality.

NYS GIS Program Office. 2014. NYS Civil Boundaries. Albany, NY.

http://gis.ny.gov/gisdata/inventories/details.cfm?DSID=927. Accessed 7 February 2014.

Basemaps

NY State Imagery

All available NY Statewide Digital Orthoimagery Program (NYSDOP) data (2000-2014) and the USGS National Aerial Photography Program (1994-1999) data are available through web services hosted by the NYS ITS GIS Program Office. Information on connecting is available at gis.ny.gov/gateway/mg/webserv/webserv.html

ArcGIS World Imagery

World Imagery provides one meter or better satellite and aerial imagery in many parts of the world and lower resolution satellite imagery worldwide. The map includes 15m TerraColor imagery at small and mid-scales (~1:591M down to ~1:72k) and 2.5m SPOT Imagery (~1:288k to ~1:72k) for the world. The map features 0.3m resolution imagery in the continental United States and parts of Western Europe from DigitalGlobe. https://www.arcgis.com/home/item.html?id=10df2279f9684e4a9f6a7f08febac2a9

OSM

OpenStreetMap is built by a community of mappers that contribute and maintain data about roads, trails, cafés, railway stations, and much more, all over the world. http://www.openstreetmap.org/about