

Drought Modeling Project

Introduction and Background of the USGS SUTRA Model

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Water Task Force Drought & Flood Management
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Why do this project?

- We know from the USGS study that some UWNY wells are used at unsustainable rates during the high demand season and are typically replenished during the winter months.
- Will those rates be sustainable through an extended period of drought?
- What level of comfort do we have with what we rely on for supply capacity?
- Can we limit demands sufficiently during water supply emergencies?

Project Background

- Proposed in December 2014 as a collaborative effort with Drought Committee, RCDOH and UWNY.
- RCDOH applied for grant funding. Did not win award, but gained support for project from many stakeholders.
 - County and Local Officials, NYSDEC, NYSPSC, NYSDOH
- RCDOH and UWNY agreed to co-fund the project and contracted with CDM Smith.

USGS SUTRA Model Background

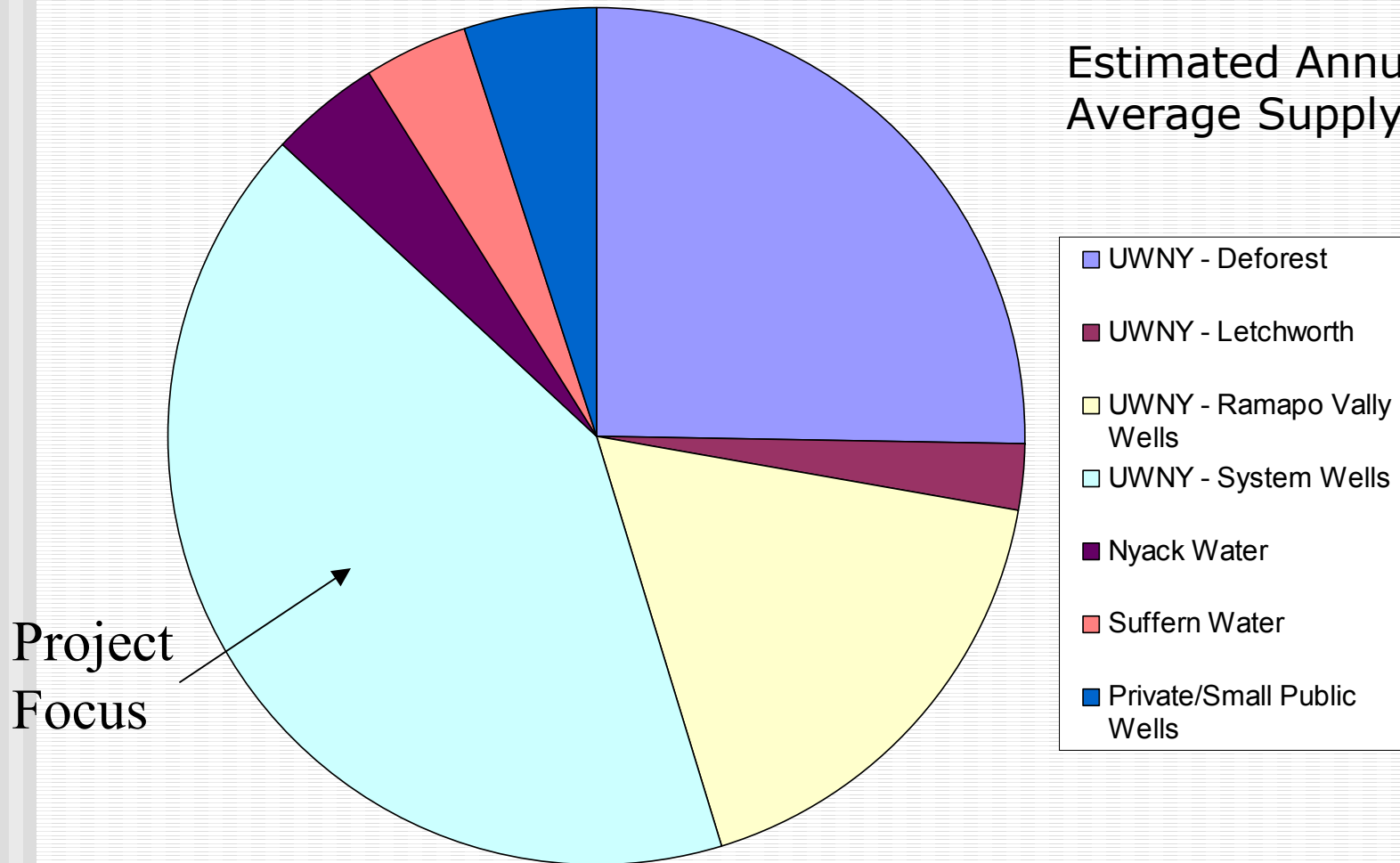
- The SUTRA model for Rockland's bedrock wells was developed by USGS [Yager and Ratcliffe 2010] for use in the study that was funded by the USGS, Rockland County, NYSDEC, and UWNV.
- Used in that study primarily to define ground water contribution areas; drought modeling was not within scope due to cost limitations.

USGS SUTRA Model Background

- CDM Smith was contracted to get the model up and running so that it would be available for future use, before USGS lost involved staff to retirement.
- CDM replicated the USGS report model runs to ensure their implementation was functionally identical.
- We have been able to leverage the investments already made by re-purposing the USGS model for today's needs.

Rockland's Drinking Water Resources

Estimated Annual Average Supply



UWNY Approved Supply Capacity (Annual Average)

- Total = 34.49 mgd
 - **System Wells = 16.49 mgd**
 - Lake Deforest = 10 mgd
 - Ramapo Valley = 7 mgd
 - Letchworth = 1 mgd

Supply Capacity Used for Decisions and Planning

- Used by RCDOH for
 - Drought management decisions and planning
 - Approval of system expansions to serve higher demands
- Used by UWNYS for
 - Source development planning (PSC too)
 - Evaluating ability to serve new customers
- Potentially Used by Task Force for
 - Informing drought management planning
 - Demand and supply side targets
 - Prioritization and timing of efforts

Project Objectives

- To evaluate the long term reliability of UWNYS System Wells during periods of extreme drought.
 - Drought of record (1960s) for rainfall and “current” credit for withdrawal capacity
 - To evaluate/confirm what we count on as reliably source capacity during periods of drought.
 - To inform planning and decisions for the RCDOH, UWNYS, Drought Committee, and Water Task Force.