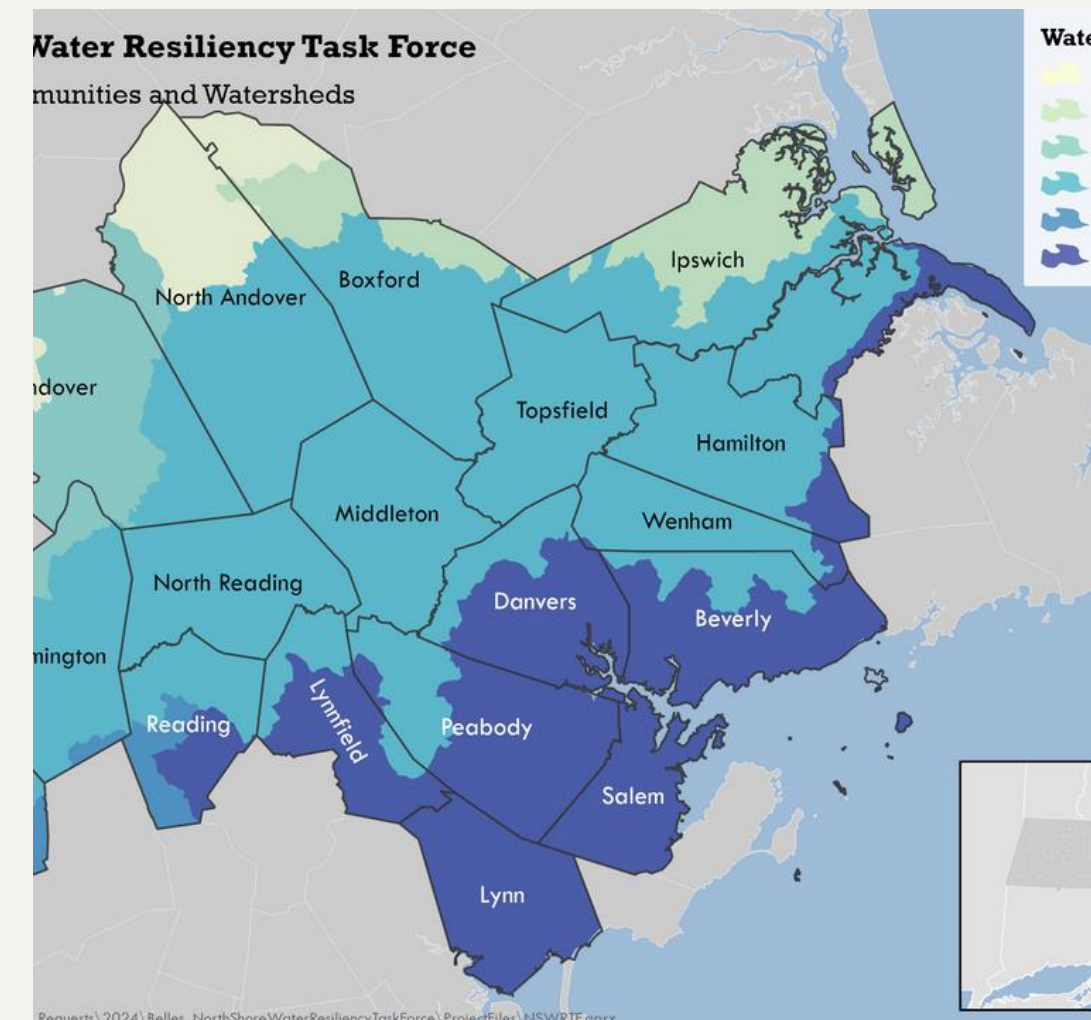


USING ARTIFICIAL INTELLIGENCE AND QUALITATIVE ANALYSIS TO EXPLORE WATER SUPPLIER CHALLENGES AND PRIORITIES

Rachael Belisle-Toler & Sharon Clement
Town of Ipswich & Town of Danvers

OVERVIEW

- In a region with historically abundant rainfall, local water suppliers are struggling to adapt to more frequent and severe droughts
- Most states in the region lack the programmatic and regulatory infrastructure to respond to droughts in a uniform fashion





NORTH SHORE WATER RESILIENCE TASK FORCE

The Task Force includes the 18 communities of Andover, Beverly, Boxford, Burlington, Danvers, Hamilton, Ipswich, Lynn, Lynnfield, Middleton, North Andover, North Reading, Peabody, Reading, Salem, Topsfield, Wenham and Wilmington. It also includes the Ipswich River Watershed Association and the Lynn Water and Sewer Commission, Lynnfield Center Water District, and Salem and Beverly Water Supply Board. Additional state and regional stakeholders also participate as partners adding value to the work of the Task Force.

“The goal of the North Shore Water Resilience Task Force is to ensure water supply resilience within the Ipswich River Watershed, while improving ecosystem health.”



CONSERVATION AND DEMAND MANAGEMENT SUBCOMMITTEE



- 11 members representing water suppliers, environmental groups, and state agencies.
- The Subcommittee is focused on expanding conservation successes in the region and understanding demand management priorities
- Grant project: Interviewing water suppliers to identify their demand management priorities and challenges

**IN JUNE 2024,
THE CDM
SUBCOMMITTEE
ASKED TASK
FORCE
MEMBERS TO
IDENTIFY
PRIORITIES VIA
A SORTING
EXERCISE**

Clarify resources needed to expand the conservation successes experienced by some Task Force members to others in the region

THE NORTH SHORE RESILIENCY TASK FORCE

Identify and help acquire fiscal support for efforts to reduce unaccounted for water

THE NORTH SHORE RESILIENCY TASK FORCE

Determine reasonable residential water usage goals for each community in the basin based on their individual circumstances

THE NORTH SHORE RESILIENCY TASK FORCE

Determine if a regional consumption goal is feasible and use data to explore what it could be

THE NORTH SHORE RESILIENCY TASK FORCE

PROJECT PHASES

PHASE 1

Analyze public documents relating to water supply

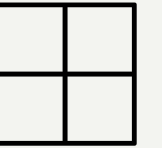
PHASE 2

Analyze interview data - Lower Basin interviews complete

NEXT STEPS

Interview water suppliers in the Upper Basin

PROCESS



1) GATHER URLS/DOCUMENTS → 2) CLEAN DATA → 3) OPEN CODING → 4) FINALIZE CODEBOOK → THEMATIC ANALYSIS + CROSS-TOWN COMPARISON.

Tools:

**MaxQDA
Plaud**

HIGH
VARIABILITY

Water suppliers in the region vary in how they talk about conservation, conceptualize drought parameters, and respond to droughts.

RATE
STRUCTURE
SUCCESS

Water suppliers that have implemented progressive rate structures cite success in curtailing summertime usage.

WILLINGNESS
TO ADOPT

Water suppliers demonstrated willingness to adopt successful programmatic efforts experienced by other Towns and Cities.

Additionally, Water suppliers expressed interest in a regional conservation position.

TIME, MONEY,
STAFF

Water suppliers cited staff capacity and budget as challenges for furthering conservation related initiatives

KEY TAKEAWAYS SO FAR

THANK YOU

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