



Chicago Metropolitan
Agency for Planning

Water Loss Among Lake Michigan Permittees in Illinois – updated!

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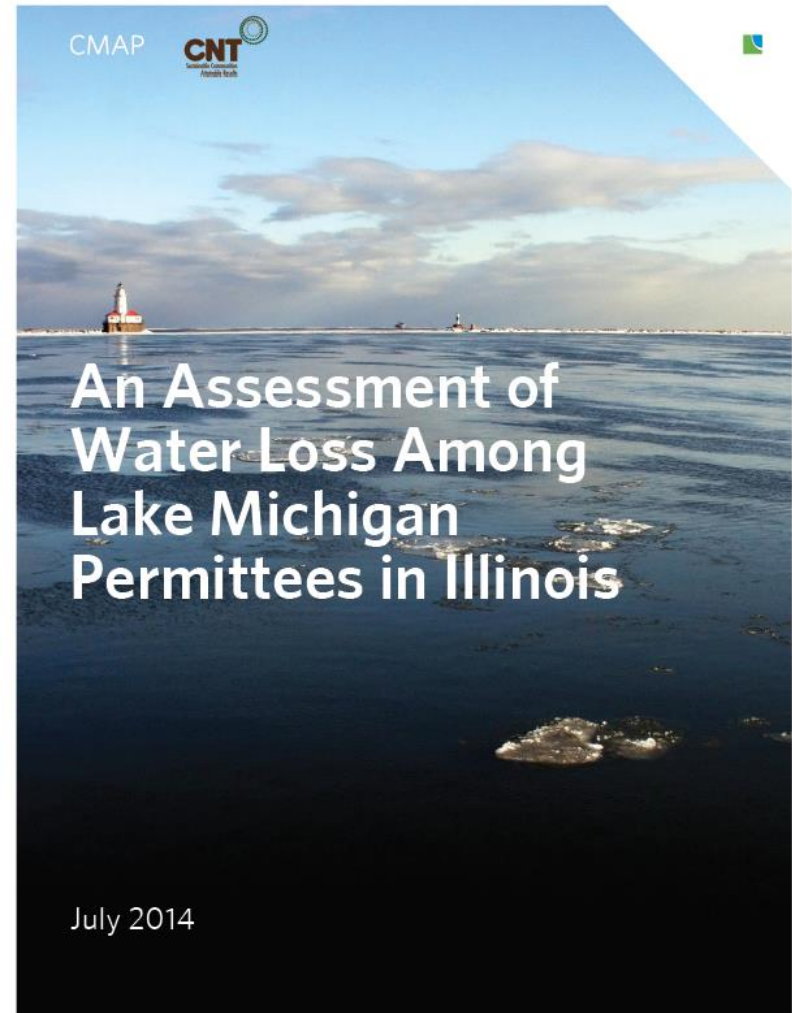
Chicago, Illinois

Acknowledgments

- * CMAP's Local Technical Assistance (LTA) program:
FHWA, FTA, US Dept. HUD, IDOT, and the Chicago Community Trust
 - * Center for Neighborhood Technology
The Joyce Foundation
 - * IDNR, Office of Water Resources, Lake Michigan Water Allocation Program Office
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Project Purpose

To assist the IDNR, OWR, LMWAP with developing new insight to permittee water-loss practices and challenges.

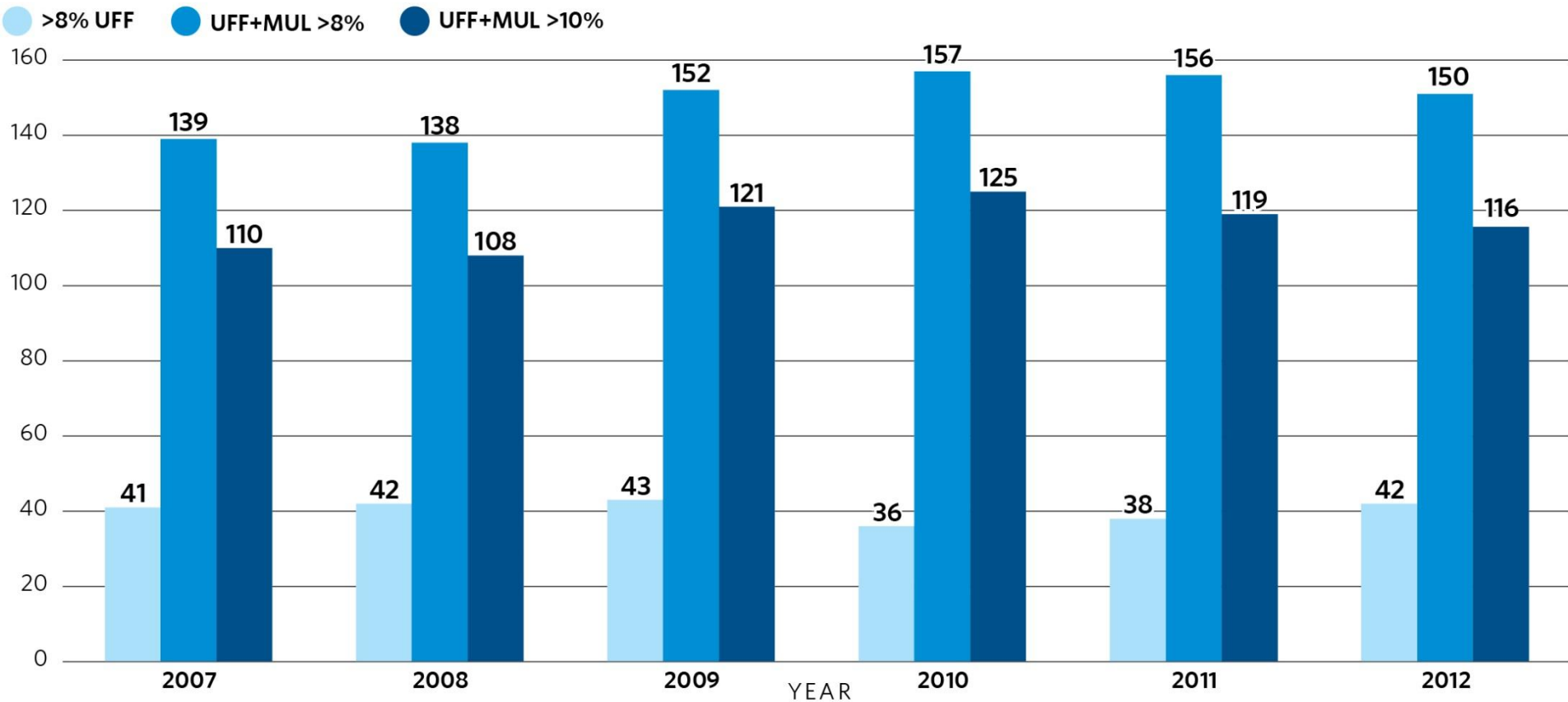


Project Objectives

- 1) LMO-2 data analysis: 2007 – 2012
 - 2) Survey questionnaire: census of community water suppliers
 - 3) Site visits with select permittees
 - 4) Site visits to introduce the AWWA M36 water-audit methodology
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Obj. #1: Data Analysis: Permittee Water Loss

Permittee water loss relative to current and potential future thresholds, 2007-12, by number of permittees



The composition of permittees varied each year due to reporting and data errors; n=193 in 2007 and 2008, n=194 in 2011, and n=195 in 2009, 2010, and 2012.

MUL: Maximum unavoidable loss; UFF: Unaccounted for flow.

Source: Illinois Department of Natural Resources, 2014.

Obj. #2: Survey Questionnaire: Responses

* Response Rate: 53%

* Nonresponse bias:

- Two variables:
 - Population – mixed results (i.e., ‘yes’ at 0.05, ‘no’ at 0.01)
 - %UFF – no bias at either p-value
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Water-Loss Control Policy

Describe your water department/utility's water-loss control policy (e.g., ordinance, resolution, goal statement) or let us know if no formal policy exists.

(90 respondents)

74% - No formal policy

2% - Yes, it is ...

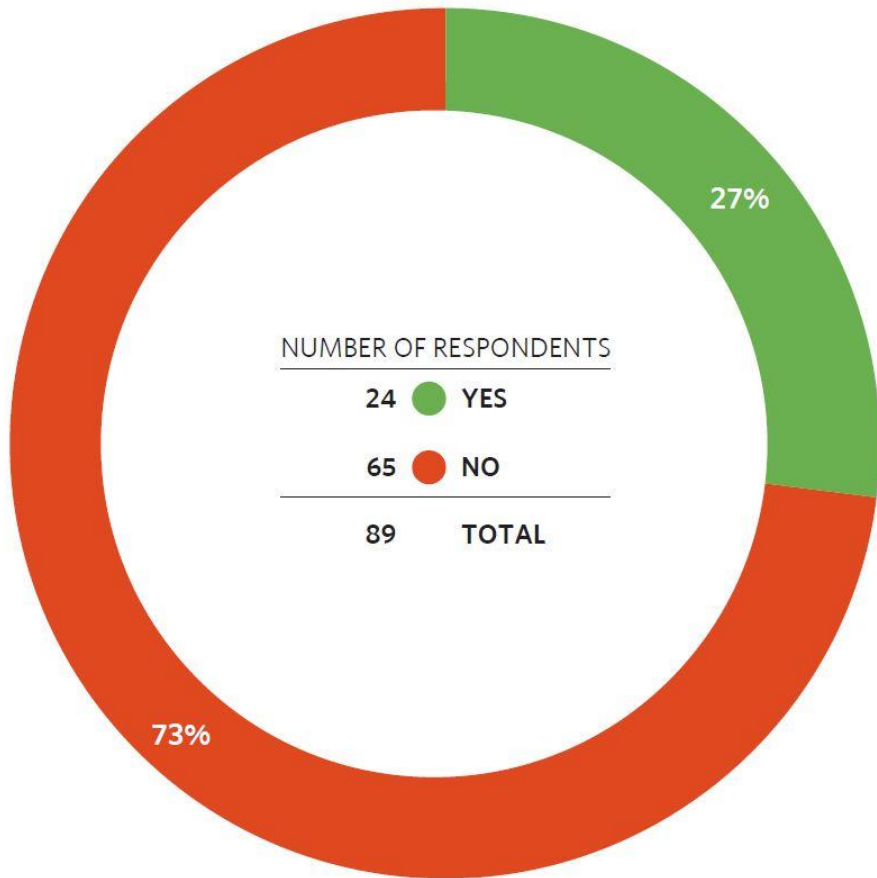
7% - IDNR 8% UFF standard

17% - other answer

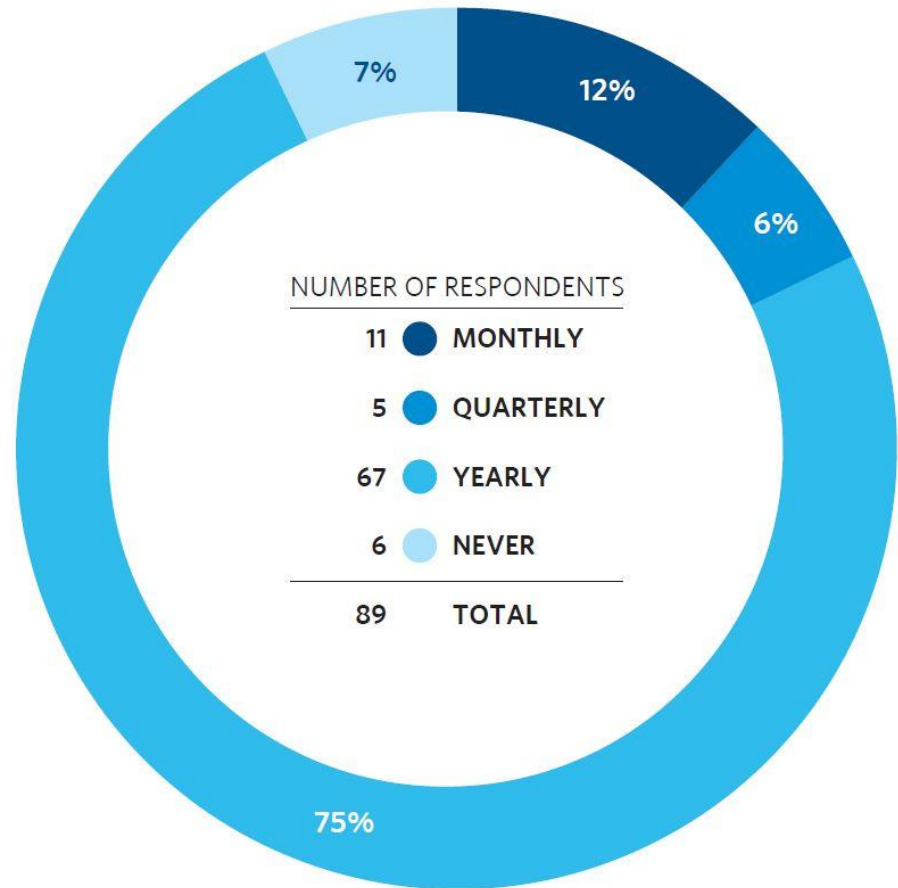
100%

Communicating Water Loss

Percentage of permittees communicating water loss information to customers



Frequency of communication with elected officials regarding water-loss information



Water Rates

- * Average vol. charge of \$6.66 / 1,000 gallons (2012)
- * Most common type of rate structure:
uniform (volumetric) rate (73% of respond.)
- * Just 9% use an inverted block rate

Infrastructure: Funding and Investment

Source of Funding –

water rate revenue	89%
general obligation bonds	37%
state revolving fund loan	23%
other	9%

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Infrastructure: Funding and Investment

*Investment in capital equipment for 3-year period:
2010-2012 –*

median value:	\$1,500,000
no. of service connections:	6,608
avg. invested / serv. connect.:	\$244.57

Challenges Faced: Water-Loss Control

Type of challenge –

- | | |
|--|------|
| * funding for & cost of replacement | 55% |
| * difficulty in detecting and fixing leaks | 16% |
| * water loss not perceived as challenge | 16% |
| * 4 other specific challenges | 5-9% |
| * other | 18% |

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Gallons Lost (2012): How Much and Potential Value?

22.187 billion gallons across 195 CWS permittees*
(source: 2012 LMO-2 forms, UFF)

Estimated value: \$64.1 – \$147.7 million

Equivalent to residential needs of 698,712 people!

Quartile analysis ... loss more severe with smaller systems!

Site Visits: Practices and Challenges

Sample size small (n=6)

A few findings ...

- * Rates cover cost of operations but not capital improvements,
 - * Main limitation: need for more \$ and staff resources,
 - * Purchasing water lends well to discuss loss in financial terms
 - * None perform formal audits beyond LMO-2
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Site Visits:

Usefulness of AWWA M36

Sample size small (n=3)

Insightful findings ...

- All believe:
- * this audit would be helpful,
 - * would not require more staff or new in-house relationships,
 - * the audit tool could be helpful for in-house discussions with elected officials and budgeting.
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Conclusions and Recommendations

IDNR Regulatory Program ...

- * request permittees adopt formal water-loss control policy.
 - * request water-loss info be shared as part of requirement to implement a public program to encourage reduced water use
 - * increase communication – provide guidance and performance related information, and communicate with city managers in addition to public works staff
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Conclusions and Recommendations

IDNR Regulatory Program ...

- * strengthen the recommendation to develop water rate structures that discourage excessive water use
 - * request basic benchmarking for full cost service and annual reporting of benchmarks
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Benchmarking Metrics

<i>Metric</i>	<i>Calculation</i>	<i>Benchmark</i>
Operating Ratio	Operating Revenues / Operating Expenses	1.0
Debt Service Coverage Ratio	(Operating Revenues – Operating Expenses) / Debt Service	1.0
Active Debt per Customer	Total Active Debt / Number of Customers	Average
% of Annual Operating Expenditures in Cash Reserve	Cash Reserves / Annual Operating Expenditures	One month

Conclusions and Recommendations

IDNR Regulatory Program ...

- * Require use of the M36 water audit method!

IDNR Assistance and Collaboration ...

- * provide outreach, education, and technical assistance with the M36 tool,
 - * State agencies should align programmatic objectives and requirements of permittees/applicants.
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Thank you!

Questions??
