IL Nutrient Loss Reduction Strategy 2021 Biennial Report: Point Source Perspectives

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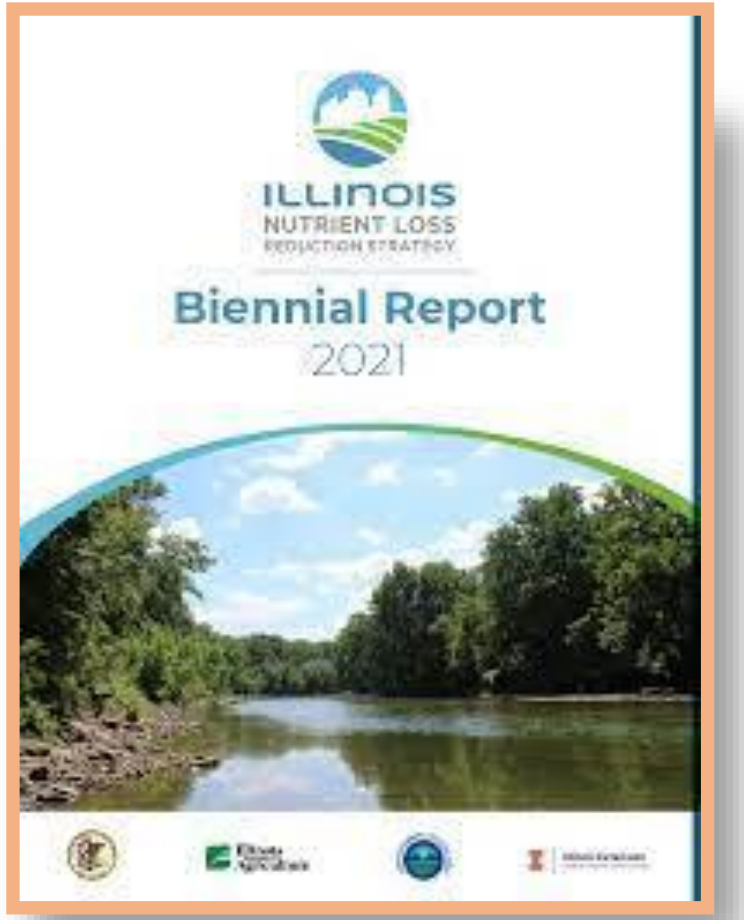
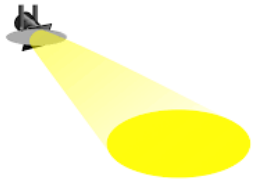
ILLINOIS NUTRIENT LOSS REDUCTION STRATEGY

Reflections: Illinois Association of Wastewater Agencies (IAWA)





Highlights

Challenges

Lessons learned

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Tracking Progress

Money
Staff

Awareness/Engagement
public & stakeholders

Plant upgrades
New facilities

Reductions in discharge

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1 Resources

Highlights

- Cost of Biological P Removal (Bio-P)
  - Capital improvements
  - Other unplanned costs

Peoria - $11M

Fox Metro- $98M

Kishwaukee WRD $50M

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1 Resources

Highlights

- Backup chemical P removal systems
  - MWRDGC Stickney WRP: in addition to Bio-P and nutrient recovery (Ostara Pearl)
  - North Shore WRD: 2 facilities planned ~$4M

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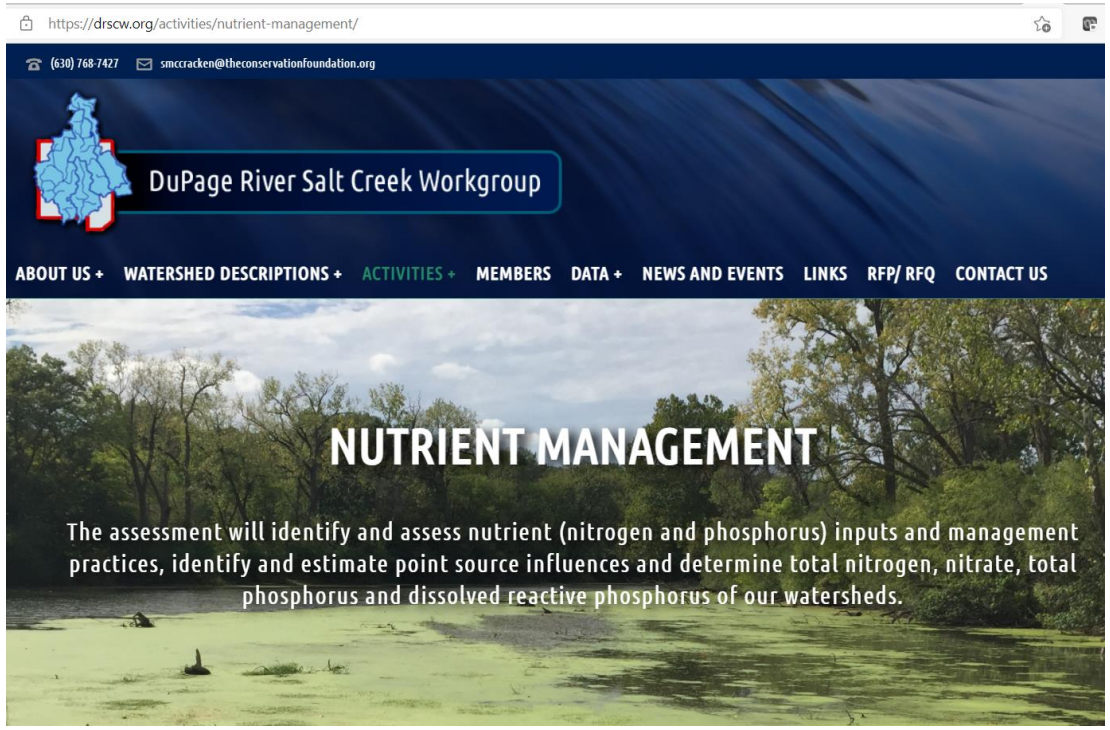
1 Resources

Highlights

- Watershed groups: Membership cost
- Staffing for optimization, pilots, research, etc.



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2 Outreach

Highlights

- IL Assoc. of Wastewater Agencies (IAWA)
  - P removal workshops
  - Quarterly technical conferences
  - Watershed groups
- IL Water Environment Association
  - Annual P Removal Conference
- Collaboration with IL Farm Bureau
  - Field days – Fulton Co. site

IWEA Nutrient Removal Conference

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3 Facilities

Challenges

- Bio-P
  - Fluctuating conditions
    - ✓ Flows (wide wet & dry variations): e.g. MWRDGC Stickney plant
    - ✓ P loads: e.g. North Shore WRD
  - Impact other processes: e.g.
    - ✓ Dewatering of solids
    - ✓ Decreased total solids in effluent

MWRDGC - Stickney WRP

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3 Facilities

Challenges

- Bio-P
  - Easier for smaller plants
  - Low influent carbon
  - Potential unintended consequences; e.g. nitrification/N removal

Big plant – Big problems

Urbana-Champaign SD
BOD & N removal

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3 Facilities

Lessons learned

- Bio-P
  - Relatively new process: Learning curve for staff
  - Learn to operate without chemical backup: e.g. Fox River WRD
  - New facilities: Opportunities for flexibility/resiliency: e.g. Kishwaukee WRD
  - Optimization plans: Some additional N removal as plans are implemented

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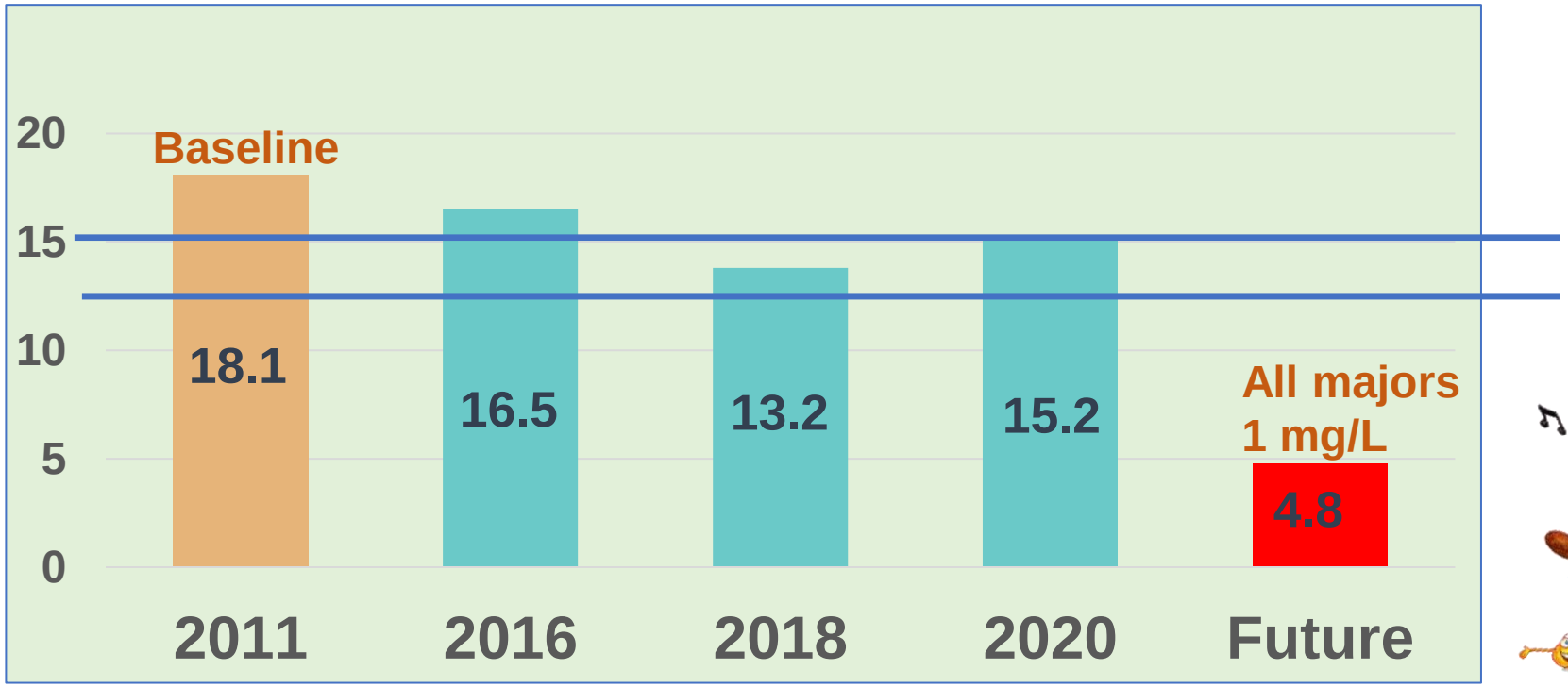
4 Water

Highlights

P Discharge from Point Sources (million pounds)



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Looking Ahead

- As more plants implement Bio-P some additional N reduction
- More P reductions as permits are activated over the next 3 years esp. large plants
  - MWRDGC: O'Brien and Calumet WRPs

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Summary

- High capital and O&M costs, including unplanned costs
- Outreach – significant via workshops and watershed groups
- Bio-P challenging – no one size fits all; some need chemical P backup
- Point source making significant progress on P reduction
- Funding – Need more in SRF

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Acknowledgements

- Rick Manner: *Urbana-Champaign Sanitary District*
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Thank You

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