

October 17, 2018

Phosphorus Trading: A Real WWTP to WWTP Solution

Eric Lynne

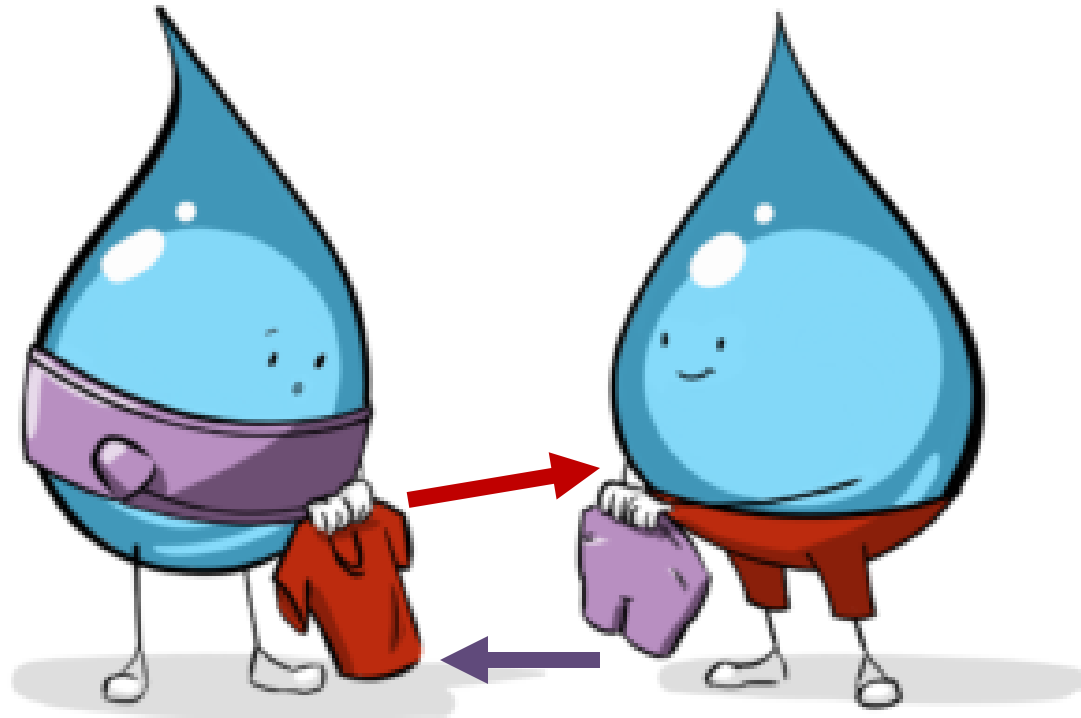
WWOA Annual Conference

What might you learn today:

- What is WQT
- Benefits of WQT
- How to identify trades
- Examples
- Things to watch out for

What is WQT for TP

- Non-traditional method of compliance
- Credits generated & Credits used



Benefits

- PS:PS Focus
- Contracts
 - Legally binding (prefer no additional effort)
 - PS:PS revise each WPDES Permit
 - Potential longer terms
- Common knowledge base
- Common enemy
- Common sense

Trade Identification

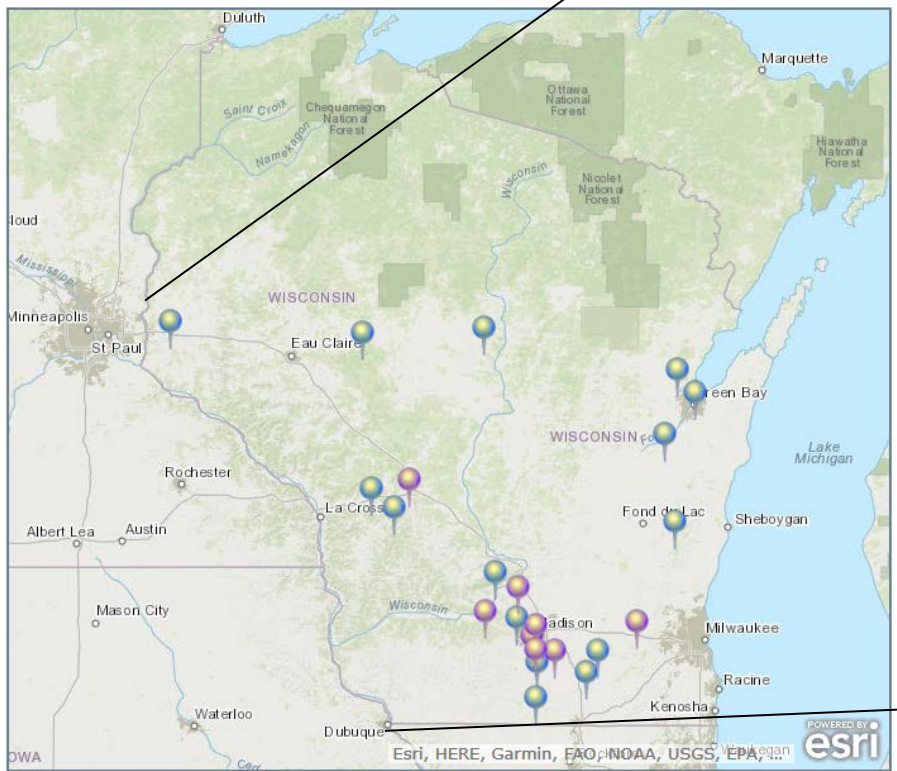
- Common sense
 - Talk to your neighbors
 - Upstream (if buying) / Downstream (if selling)
 - Review
 - Partner with
 - WQT Map from WDNR
 - Case 1 (MN) (IL)
 - Case 2 (WI) TMDL – excess lbs due to WQBEL
 - Case 3 (WI) Non-TMDL – balance WQBELs

Trade Examples

- **WDNR**

Map Key

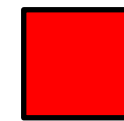
- Water Quality Trading site
- Adaptive Management site



Trade Examples

- Same City, Two WWTPs = Negotiating Power

- NEWater (DePere/GBMSD)
- Mankato, MN (Willmar)
- Joliet, IL (Eastside/Westside)



Eastside (~15 mgd)

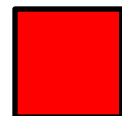
Bio-P

0.5 mg/L vs. 1.0 mg/L TP

Westside (~13 mgd)

Chem-P

1.5 mg/L vs. 1.0 mg/L TP



Trade Examples

- Joliet, IL

Two permits, (Eastside/Westside), merged DMRs

SPECIAL CONDITION 21. The Agency may modify this permit if the Permittee has developed and implemented a trading program for any discharge in the watershed, providing for reallocation of allowed phosphorus loadings between two or more POTWs in the watershed, that delivers the same results of overall watershed phosphorus point-source reduction and loading anticipated from the uniform application of the applicable 1.0 mg/L monthly average effluent limitation among the POTW permits in the watershed.

The Permittee shall notify the Agency if they become a member of the Lower Des Plaines Watershed Group or any other watershed group. This Permit may be modified to include additional conditions to implement objectives of the watershed group.

Trade Examples

- Small Facilities

Facility A

- upstream
- smaller flow
- favorable WQBEL
- minor chemical dose req'd
- **dose extra**

Facility B

- 0.075
- within HUC 8
- adding chemP
- planning for filters
- **pay for A's extra chemP**
- ideal = avoid filters
- contract length = facility life

Trade Examples

- Small Facilities

		Credit Seller: Facility A				Credit Buyer: Facility B						
Days	Month	Flow (mgd)	Permit TP Effluent Limit (mg/L)	Proposed TP Effluent (mg/L)	Excess TP Pounds (lb/mo)	Flow (mgd)	Permit TP Effluent Limit (mg/L)	Permitted TP Pounds (lb/mo)	Trade Ratio	Transferred Trade Credits (lb/mo)	Revised Permit Pounds (lb/mo)	Revised Permit Effluent (mg/L)
31	JAN	0.043	2.4	0.9	16.8	0.095	0.075	1.8	1.1	15.3	17.1	0.70
28	FEB	0.080	2.4	1.2	22.4	0.102	0.075	1.8	1.1	20.4	22.2	0.93
31	MAR	0.132	3.1	2.3	27.2	0.110	0.075	2.1	1.1	24.7	26.9	0.94
30	APR	0.180	3.9	2.7	54.0	0.241	0.075	4.5	1.1	49.1	53.7	0.89
31	MAY	0.124	2.9	1.7	38.4	0.148	0.075	2.9	1.1	34.9	37.8	0.99
30	JUN	0.112	2.4	1.4	28.1	0.120	0.075	2.3	1.1	25.5	27.8	0.93
31	JUL	0.050	2.0	0.8	15.6	0.100	0.075	1.9	1.1	14.2	16.2	0.62
31	AUG	0.045	1.9	0.8	12.8	0.095	0.075	1.8	1.1	11.7	13.5	0.55
30	SEP	0.038	1.9	0.8	10.5	0.085	0.075	1.6	1.1	9.6	11.2	0.53
31	OCT	0.044	2.2	0.9	14.7	0.087	0.075	1.7	1.1	13.3	15.0	0.67
30	NOV	0.053	2.5	1.0	19.8	0.088	0.075	1.7	1.1	18.0	19.7	0.89
31	DEC	0.054	2.4	1.0	19.5	0.090	0.075	1.7	1.1	17.7	19.5	0.84

Trade Examples

- Small Facilities

0.075 → 0.53-0.99

		Credit Seller: Facility A				Credit Buyer: Facility B						
Days	Month	Flow (mgd)	Permit TP Effluent Limit (mg/L)	Proposed TP Effluent (mg/L)	Excess TP Pounds (lb/mo)	Flow (mgd)	Permit TP Effluent Limit (mg/L)	Permitted TP Pounds (lb/mo)	Trade Ratio	Transferred Trade Credits (lb/mo)	Revised Permit Pounds (lb/mo)	Revised Permit Effluent (mg/L)
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28	FEB	0.080	2.4	1.2	22.4	0.102	0.075	1.8	1.1	20.4	22.2	0.93
31	MAR	0.132	3.1	2.3	27.2	0.110	0.075	2.1	1.1	24.7	26.9	0.94
30	APR	0.180	3.9	2.7	54.0	0.241	0.075	4.5	1.1	49.1	53.7	0.89
31	MAY	0.124	2.9	1.7	38.4	0.148	0.075	2.9	1.1	34.9	37.8	0.99
30	JUN	0.112	2.4	1.4	28.1	0.120	0.075	2.3	1.1	25.5	27.8	0.93
31	JUL	0.050	2.0	0.8	15.6	0.100	0.075	1.9	1.1	14.2	16.2	0.62
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Trade Examples

- Same Flows, Same River, **New WQBELs for Seller**

0.53-0.99
now
0.32-0.53

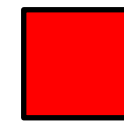
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31	JAN	0.043	1.8	0.9	9.7	0.095	0.075	1.8	1.1	8.8	10.7	0.43
28	FEB	0.080	1.8	1.2	10.6	0.102	0.075	1.8	1.1	9.7	11.5	0.48
31	MAR	0.132	2.3	1.9	13.1	0.110	0.075	2.1	1.1	11.9	14.0	0.49
30	APR	0.180	2.9	2.3	25.8	0.241	0.075	4.5	1.1	23.5	28.0	0.46
31	MAY	0.124	2.1	1.7	14.0	0.148	0.075	2.9	1.1	12.7	15.6	0.41
30	JUN	0.112	1.8	1.4	10.3	0.120	0.075	2.3	1.1	9.4	11.7	0.39
31	JUL	0.050	1.5	0.8	8.8	0.100	0.075	1.9	1.1	8.0	9.9	0.38
31	AUG	0.045	1.4	0.8	7.0	0.095	0.075	1.8	1.1	6.4	8.2	0.33
30	SEP	0.038	1.4	0.8	5.7	0.085	0.075	1.6	1.1	5.2	6.8	0.32
31	OCT	0.044	1.6	0.9	8.1	0.087	0.075	1.7	1.1	7.4	9.1	0.40
30	NOV	0.053	1.8	1.0	11.1	0.088	0.075	1.7	1.1	10.1	11.8	0.53
31	DEC	0.054	1.8	1.0	10.7	0.090	0.075	1.7	1.1	9.7	11.5	0.49

Trade Examples

- Same Flows, Same River, **New WQBELs for Seller**
- **Concern for:**
 - Enough Facility A credits
 - 5 yr max contract pending each WQBEL
 - Cost/Hassle vs. Benefit
- **Postponed. Utilize MDV for now.**

Trade Examples

- Rock River TMDL
 - WQBEL vs. WLA



Facility A

TMDL = 100 lb

WQBEL 0.075 → 20 lb

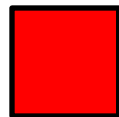
80 lb available

Facility B

TMDL = 100 lb + 80 lb

WQBEL = N/A since TMDL

- Safety factor
- Avoid filters



Negotiate cost

A) \$50/lb

B) May need to be < \$30/lb to drive the decision

Trade Examples

- TMDL
 - WQBEL vs. WLA



Facility C

TMDL = 100 lb

WQBEL 0.075 → 20 lb

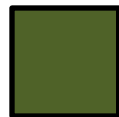
80 lb available

Facility D

TMDL = 100 lb + 80 lb

WQBEL = N/A since TMDL

- Safety factor
- Avoid filters



Triple Bottom Line:

- Lesser improvement to waterbody
- Risk double jeopardy since effluent B remains elevated

Trade Caution

- Issues
 - Trade Ratios **Stay Local**
 - NPS can be outside of your control **Focus on those you can control**
 - **Go Fallow**
 - Model vs. Reality:
 - Barnyard manure spill: what happens to your credits
 - How to enforce
 - “Firm” credits **Largest out of service**
 - Align deadlines
 - Be first if selling

Thank You

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The image shows two overlapping forms. The top form is titled "Notice of Intent to Conduct Water Quality Trading" (Form 3403-208, 11/14). It includes a section for "Point to Nonpoint Traders (Non-permitted Agricultural, Non-Permitted Urban, etc.)" with a chemical additive at Waldo beyond permit WQBEL limits. The "Method for qualifying credits generated" section has "Monitoring" checked. The "Projected date credits will be available" is 10/01/2019. The "Signature of Preparer" is Eric Lynne, dated 06-04-2018. The bottom form is a "Permit to Nonpoint Source" form, partially obscured.

YR 4:
Notice of Intent to Apply for WQT