

Surface Water Compliance Metric Toolkit, Water Quality Index Ag

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Compliance with the CWAD

The Conditional Waiver for Agricultural Discharges (CWAD):

- The CWAD governs agricultural discharges to both groundwater and surface water
- Eastern Municipal Water District (EMWD) is the CWAD Coalition Group Administrator
 - WRCAC is a supporting group; developing tools for surface water oversight

- The Toolkit contains self-reporting steps:
 - Runoff Water Quality Index (WQI_{ag}) is a self reporting evaluation of the field water quality performance
 - Periodic soil nutrient sampling summary confirms nutrient management is present
 - When high WQI_{ag} scores are recorded, growers will have additional recordkeeping requirements

WRCAC's Compliance Metric Toolkit



Compliance Metric Toolkit Goals

GOALS:

- Better science on runoff data by farm and by group locations
- Ability to identify problems and fix them through incentives
- Encourage BMPs to contain and control runoff
- Encourage individual farm environmental stewardship



The WQlag Tool and Toolkit Offer Growers:

- **Compliance Tool**
- **Education opportunities during the pilot:**
 - 2 hours of CWAD required training; 1.5 hours after completion of the pilot study
- **Reductions in cost of water quality monitoring (over time)**
- **Opportunities for individual growers to reduce costs:**
 - Short-term: Gradual switch to a pay-for-performance approach
 - Long-term: Improved accuracy of field evaluation and the ability to test field changes against water quality value w/o installing the actual BMP/change



Pay for Performance Incentives

Short-Term WRCAC Goal Details

- Improve the understanding of current conditions
- Better understand what crop operations need for production in this hot-arid climate
- Adjust the WQlag for this region
- Create a performance-based incentive within Ag
- The incentive will redistribute internally the Ag sector payments for in-lake credit fees or provide other options

Illustration of Performance-Based In-Lake Credit Fee Concept

Tier 1 (Not Shown); No Discharge → No fee

Tier 2 Top 25th Percentile; Highest Reduction in Fees

Tier 3 Top 26th to 50th Percentile; Moderate Reduction in Fees

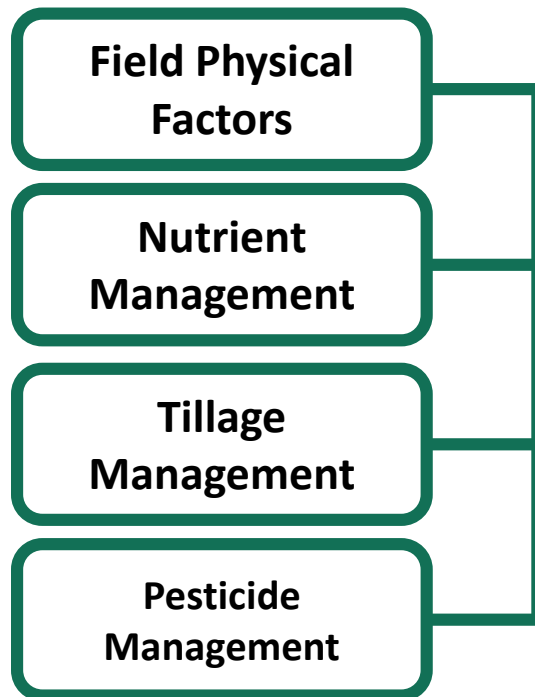
Tier 4 Below 50th Percentile; Increased Fees Used to Fund Other Discounted Tiers

Year	Tier 4 Increase In Fee	Compared to \$100 Base	Tier 2 Decrease In Fee	Compared to \$100 Base	Tier 3 Decrease In Fee	Compared to \$100 Base
2020	0%	\$100	0%	\$100	0%	\$100
2021	6%	\$106	4.00%	\$96	2.00%	\$98
2022	12%	\$112	8.00%	\$92	4.00%	\$96
2023	18%	\$118	12.00%	\$88	6.00%	\$94

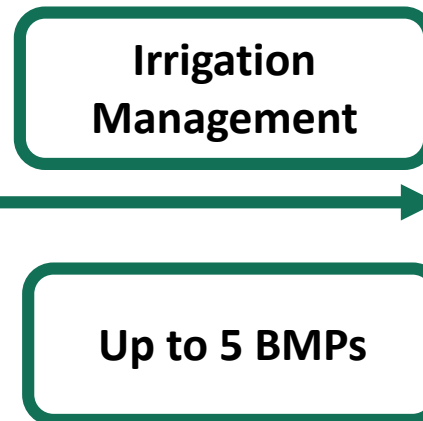
Why the WQIag Tool?

- USDA NRCS created the Runoff Water Quality Index (WQIag)
- WRCAC is adjusting the tool to be San Jacinto River Watershed specific

Core Field Factors

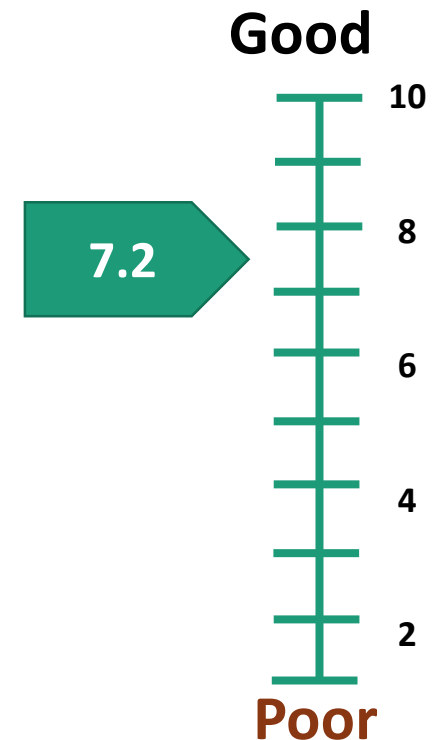



Adjustment Factors



7.2

Index Rank

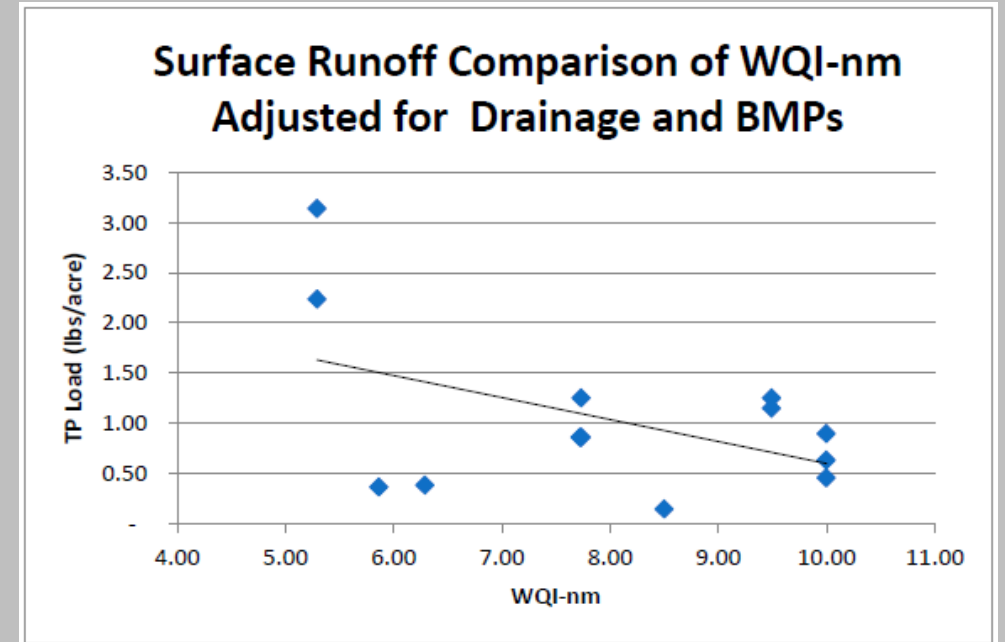
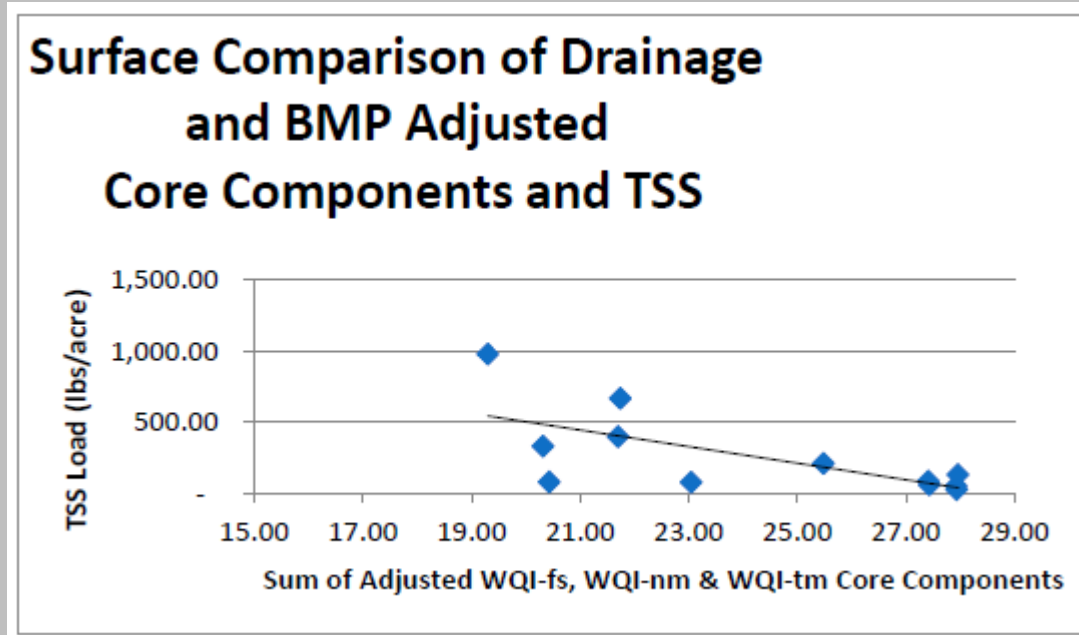




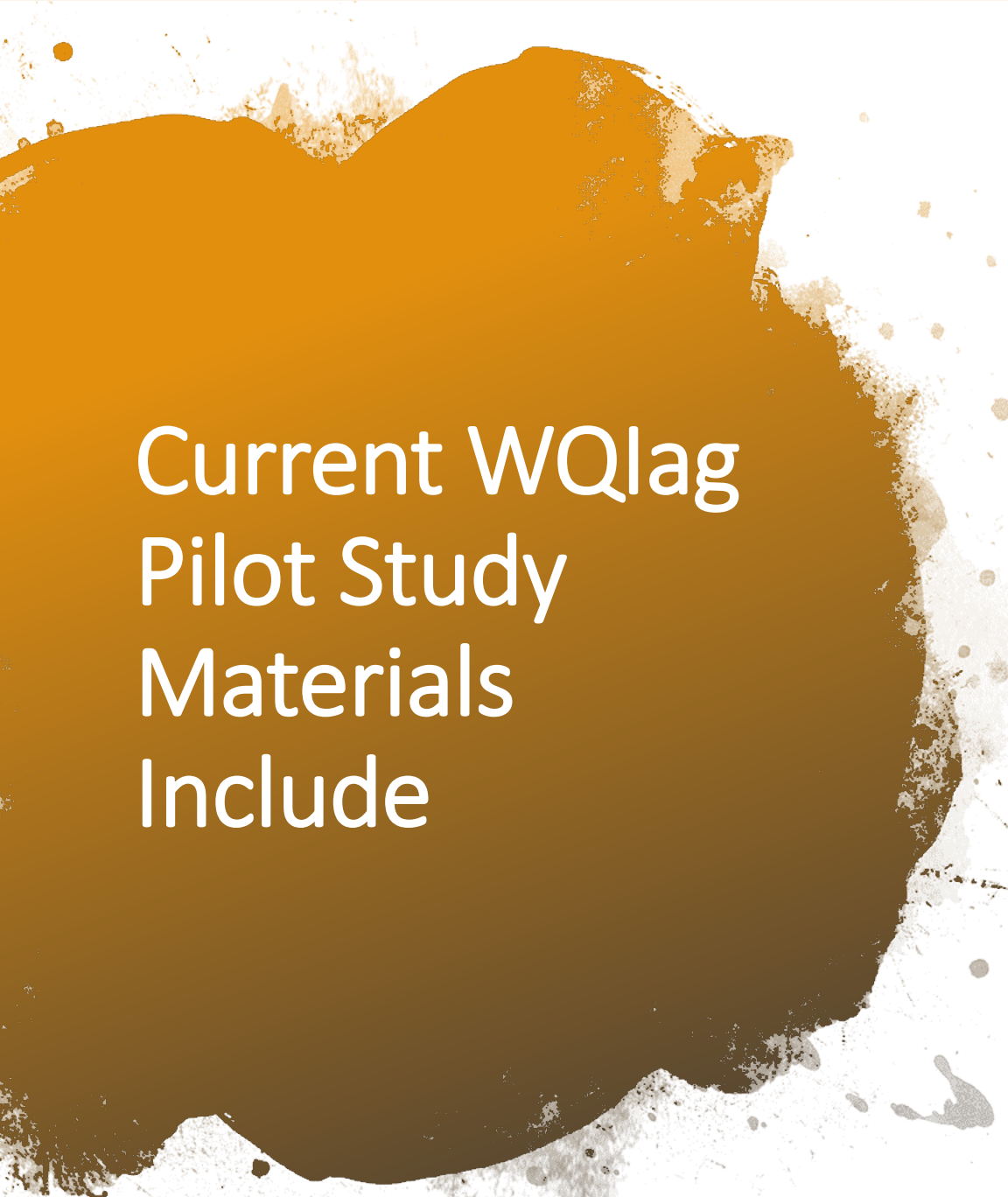
WQIag Calibration and Adjustments in a Data Poor Watershed

- An existing gap in Ag discharge understanding exists
 - Monitoring and operation data is missing for many cropping systems
- Future CWAD requirements for monitoring and Ag Nutrient Management Plan (AgNMP)
- WQIag is being, and will be calibrated for the San Jacinto River Watershed by:
 - The pilot study's grower dataset that will be used to statistically define the variability among fields and soils
 - The gathered water quality monitoring data and assessments
- Once calibrated the WQIag tool has been shown to respond to conservation efforts according to how the real world responds

WQIag Comparison to Field Data



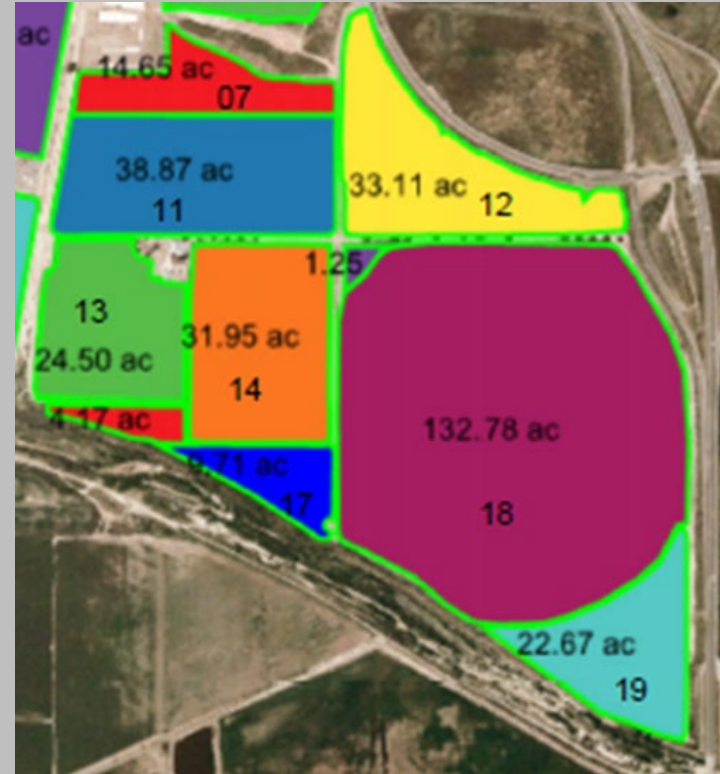
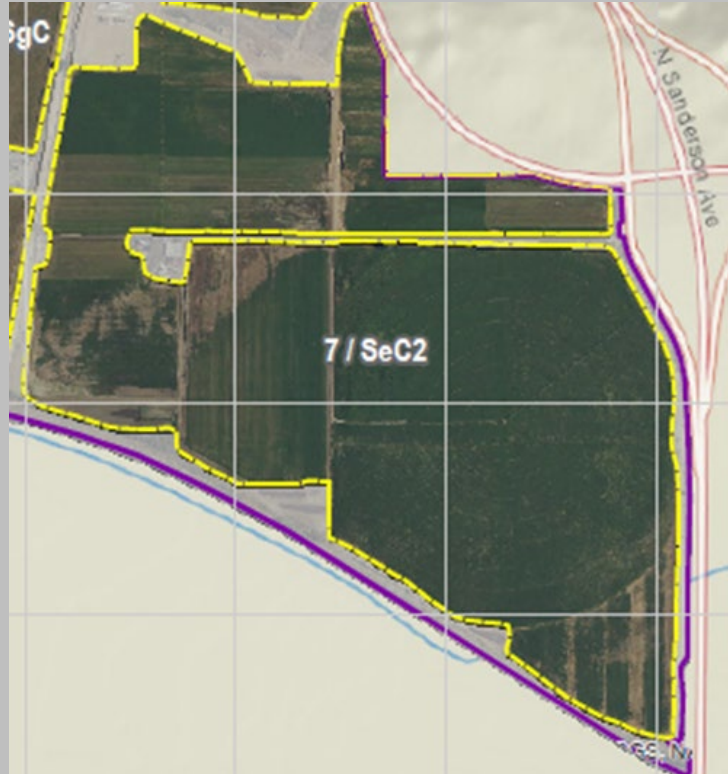
Minnesota Edge-of-Field Discharged Loading (Total Suspended Solids & Total Phosphorus) compared to WQIag Core Components



Current WQlag Pilot Study Materials Include

- **Operator identified Conditional Waiver for Agricultural Dischargers (CWAD) NOI data**
- **GIS field maps**
- **WQlag instructions**
- **Field data entry for nine (9) categories of the operation**
- **Three (3) optional webinars to answer questions in November & December of 2019**
- **Data analysis of field variabilities in early 2020**

Parcel Maps Conversion to Field Maps



- **For large parcels:** a parcel may have been split up into smaller fields
- WQIag tracks different crops, equipment passes, nutrient, pesticide and irrigation management, each requiring an

2 Examples of the 9 WQIag Data Requests

Field Location

Field Number: 265

TMDL Hydrologic Zone: Zone 3

Your State: California

Your County: Riverside

Get Weather Stations

* Select Your nearest weather station. Sun City CA8655

All Farm Fields Rainfall -- Vegetation Cover Evaluations are Made Across the Entire Year

Select the "OK" Button to save entries.

OK

Field Location Information and Nutrient Application Rates according to guidance

Nutrient Rate Details

* Describe the nutrient rates applied to the field with respect to Land Grant University (LGU) recommendations.

No nutrients applied

Less than LGU recommendations

LGU recommendations

10% more than LGU recommendations

20% more than LGU recommendations

30% more than LGU recommendations

40% more than LGU recommendations

50% more than LGU recommendations

2 More Examples of the 9 WQIag Data Requests

Soil Condition and Nutrient Placement

* Soil Moisture

- Dry < 25% Field Capacity in Upper 24 inches
- Moist > 25% Field Capacity in Upper 24 inches
- Saturated Field Capacity in Upper 24 inches
- Frozen

* Placement

- No Nutrients Applied
- Surface Banded
- Surface Broadcast
- Broadcast and Incorporated
- Injected Anhydrous Ammonia Below Soil Surface
- All Other Forms Injected or Knifed Below Surface
- Foliar
- Fertigated

MESSAGE: Select the "OK" Button to save entries.

OK

Soil Condition and Nutrient Placement & Tillage Management

Tillage Management

* Describe the soil disturbance the field experiences by selecting a Soil Tillage Intensity Rating (STIR) value.

Conventional (STIR 61-100)

No Till (STIR < 30)
Mulch (STIR 31-60)
Conventional (STIR 61-100)
Intensive (STIR >100)

MESSAGE: Select the "OK" Button to save entries.

OK



Questions?