Lower Boise River Technical Advisory Committee for Water Quality Trading

March 28, 2016

Meeting #2:

Foundations for Revising the Lower Boise River Water Quality Trading Framework

Agenda

Morning (10:30am-noon)

- Introductions
- Status Update on Action Items
- Credit Characteristics

Afternoon (12:45 – 4pm)

- Trading Ratios: Managing Risk and Uncertainty
- Leveraging Multiple Funding Sources to generate credits
- Quantifying water quality benefits
- Meeting wrap up and action items

Meeting Objectives

- Explore recommendations on March 1 Framework concepts
- Review new Framework concepts and provide direction on Framework contents
- Identify details of concepts that can be incorporated into draft Framework for meeting #3.

March 1 Action Items: Scope of Framework

Incorporate Sediment?

- It's feasible—but would need additional time and resources; May be beyond current timeline for Total Phosphorus.

- All point sources currently meet wasteload limits (Any demand now?)

Consistency for both Total Phosphorus and Periphyton

- Target for Periphyton in TMDL, implementation is Total Phosphorus reduction.

- Section 3.1.2. Avoiding localized impacts

March 1 Action Items: Trade vs Offset

Framework: *A "trade" occurs when water quality credits are acquired and used to satisfy a regulatory requirement…*

Trade

IDAPA 58.01.02.05 – Development of TMDLs or equivalent processes or interim changes under these rules may include pollutant trading....

2010 Framework – Idaho DEQ views trading as something that is formally recorded and identifies a buyer, seller and amount of pollutant traded.

Offset

IDAPA 58.01.02.06(c) – In determining the effect of an activity or discharge…may take into account reductions in pollution from other sources that are tied to the proposed activity or discharge.

2010 Framework – typically occur outside of formalized trading.

March 1 Action Items: Trading Unused Allocations

- TAC participants are both for and against trading unused wasteload allocation

  - A point source *discharges* below their permit limit.

  - A point source *reduces* discharge below their permit limit.

  - Is there a difference ?

March 1 Action Items: Creditable Project Types

Framework: Includes On-farm and in-drain treatment for non-point source project types

What we heard from you: Should include other project types: stormwater, septic upgrades, other project types

- This can be done, but we would need the necessary technical review to set credit life, derive baseline, quantification method, etc.; May be outside timeline and resources for this first Phase

- We can put in a “placeholder” to show we want these in the future?

March 1 Action Items: Baseline – On-Farm BMPs

Framework: *Stage 1 – Participating landowners have completed a conservation plan consistent with NRCS guidelines covering entire agricultural operation.*

- Encourages early adoption and trading activity in first ten years of program.

- Provides additional information about current conditions

What we heard from EPA: They want to see progress towards meeting water quality goals. What progress is is unclear, but just a conservation plan in first stage, for EPA's current thinking, does not demonstrate progress.

March 1 Action Items: Baseline – In-drain project types

Framework: *Stage 1- Project Developers have completed an operation and maintenance plan.*

Stage 2 – XX% of credits, based on one half of the load reductions expected in load allocations will be set aside, or retired

What we heard from you:

- In-drain projects such as constructed wetlands should not have baseline and include direct measurement/monitoring.

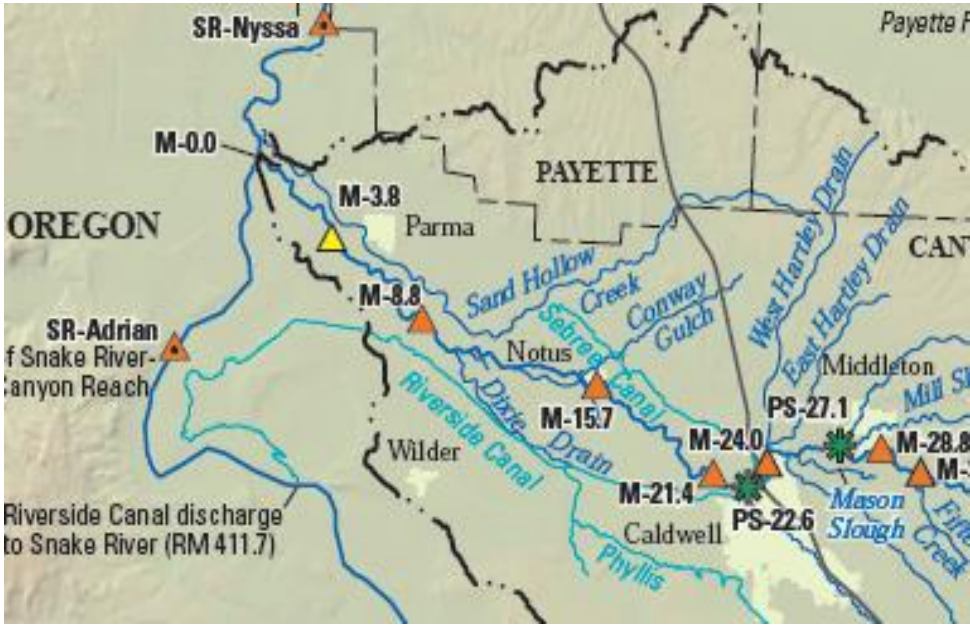
- In-drain projects should have baseline to make framework more equitable to on-farm projects that address non-point pollution loading at the source.

March 1 Action Items: Trading Area (Sand Hollow)

- Sand Hollow Creek is within Lower Boise Hydrologic Unit (HUC), but drains to the Snake.

- Removed from Lower Boise River TMDL and to be addressed separately

- Likely hydrologically connected due to proximity to Boise River.



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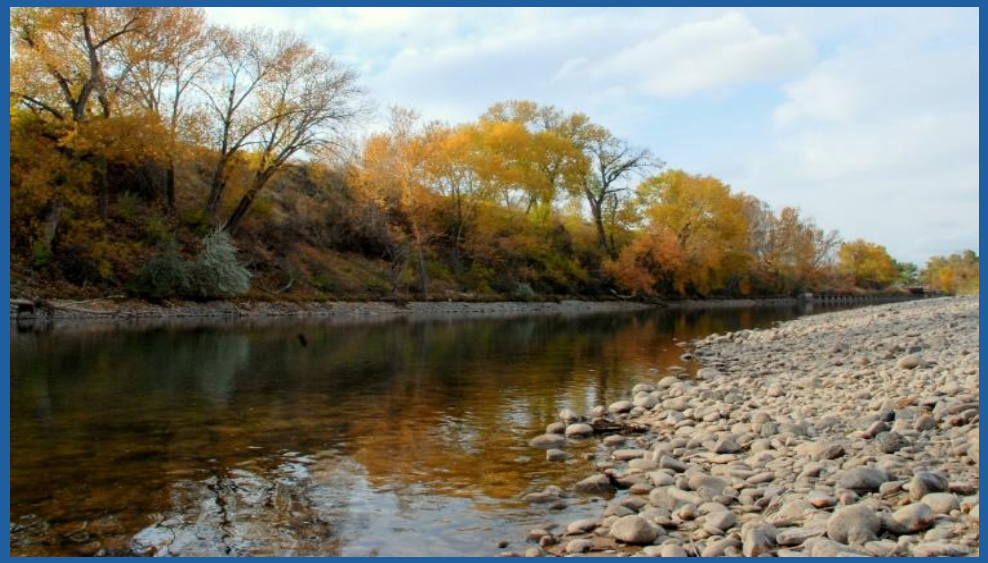

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Credit Characteristics

Are credits there when we need them?

Credit: A measured or estimated unit of pollutant reduction per unit of time at a specified location, as adjusted by attenuation/delivery factors, trading ratios, reserve requirements, and baseline requirements.

Project: One or more BMPs or other activities proposed for generating credits on a single site.

When is a credit usable for a permit?

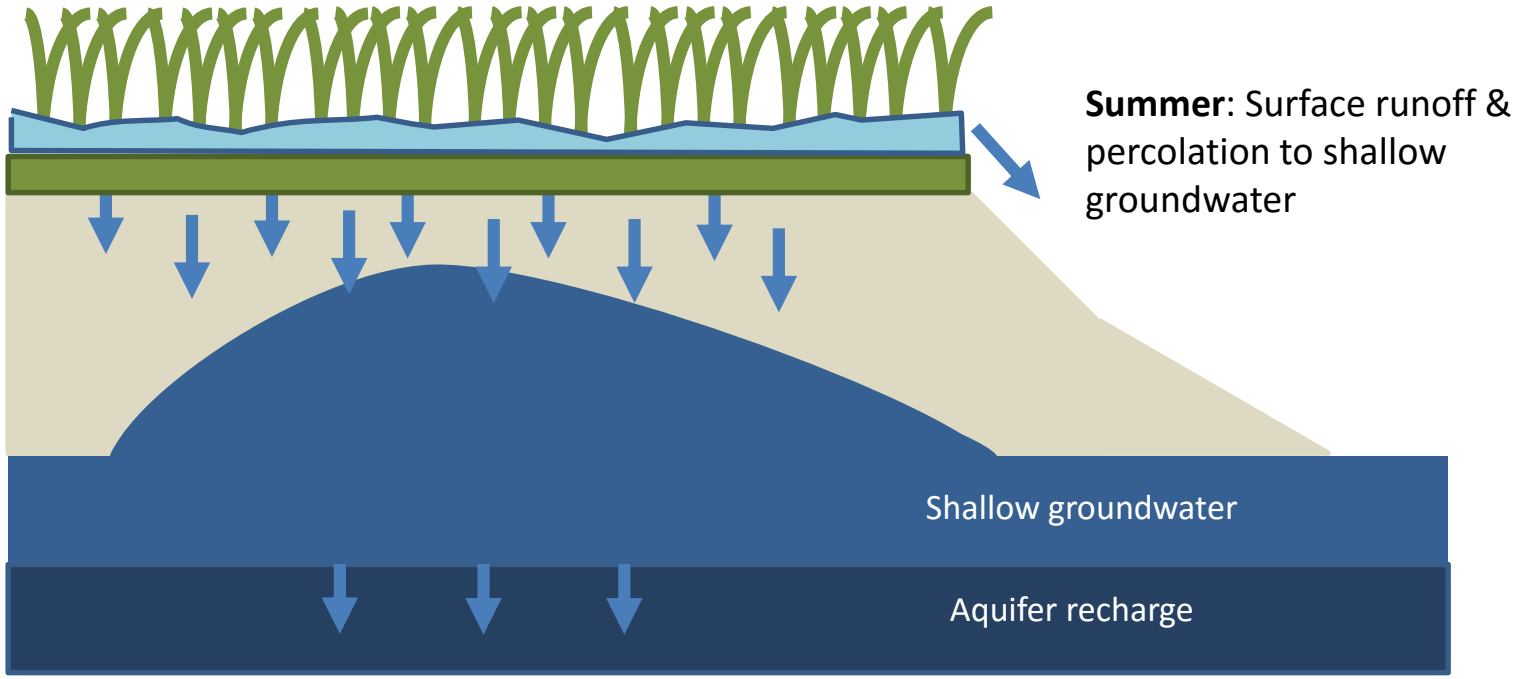
- **Credit Life:** The period from a credit's "effective" date to its "expiration" date.

  Based on benefit timing and/or permit needs.

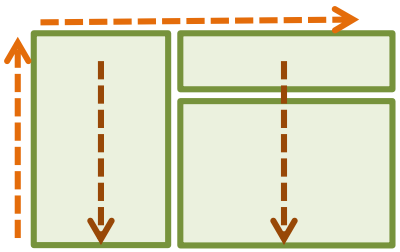
  - **Annual (Ohio River Basin, VA, MD, PA).**
  - **Monthly or seasonal (OR temp)**
  - **Permanent (VA, NC)**

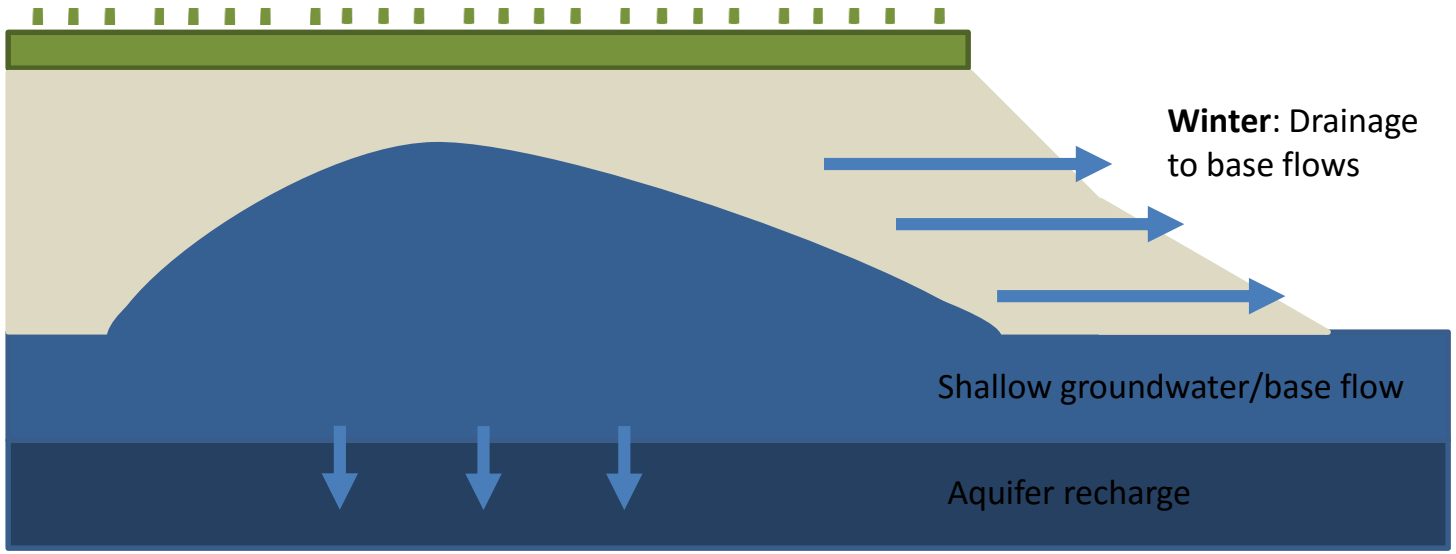
Credits cannot be "banked" outside the period of environmental benefit (e.g., if generated in 2012, cannot be used to offset a discharge in 2014)

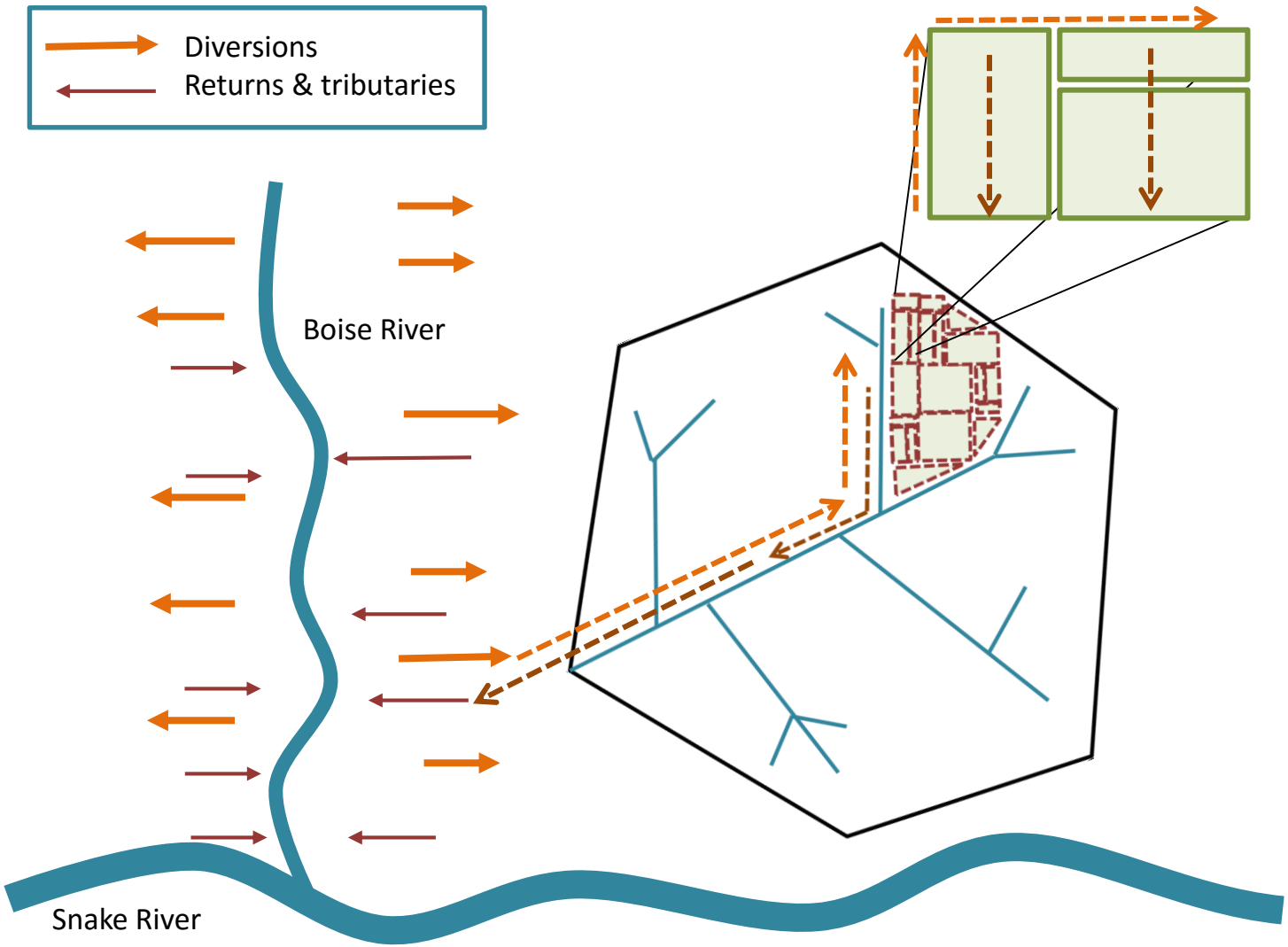
The logic behind credit life in the Boise



Shallow Groundwater Pathway – 1 year






Diversions
Returns & tributaries
Boise River
Snake River

How long should credits be available for use?

Option	Considerations
Credit life is monthly - credit life lines up with practice activities	• Not supported by SISL • Limits flexibility on selling/using a credit • Not consistent with watershed dynamics
Credit life is annual - can be used toward a limit any time within a year	• Consistent with watershed dynamics • Less intuitive to observers

***All options rely on assessment of localized impacts**

Guiding Questions

- What should credit life be?
- Should credit life be different for different project types?

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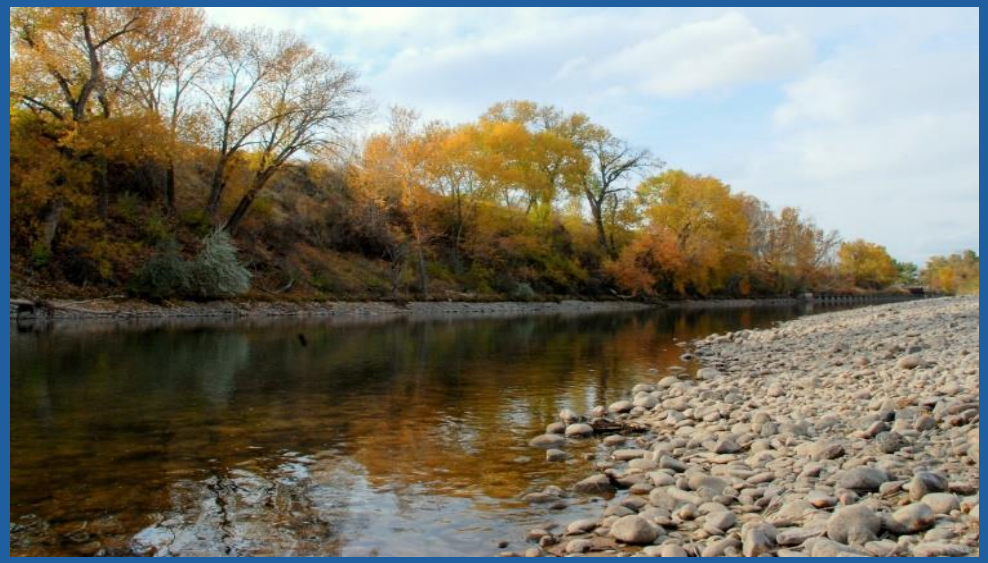

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Quantifying Water Quality Benefits

Quantifying Water Quality Benefits

- Estimating the number of credits available to sell (project's credit value) begins with estimating water quality benefit.
- Credits are equal to the water quality benefits, adjusted by baseline requirements and trading ratios.
- Quantifying water quality benefits requires measurement or estimation of pre- and post- project implementation

Quantifying Water Quality Benefits

Considerations:

- *Relevancy:* needs to produce outputs in units relevant to trading program and water quality standards.
- *Adaptable to local conditions:* quantification can be calibrated to match local conditions.
- *Technical Review/Validation*: need to be accurate, repeatable, sensitive and transparent.

Quantification: Direct Measurement

- Quantifies water quality through the measurement of water chemistry or surrogates for water quality
  - e.g., stream bank erosion, shade from riparian vegetation plantings, ect.

- Most appropriate where variables of watershed dynamics can be controlled (e.g., upstream projects, hydrology, etc.)

Quantification : Direct Measurement

Direct measurement protocols would have:

- A monitoring and quality assurance plan, including how to establish current conditions
- Instrumentation or sampling methodology
- Evidence of appropriate instrumentation, installation and calibration
- Recording keeping produces to catalogue samples

Quantification : Modeling

- Employs mathematical simulation procedures to estimate water quality benefits.

- Appropriate where direct monitoring is not feasible or data is not sufficient for pre-determined project efficiency rates (e.g., a cover crop reduces 40% of TP runoff on any field).

- May be developed specifically for the watershed or an existing model can be adapted or applied.

Quantification : Predetermined Rates

- Standardized values of water quality based on measured data, scientific literature or iterative modeling exercises.

- Most appropriate where sufficient local data exists, but direct measurement is not feasible.

- Low cost to implement, potentially high start up cost to establish and approve.

Quantification : Combination of methods

- Takes advantage of strengths from multiple methods.
- Potential for combining uncertainty.
- Need to consider how different methods interact and may or may not be compatible.
- What additional training and support may be necessary and how will each element be improved and supported over time.

Guiding Questions

- What guidelines do we need for direct measurement? Which project types are best suited for this?
- Are we OK continuing to use SISL for the project types it works for?
- Are there other quantification methods we should consider? For other project types?

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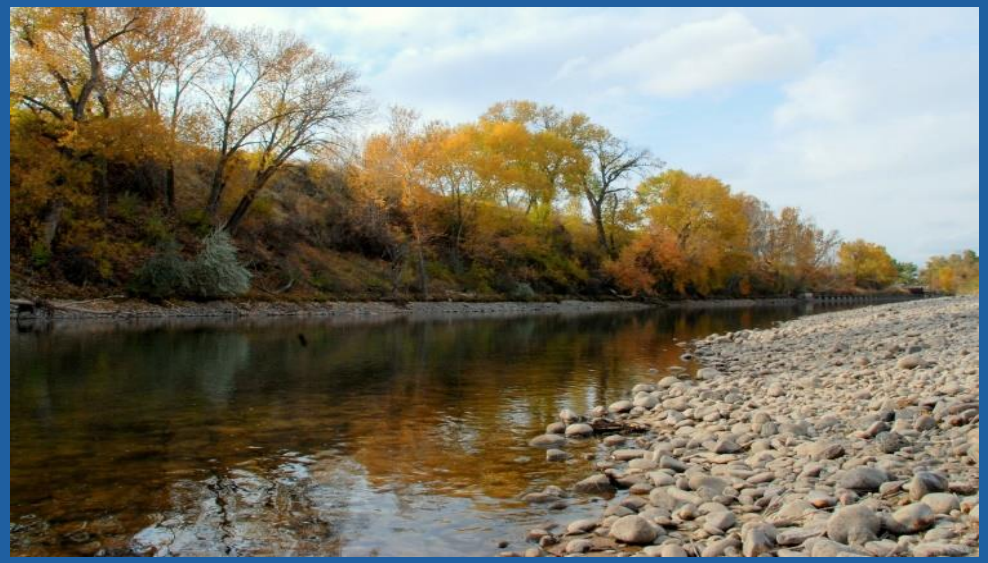

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Trade Ratios

Addressing Risk and Uncertainty: Trading Ratios

- A ratio is: A numeric value that is multiplied by the number of credits that would otherwise be required.
- Ratios ensure that the environmental benefit of a credit generating project is equivalent to or greater than reduction from installed treatment technology.
- Expressed as a ratio of the credits needed per unit of discharge (e.g., a 2:1).
- May apply to seller side or buyer side.

Trading Ratios: EPA talks about 5 ratio types

- **Uncertainty:** Covers inaccuracies in estimation and/or variability in project performance.
- **Reserve:** Creates a pool of credits buyers can access in the case of unforeseen credit losses due to project failure (e.g., from a flood or drought).
- **Retirement:** Set aside for net environmental benefit or to accelerate water quality improvements.
- **Delivery/attenuation:** Covers the change in pollutant reduction impact from where it leaves a field, into a stream, and down to a point of concern.
- **Equivalency:** Creates equivalency between different forms of the same pollutant (e.g., dissolved and particulate phosphorous) or different types of pollutants (e.g., TP and TN effect on dissolved oxygen).

Trading Ratios: Boise Recommendations

Ratio	Original Framework	Considerations for Revision
Delivery	Site location and delivery ratios ranged from 0.20 to 0.95 proposed to account for the attenuation between specific points of generatation, points of sale, and the mouth of the Lower Boise near Parma (DEQ 2010, Appendix B).	Current understanding of the Boise system indicates that there is no evidence of significant attenuation from one point of discharge to another location. **Suggested Change:** Use no delivery ratio; Have an eligibility criterion for a field to have a direct hydrologic connection

Trading Ratios: Boise Recommendations

Ratio	Original Framework	Considerations for Revision
Uncertainty	Dr. Carter's report recommends accounting for variability in BMP efficiency rates with uncertainty rates for each BMP type, ranging from 5-20% (Carter 2002). This does not account for variability in performance or weather, which may affect water quality benefits provided.	Uncertainty ratios exist in almost all trading programs nationally. EPA Chesapeake memo refers to a 2:1 ratio. **Suggested Change:** Use a 2:1 uncertainty ratio that can be adjusted downward by actions to reduce uncertainty.

Trading Ratios: Boise Recommendations

Ratio	Original Framework	Considerations for Revision
Net Environmental Benefit (Retirement)	A ratio attached to each trade to help meet nonpoint source water quality goals. The approach ranged from 10%-20% ratio in initial years, with later phases tying these ratios to TMDL and TMDL implementation plan needs (DEQ, 2010, Sec 2.2.7).	**Suggested Change:** Use a 1.2:1 ratio to ensure net environmental benefit.

Trading Ratios: Boise Recommendations

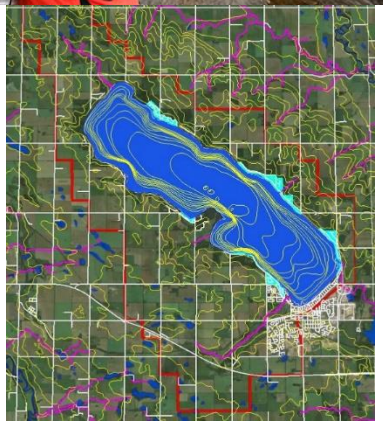
Ratio	Original Framework	Considerations for Revision
Minimum Trade Ratio	The original framework referenced a possible minimum ratio of 1:1 for simple trades, where buyers and sellers are located near each other. However, given the variety of factors considered with other ratios (described above), the 1:1 scenario would have been rare.	**Suggested Change:** Set a default ratio of **2.2: 1,** with actions taken to reduce uncertainty that could reach a **1.5:1** ratio.

Trading Ratios: Boise Recommendations

<u>Ways to reduce the Uncertainty Ratio with approval from DEQ</u>

- The permittee can demonstrate, through direct measurement, in-stream water quality improvements in a manner that reduces the influence of uncertainty; or

- The permittee agrees to fund and undertake research initiatives investigating the effectiveness of project types at reducing dissolved phosphorus loads within subsurface and baseflow.



<u>Ratios are not the only way to deal with uncertainty</u>

- Conservative credit quantification approaches
- Eligibility criteria
- Verification approaches
- BMP quality standards

Guiding Questions

- Which trading ratios are best suited to reduce risk and uncertainty in the Lower Boise?

- What other program mechanisms can be used to reduce uncertainty?

Ratio Type	Ratio Multiplier
Delivery	N/A
Equivalency	N/A
Uncertainty	2
Reserve	N/A
Retirement	0.2
TOTAL	2.2 : 1

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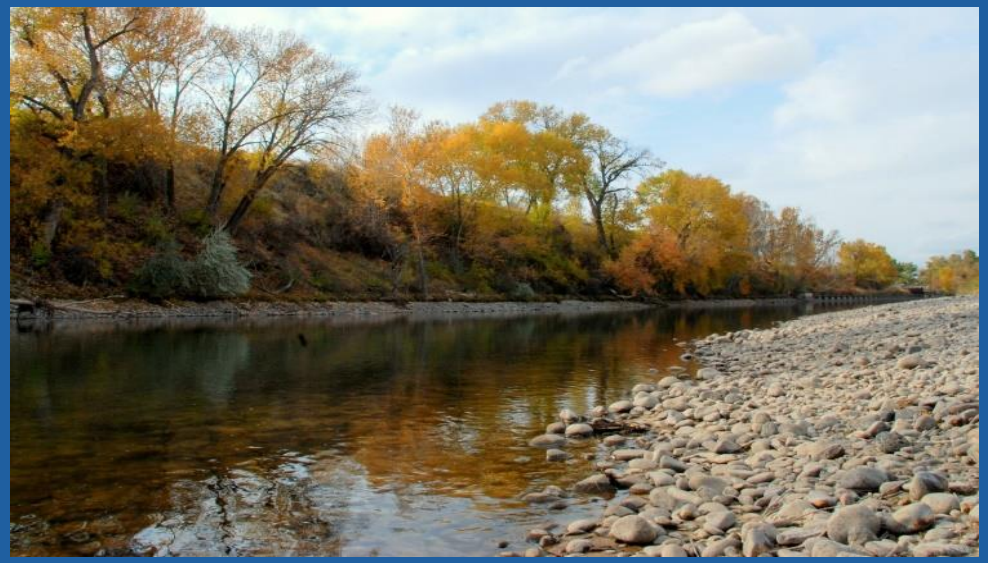

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Leveraging Multiple Funding Sources

Leveraging multiple funding sources for projects

<u>Why does the source of funds used for a BMP matter?</u>

- Would implementation of actions (BMPs) have occurred without payment for credits generated?
- Does use of funds create double counting of environmental benefits?

Leveraging multiple funding sources for projects

Options	Considerations
Allow public funding to generate credits	• May raise questions about whether trades generate additional water quality benefits and could create legal risks for point sources under the CWA. • May create financial inefficiencies and potential inequities for farmers that do not receive conservation payments. • Can increase landowner participation by creating additional incentives to install BMPs.

Source: National Network: *Building a Water Quality Trading Program: Options and Considerations*

Leveraging multiple funding sources for projects

Options	Considerations
Never allow public funds to be used for credit-generating projects in whole or part	• Programs can be more certain that project would have been completed without credit payment and benefits are not double counted. • May reduce participation by landowners or preclude development of larger projects that require multiple funding sources.

Source: National Network: *Building a Water Quality Trading Program: Options and Considerations*

Leveraging multiple funding sources for projects

Options	Considerations
Allow projects partially funded by public funds to generate credits in proportion to private investment	• May raise questions about whether projects could have been completed with the public payment alone. • More complex and requires care to ensure benefits counted towards TMDL are restricted to portion of benefits attributed to private funds. • Allows access to additional funds and may incentivize greater participation

Source: National Network: *Building a Water Quality Trading Program: Options and Considerations*

Guiding Questions

- The Framework concept says now:
  - Public conservation funds can be used to meet baseline
  - But those funds cannot generate credits used by a permittee
  - And a project can leverage multiple funding sources, it just needs to account for which portion goes to generating credits and which portion goes to the public conservation funding source
- Does the Framework treat leveraging of public conservation funds appropriately?
- What risks are there in allowing or not allowing use of multiple funding sources specifically in the context of the Lower Boise River?

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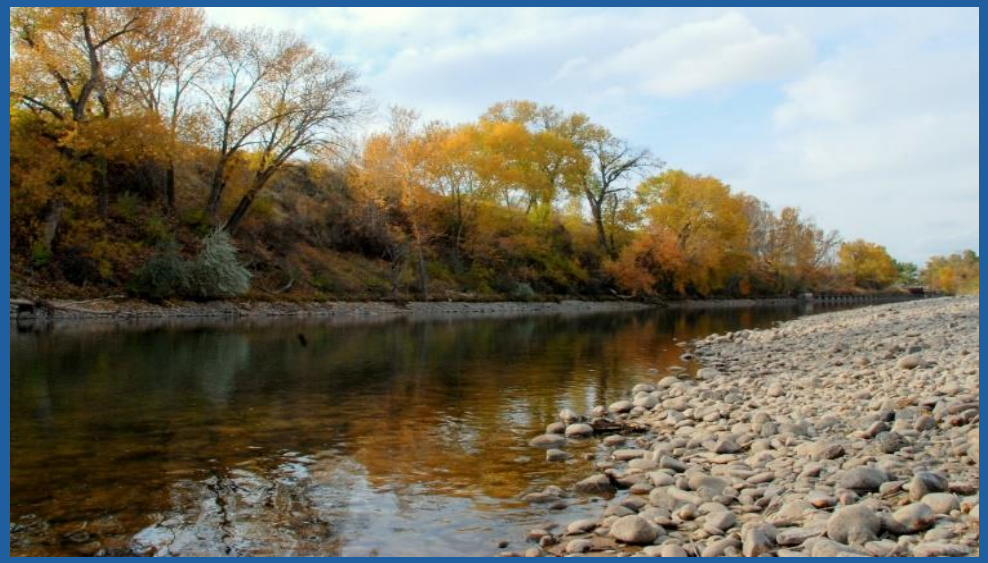

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Wrap Up

Meeting Wrap-up and Action Items

- Summarize key recommendations or proposals
- Identify issues that required additional conversations/elevation to WAG
- Identify key action items and responsible parties

Next meeting

- April 27th 10:30am – 4:00pm, Location TBD…

Items to discuss:

- Carry over items from March 28th meeting
- Update on action items
- Trade Tracking and Reporting
- Program Improvement and Adaptive Management

Thank You for Participating!