



Cascade Water Alliance

Connections Working Group

Meeting #3

September 10, 2009

Overview of Ranking Scenarios

- **Cascade Ranking**

Incorporates changes in some project scores based on feedback and review, uses RMC weights

- **Connections Group Ranking**

Uses criteria weights from Cascade Connections Working Group

- **Changes to Financial Criteria**

Eliminates the Utilization of Past Investments sub-criteria, uses RMC weights

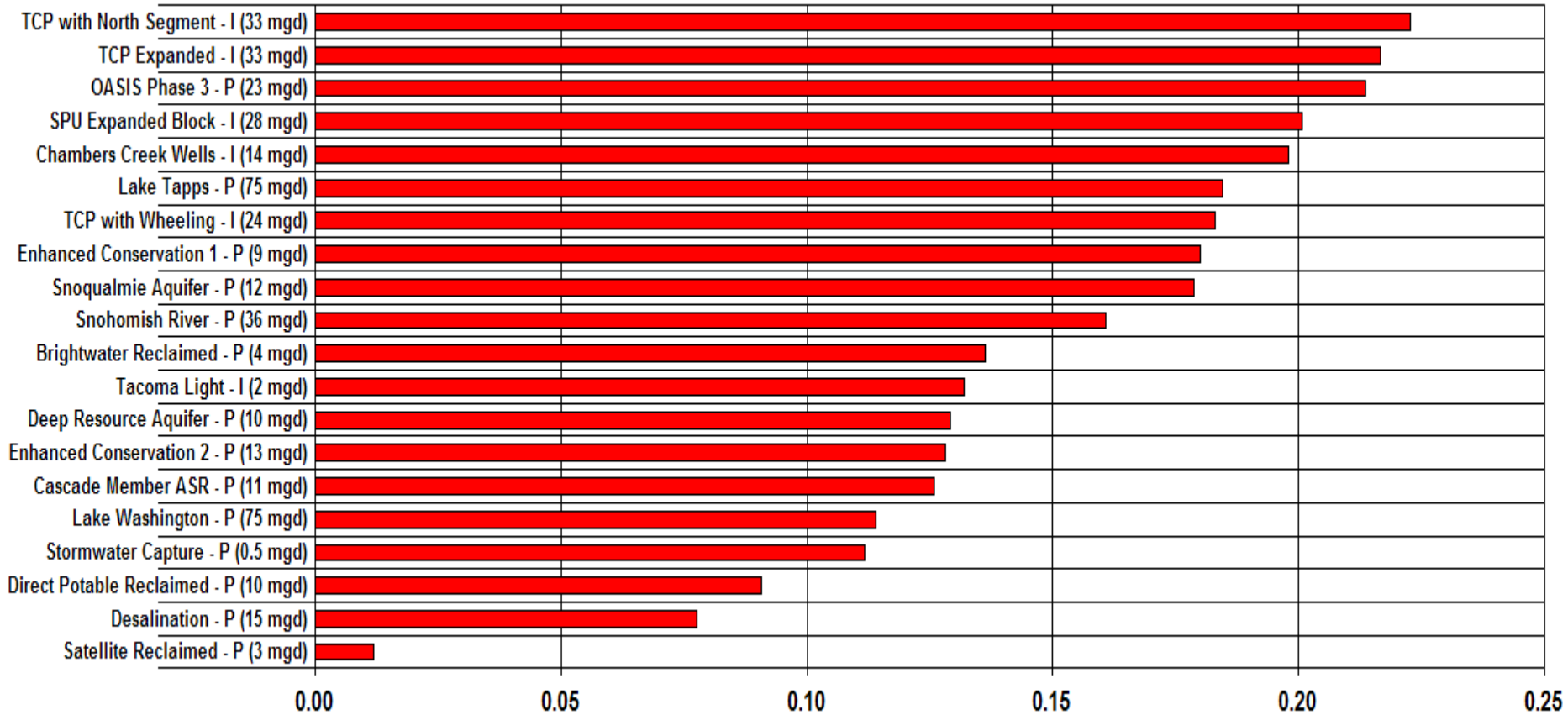
- **Quadrant Analysis Approach (Removes Financial Criteria altogether)**

Uses an approach similar to that used by Seattle Public Utilities; RMC weights adjusted for elimination of Financial criterion

A close-up, high-speed photograph of water splashing, creating a dynamic and energetic background. The water is captured in mid-air, with droplets and bubbles visible, set against a bright, slightly blurred background.

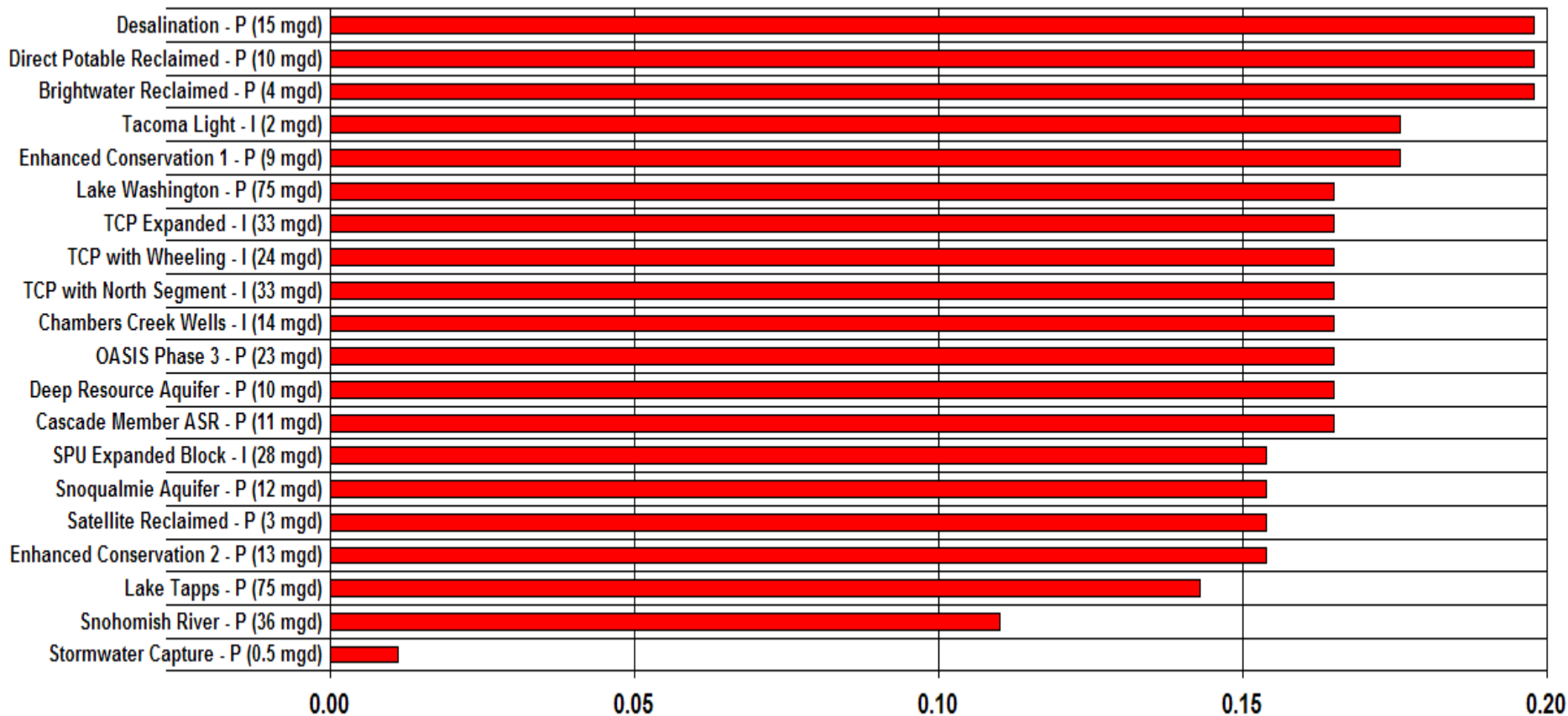
Cascade Ranking

Financial Criteria Ranking



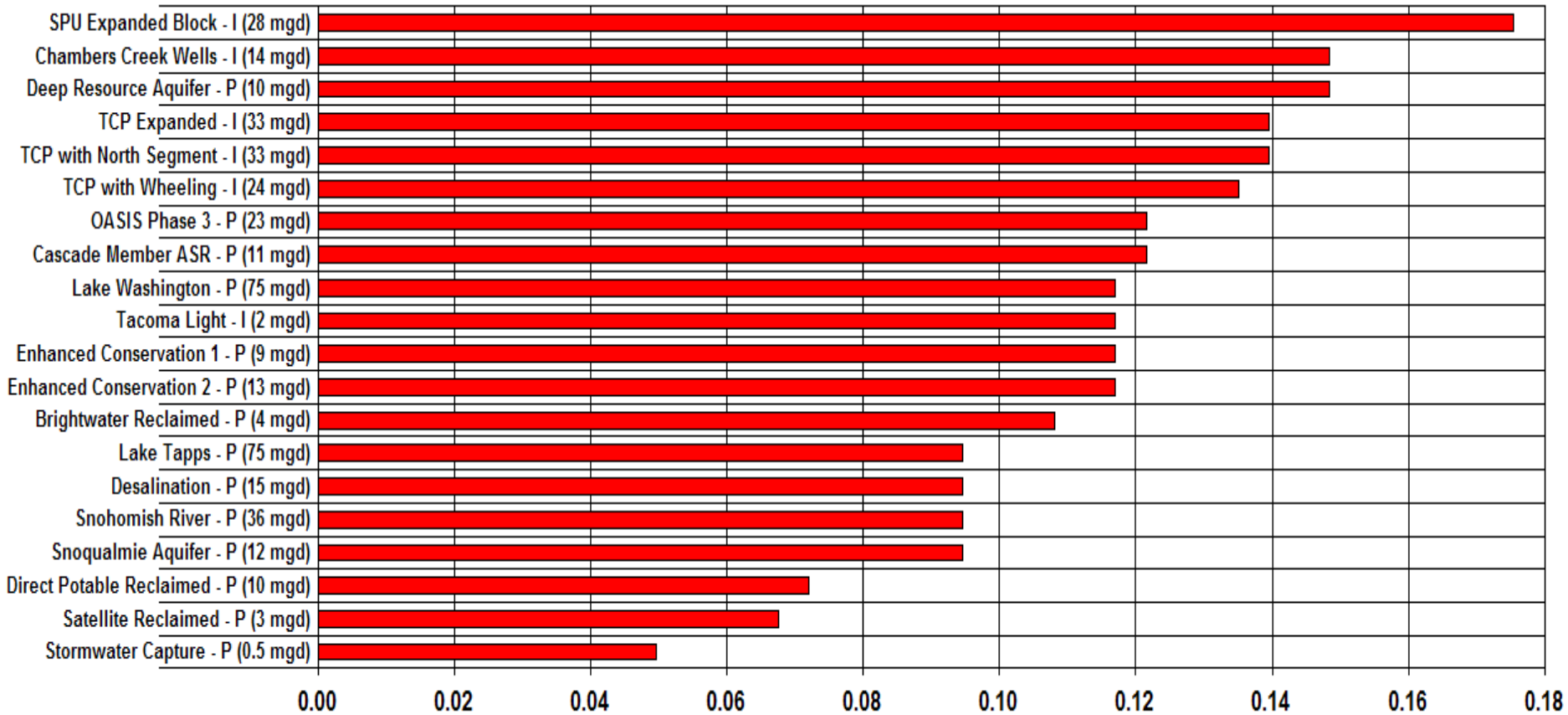
Highest ranked projects are those that have best combination of low unit cost, low degree of cost uncertainty, and that have past Cascade investments (sunk costs)

Supply Reliability Criteria Ranking



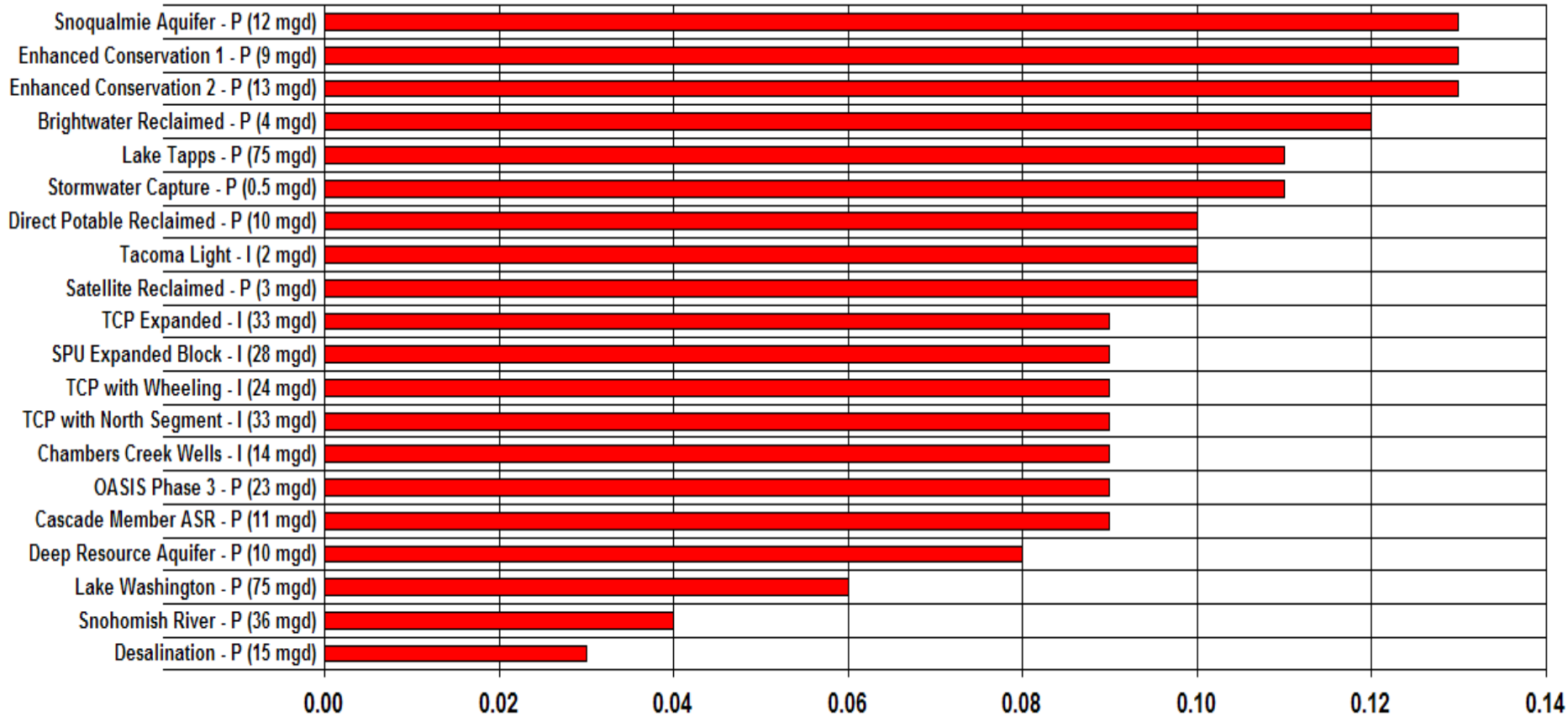
Highest ranked projects are those that have best combination of high degree of availability, low variability due to hydrologic events, and low vulnerability to outages

Operational Criteria Ranking



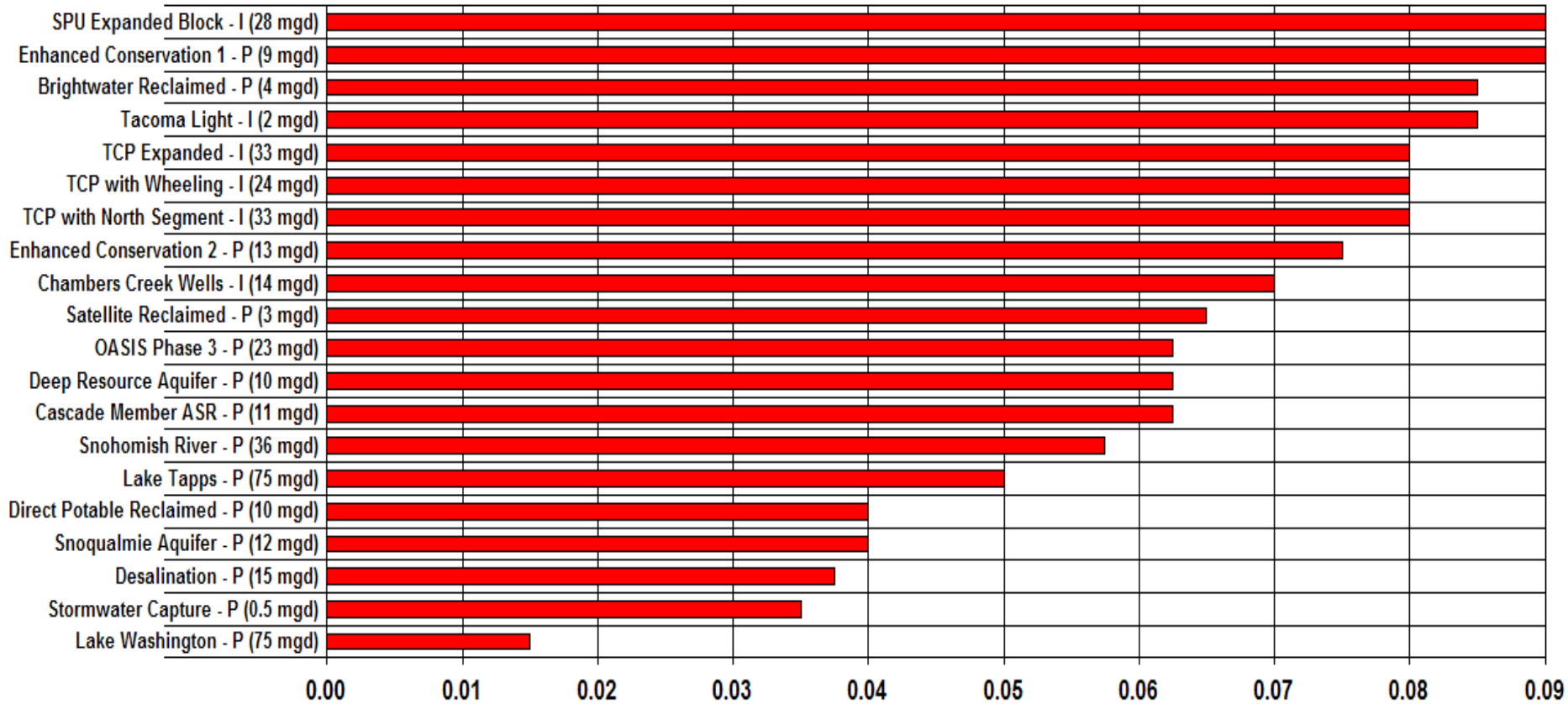
Highest ranked projects are those that have best combination of low operational complexity, high water quality compatibility, low vulnerability to source contamination and high flexibility

Environmental Criteria Ranking



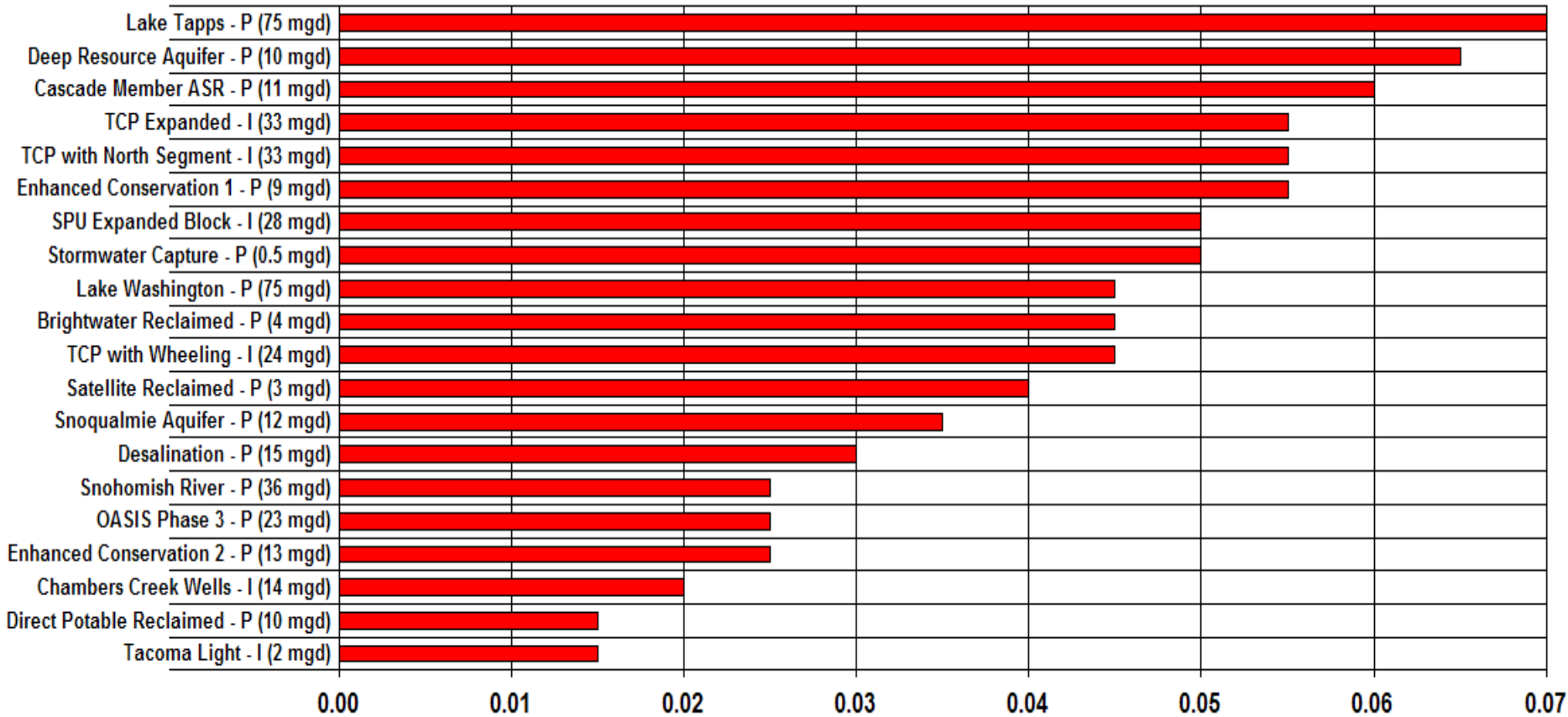
Highest ranked projects are those that have best combination of low energy requirements and high net positive environmental impacts

Implementation Criteria Ranking



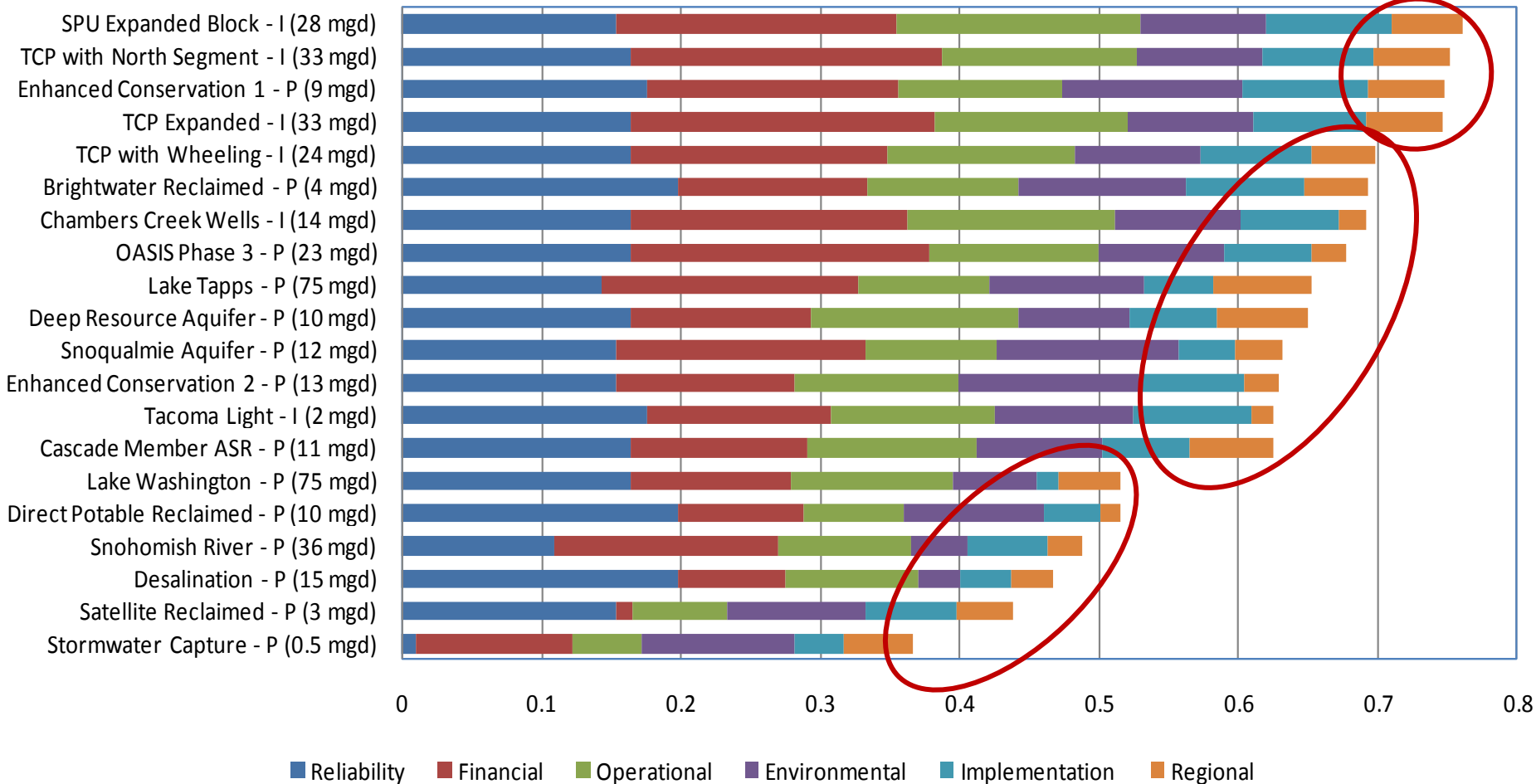
Highest ranked projects are those that have best combination of ease of obtaining water rights and permits, high degree of public acceptance, and enables other projects to be implemented

Regional/Intergovernmental Criteria Ranking

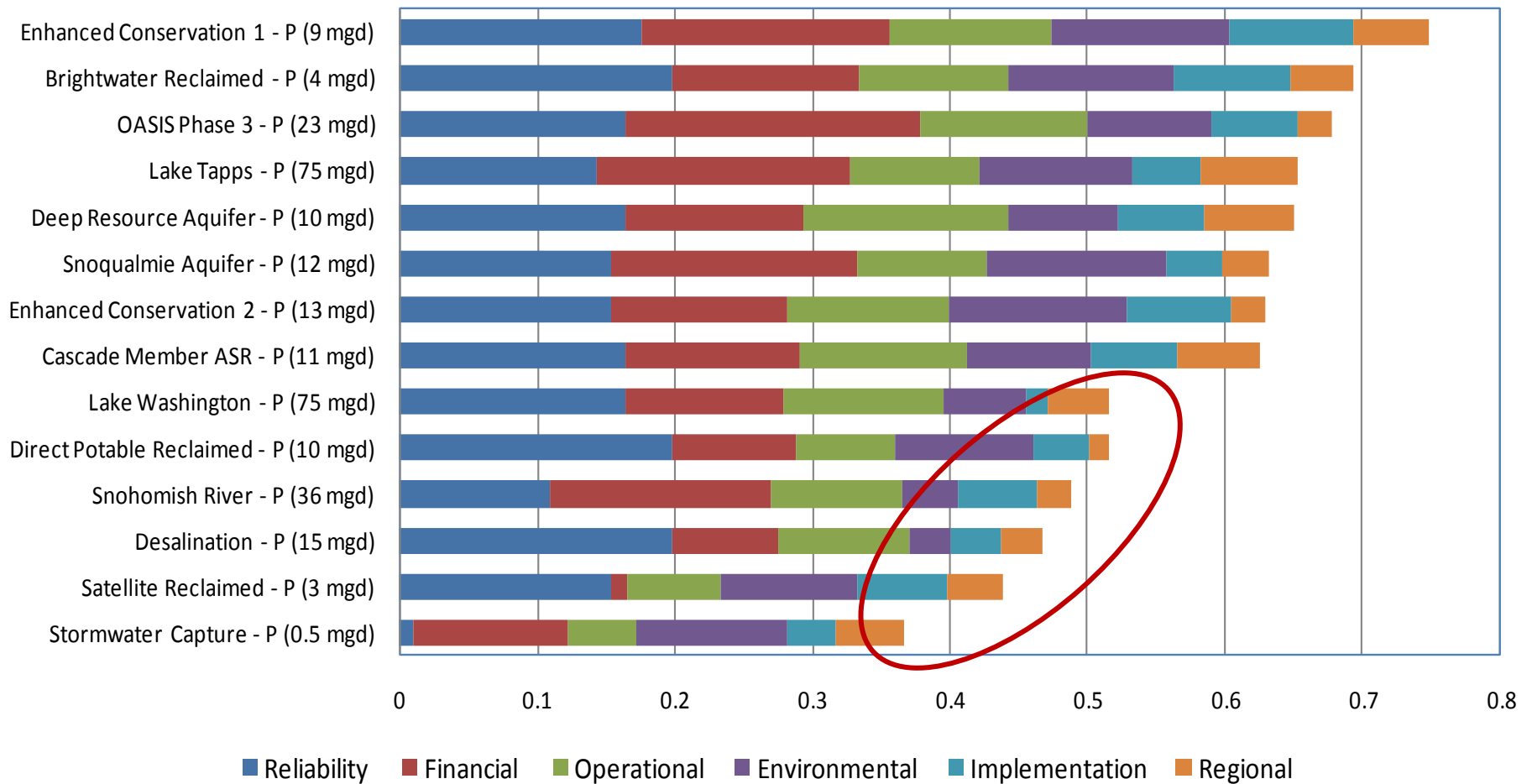


Highest ranked projects are those that have best combination of providing regional benefits, high level of control, low partnership/governmental complexity, and low institutional hurdles

Overall Ranking of ALL Projects



Overall Ranking of Permanent Supply Projects



Overall Ranking of Interim Supply Projects



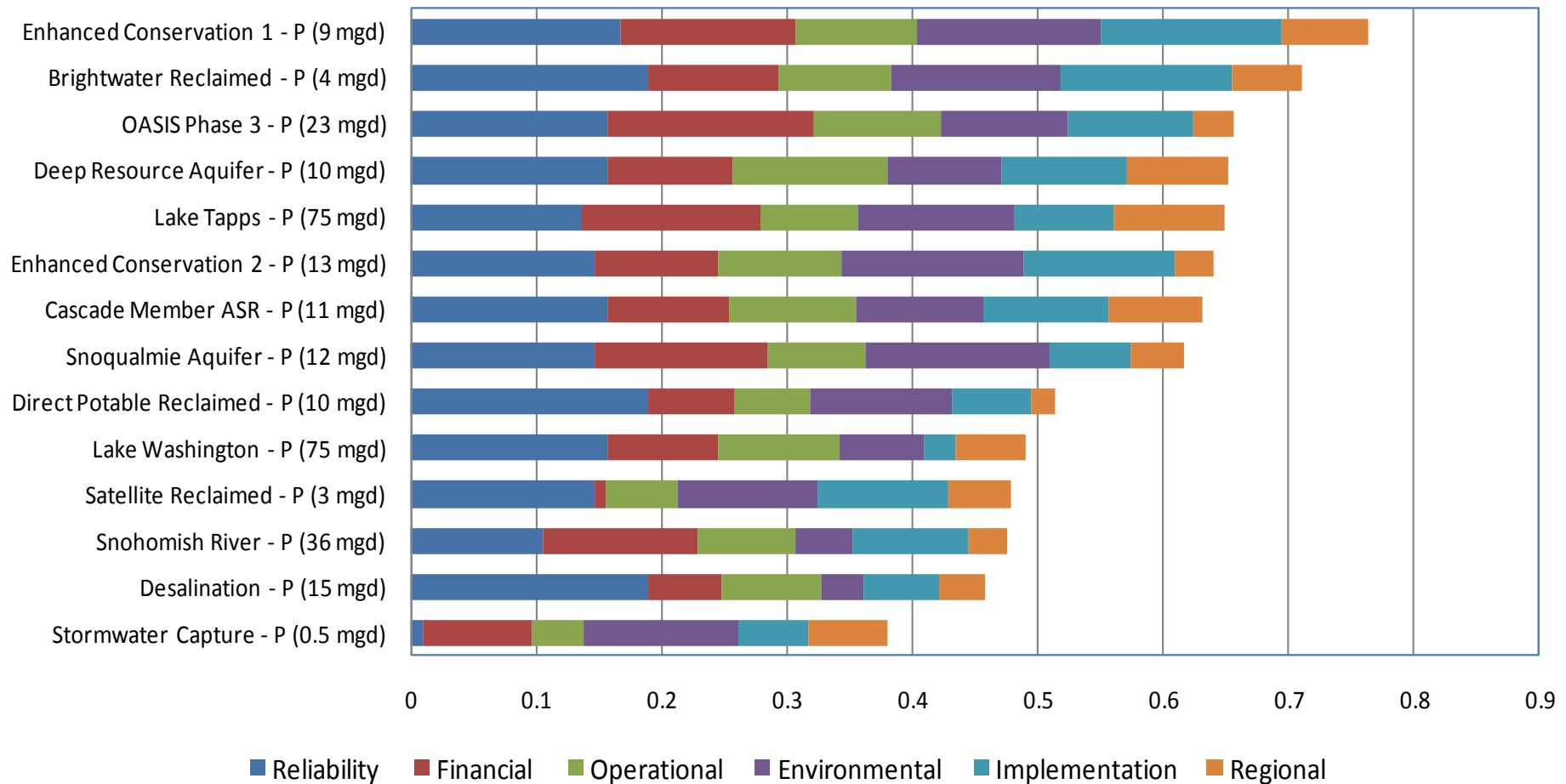
A background image showing a close-up of water splashing, with many bubbles and droplets, creating a dynamic and textured blue and white scene.

Cascade Connections Working Group Weights Ranking

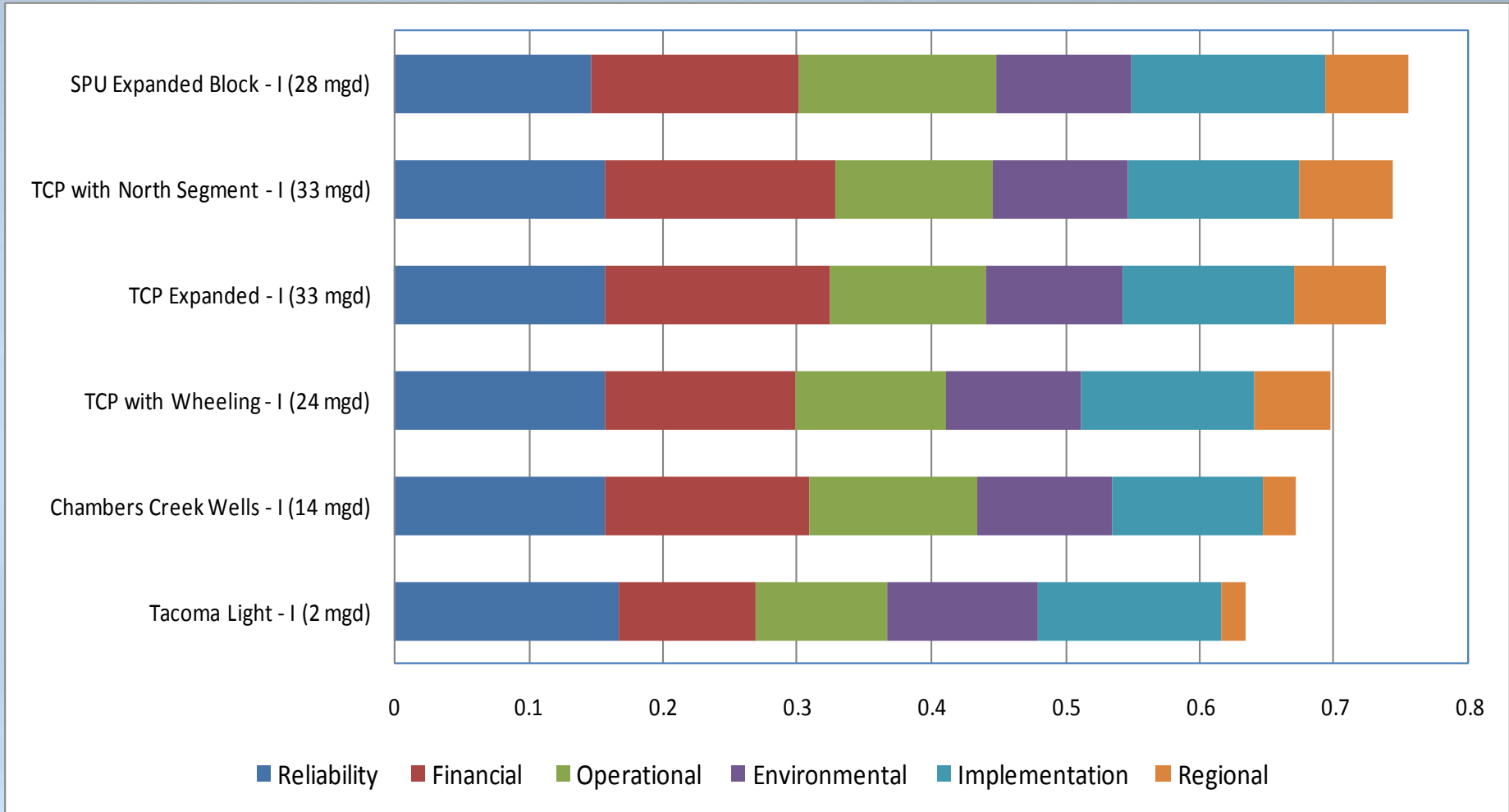
Criteria Weights from “Dot Exercise”

Criteria	RMC	Connections Group
Reliability	22%	21%
Financial	26%	20%
Environmental	16%	18%
Implementation	10%	16%
Operational	18%	15%
Regional/Intergovernmental	8%	10%

Overall Ranking of Permanent Supply Projects



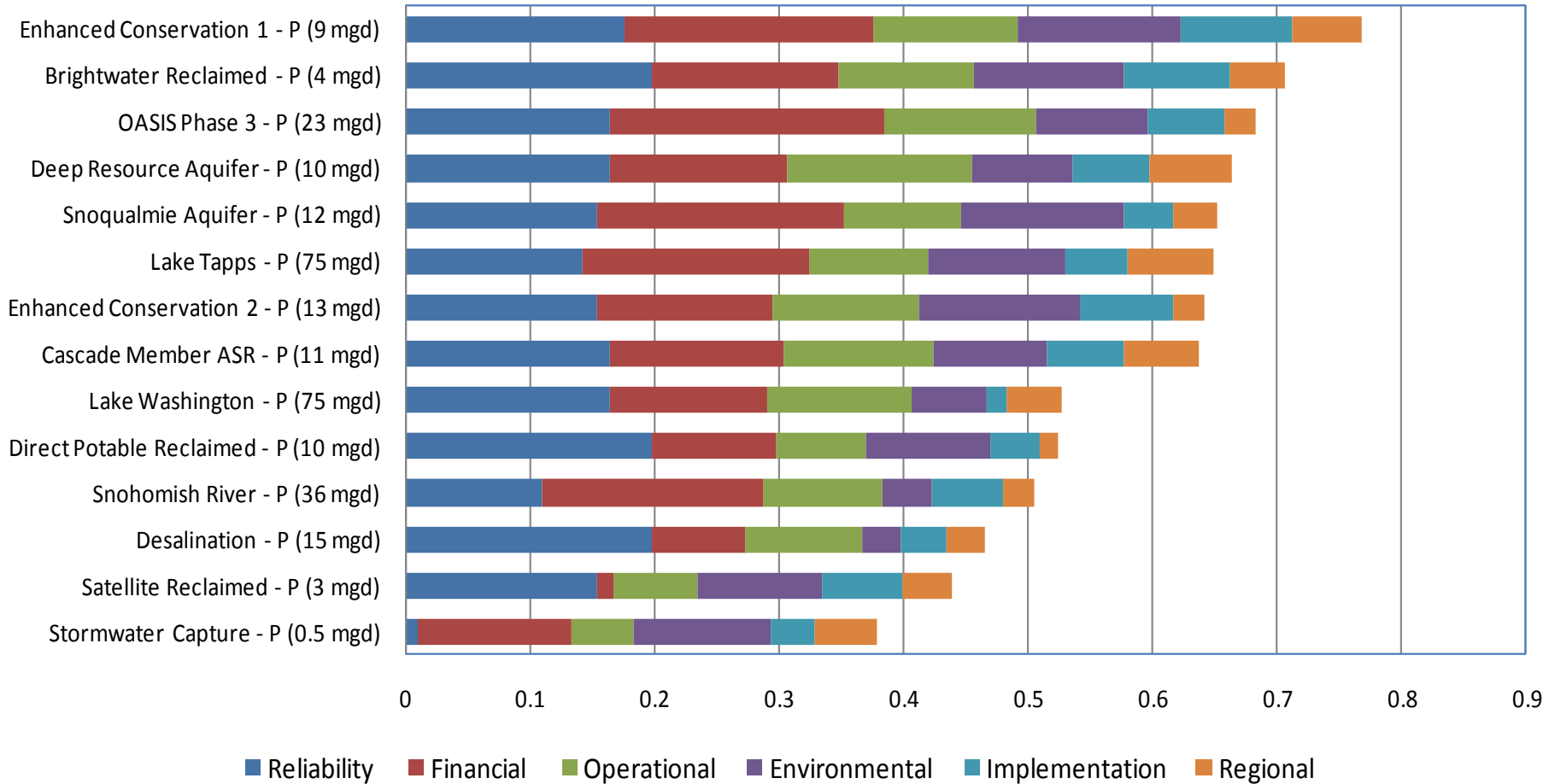
Overall Ranking of Interim Supply Projects



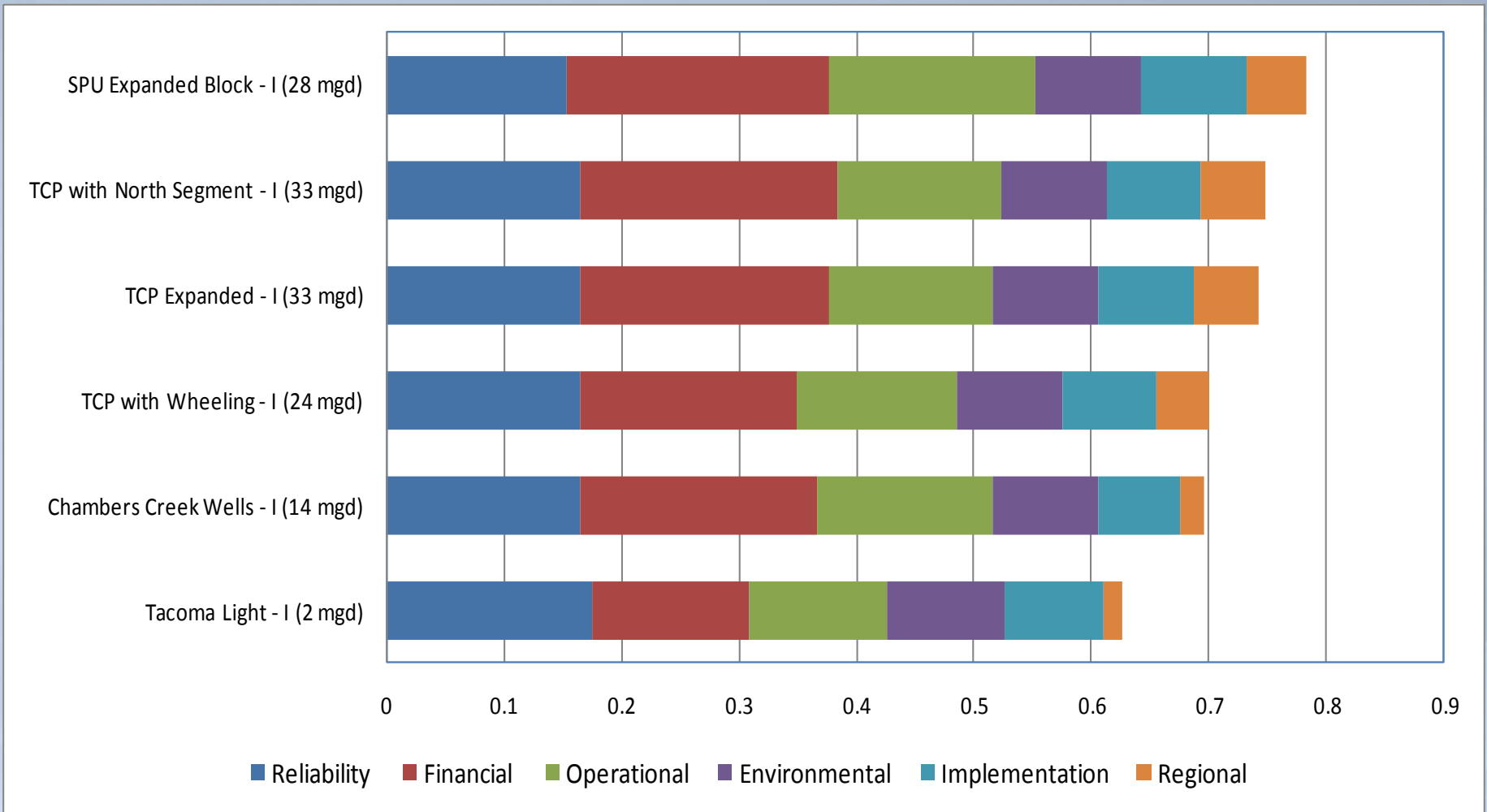
A dynamic background image showing a splash of clear water against a light blue sky. The water is captured in mid-air, creating a sense of movement and freshness. The overall color palette is cool and aquatic, with various shades of blue and white.

Changes to Financial Criteria Ranking

Overall Ranking of Permanent Supply Projects



Overall Ranking of Interim Supply Projects



Comparison of Rankings

A background image showing a dynamic splash of water with many bubbles and droplets, rendered in a light blue color palette. The water is captured in mid-air, creating a sense of movement and freshness.

Rankings Compared

Supply Projects	Baseline Ranking	Stakeholder Weight Ranking	Changed Financial Criterion Ranking
Permenant Projects			
Enhanced Conservation 1 - P (9 mgd)	1	1	1
Brightwater Reclaimed - P (4 mgd)	2	2	2
OASIS Phase 3 - P (23 mgd)	3	3	3
Lake Tapps - P (75 mgd)	4	5	6
Deep Resource Aquifer - P (10 mgd)	5	4	4
Snoqualmie Aquifer - P (12 mgd)	6	8	5
Enhanced Conservation 2 - P (13 mgd)	7	6	7
Cascade Member ASR - P (11 mgd)	8	7	8
Lake Washington - P (75 mgd)	9	10	9
Direct Potable Reclaimed - P (10 mgd)	10	9	10
Snohomish River - P (36 mgd)	11	12	11
Desalination - P (15 mgd)	12	13	12
Satellite Reclaimed - P (3 mgd)	13	11	13
Stormwater Capture - P (0.5 mgd)	14	14	14
Interim Projects			
TCP with North Segment - I (33 mgd)	1	2	2
SPU Expanded Block - I (28 mgd)	2	1	1
TCP Expanded - I (33 mgd)	3	3	3
Chambers Creek Wells - I (14 mgd)	4	5	5
TCP with Wheeling - I (24 mgd)	5	4	4
Tacoma Light - I (2 mgd)	6	6	6

No change
in ranking

Slight
change in
ranking

A background image showing a dynamic splash of clear water against a light blue gradient. The water is captured in mid-air, creating a sense of movement and freshness. The splash is centered and extends towards the bottom of the frame.

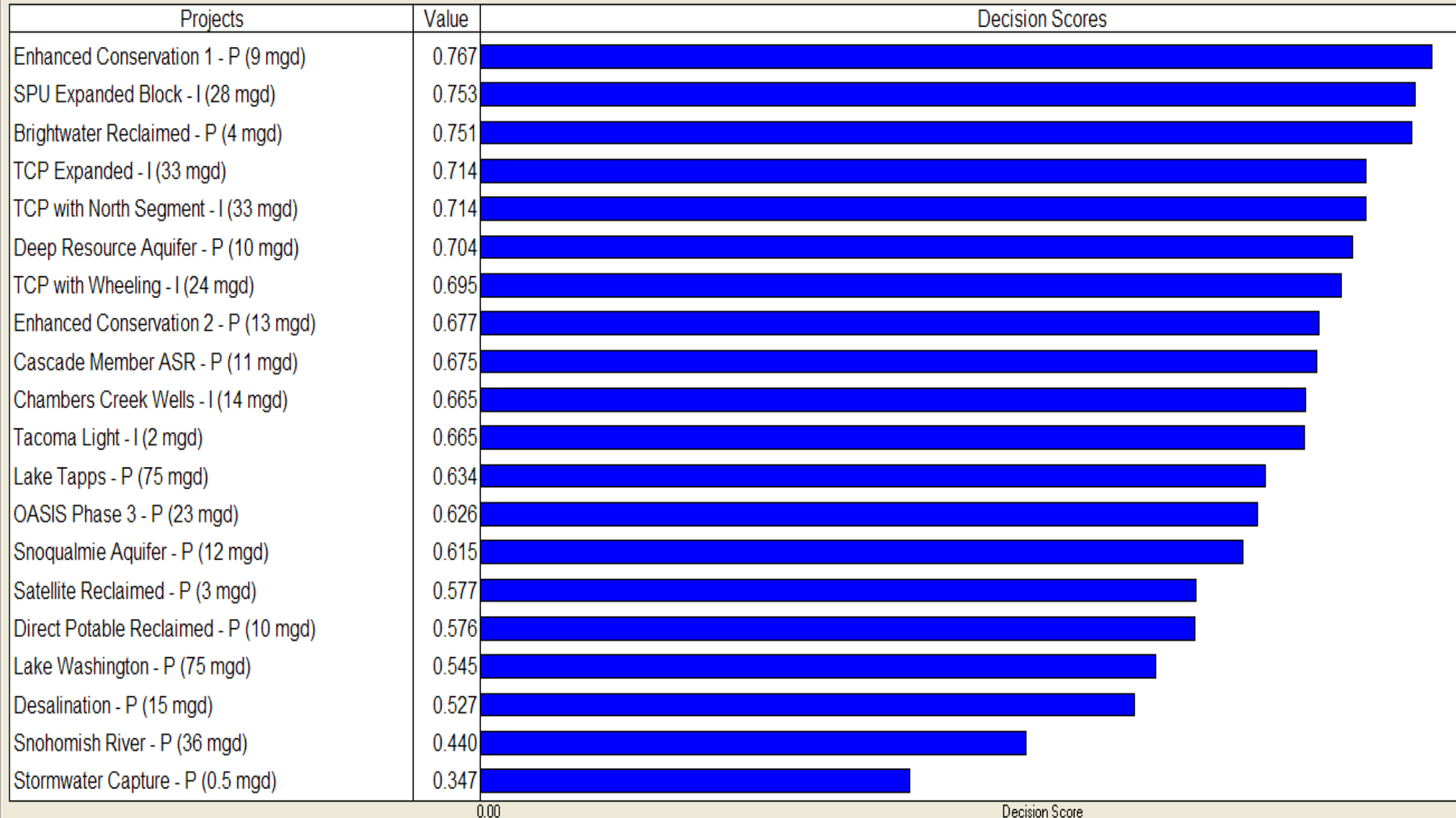
Quadrant Analysis Approach

Overview of Quadrant Analysis

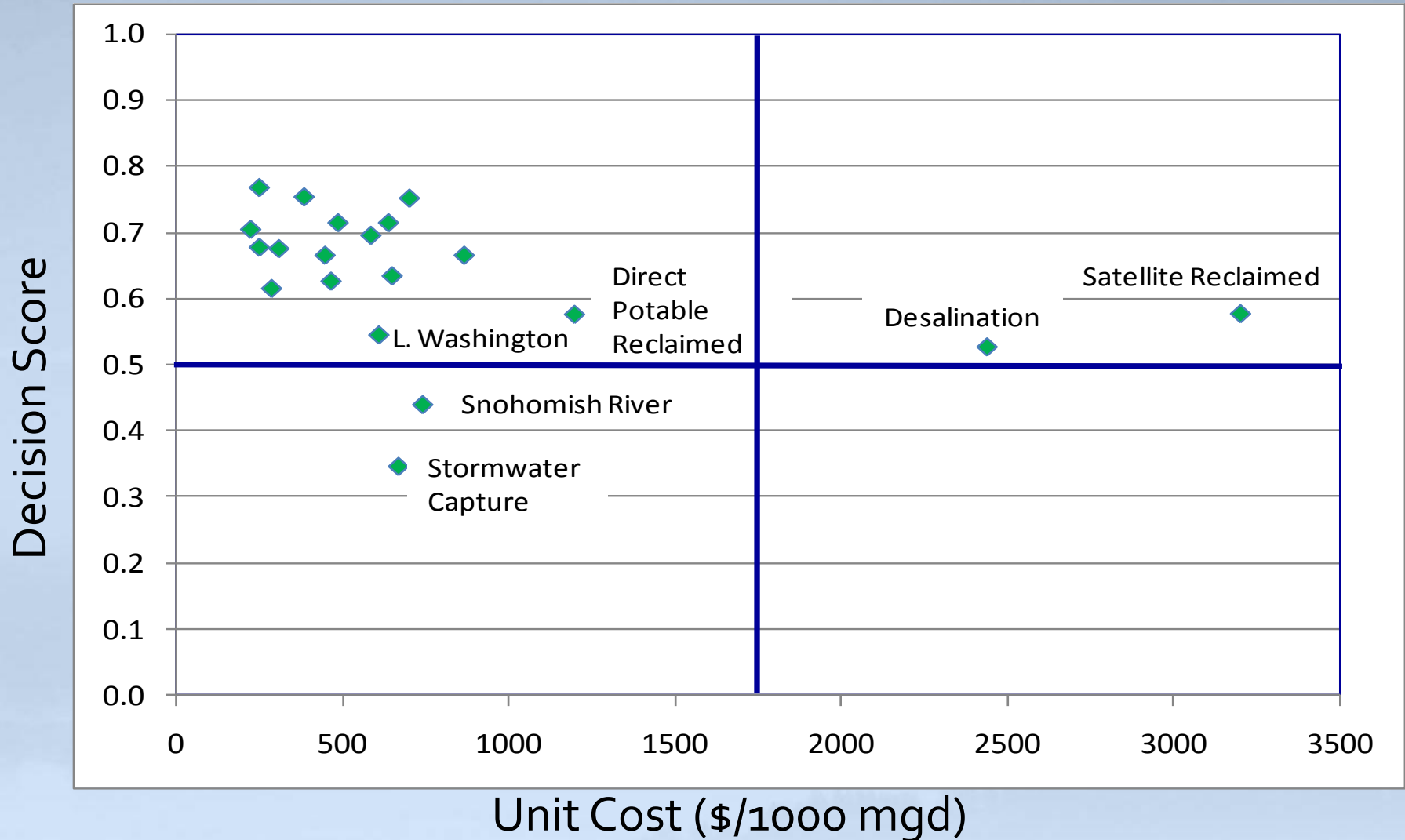
- Cascade criterion and weights, but the financial criterion is removed altogether
- A total Decision Score without the financial criterion is then plotted against total unit cost to create a quadrant graph
- Projects in upper left quadrant are high ranking, while projects in lower right quadrant are low ranking

Total Decision Score without Financial

Decision: TSP



Quadrant Analysis Results



Conclusions and Recommendations

- There is some sensitivity to criteria weights and changing the financial criterion, but the low ranking projects are still the same
- The quadrant analysis results are reasonably consistent

Conclusions and Recommendations

(continued)

- These low ranking projects should be eliminated from further evaluation:
 - Lake Washington
 - Direct Potable Reclaimed
 - Snohomish River
 - Desalination
 - Satellite Reclaimed
 - Stormwater Capture
- Additional projects could also be eliminated:
 - Snoqualmie Aquifer (high uncertainties)
 - Tacoma “Light” (low rank, with small yield)
 - Chambers Creek (view as subset of expanded Tacoma supply)

Next Steps

- Develop more detailed description of the remaining supply projects
- Development of portfolios of supply options capable of meeting projected demand, including:
 - Mix of interim and permanent options
 - Scheduling of infrastructure development
- Evaluation of portfolios using multi-criteria analysis method used for individual projects

Recommended Projects for Continued Evaluation

Interim Sources	Permanent Sources
SPU Expanded Block	Enhanced Conservation 1 & 2
TCP with North Segment	Brightwater Reclaimed
TCP with Wheeling	OASIS Phase 3
TCP Expanded	Lake Tapps
	Deep Resource Aquifer
	Cascade Member ASR

In the next stage, different combinations of these projects will be assembled in “portfolios” over the 50-year time frame.

A dynamic background image showing a splash of clear water against a light blue sky. The water is captured in mid-air, with many droplets and bubbles visible, creating a sense of movement and freshness. The overall color palette is cool and aquatic.

Questions and Discussion