

Is Multicriteria Decision Analysis for Ecosystem Services “Scalable”?

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MANAGEMENT OBJECTIVES

METRICS

Upstream

Agricultural Production

• \$\$

Ecoforest

At-Risk Species and Habitat

Species

Bird 1

• Number

Bird 2

• Number

Fish 1

• Number

Salamander 1

• Number

Wetland

• Acres

Recreation

Wildlife Viewing

Quantity

• Access Days

Quality

• Index

Fishing

• Access Days

Canoeing

• Access Days

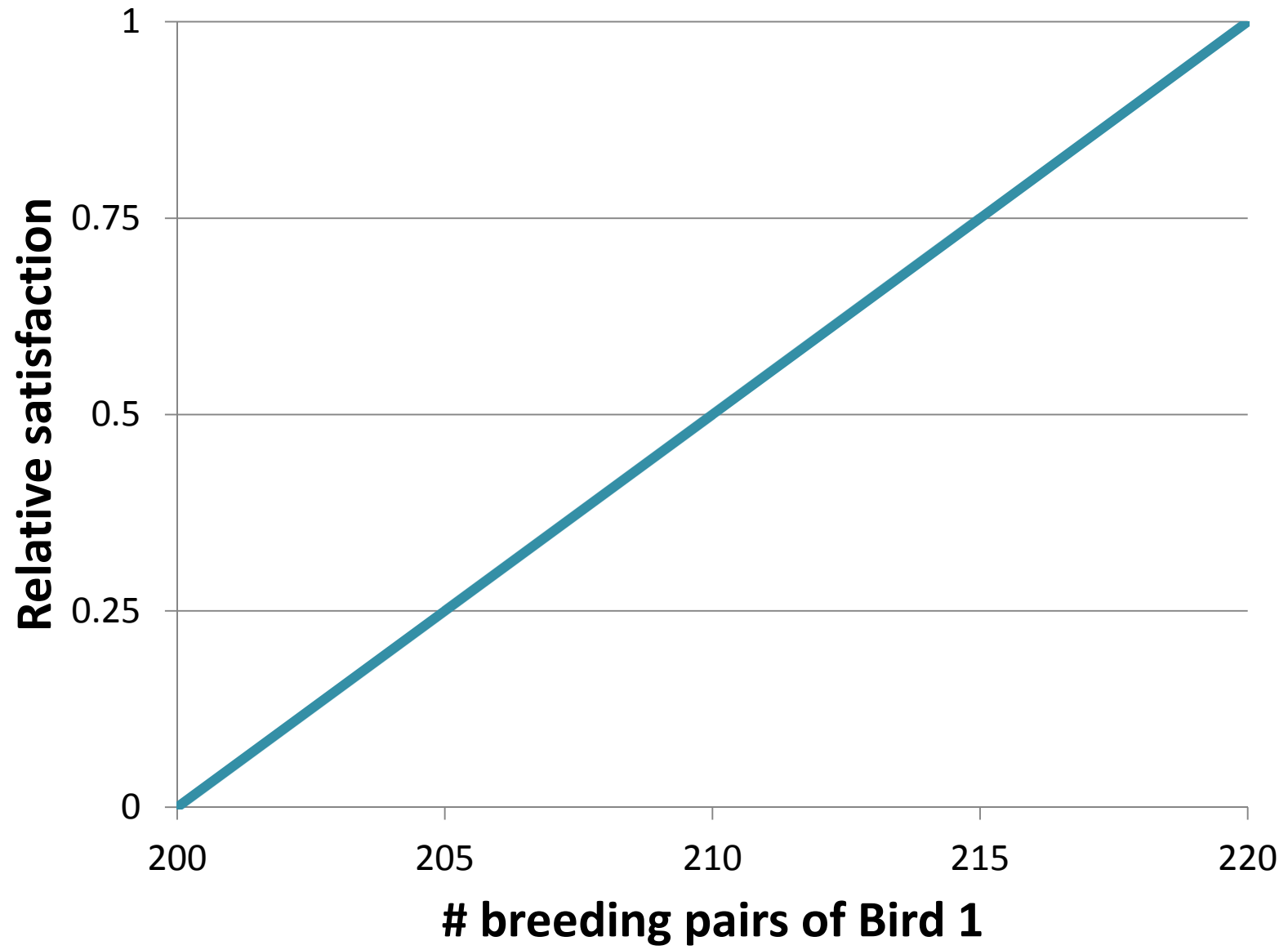
Downstream

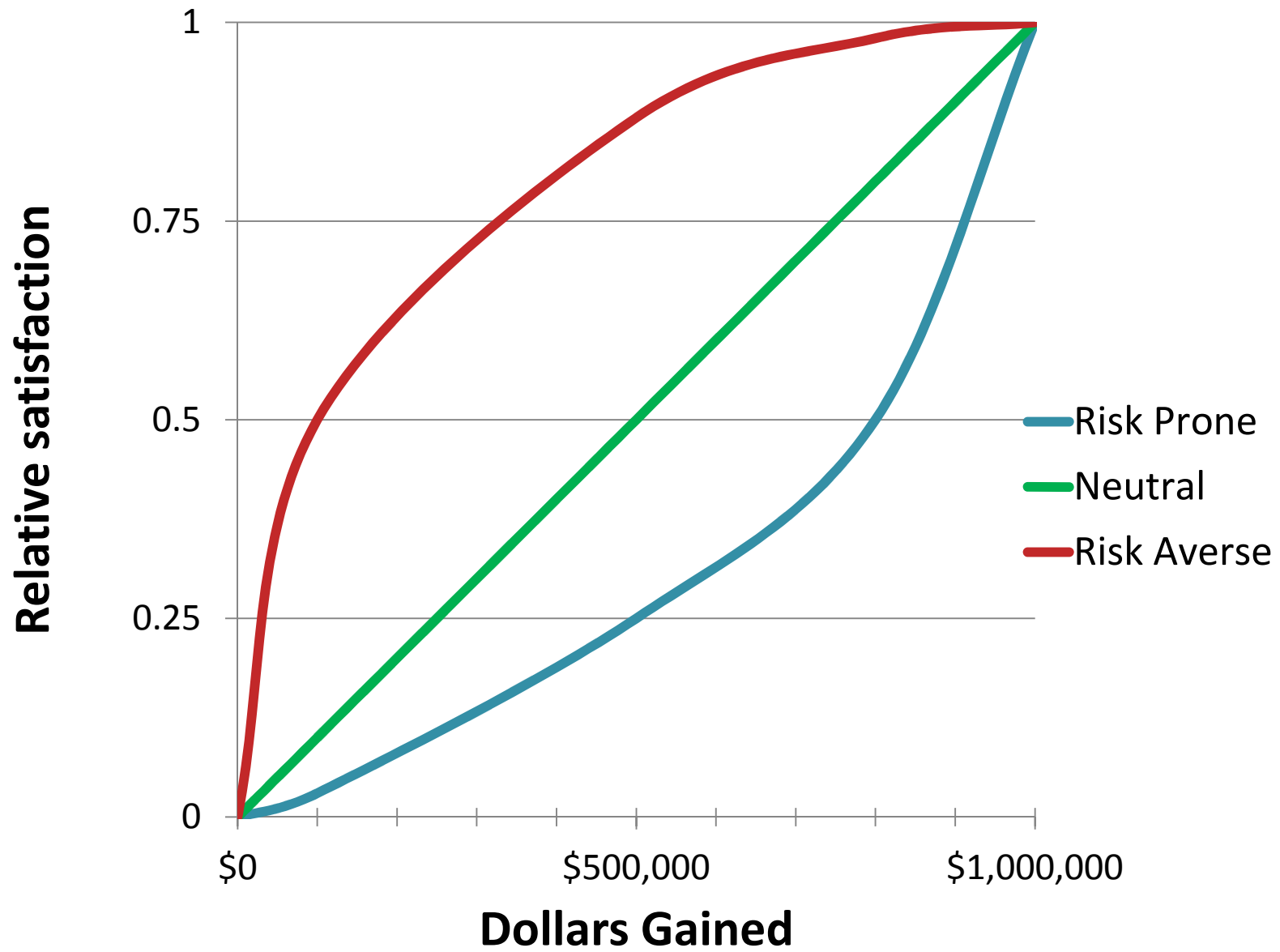
Flood Hazard Reduction

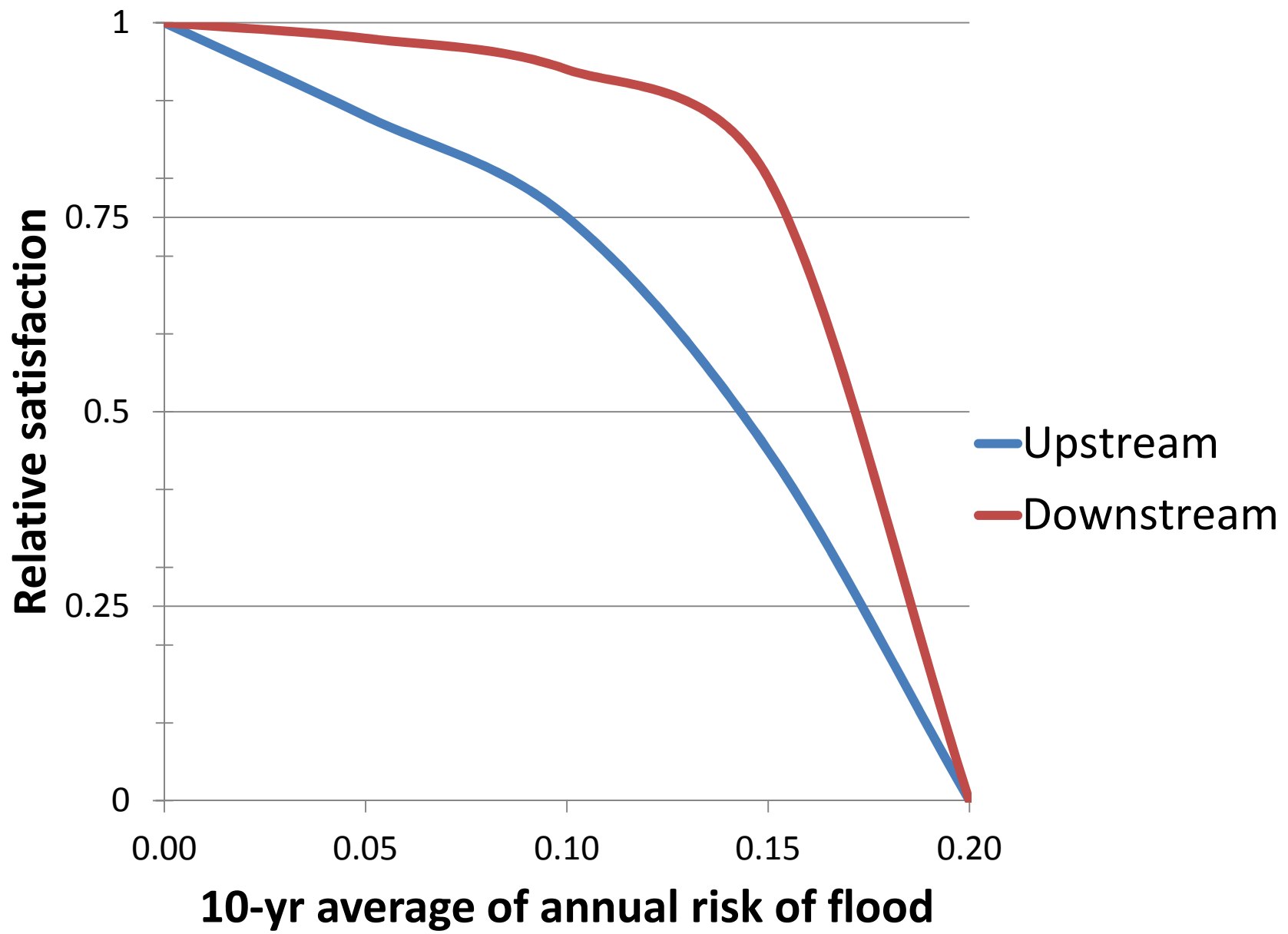
• # Events

Performance of management alternatives

Measures	Status quo	Alternative actions	
		Downstream dam	Upstream release
Numbers of bird 1 (breeding pairs on forest)	200	220	205
Wildlife viewing at walkway site (qualitative scale)	One iconic sp < 5	One iconic sp < 5, one >5	Both >5
Flood events (annual average)	0.2	0.15	0.2
Cost (\$MM NPV)	0.1	1.0	0.8





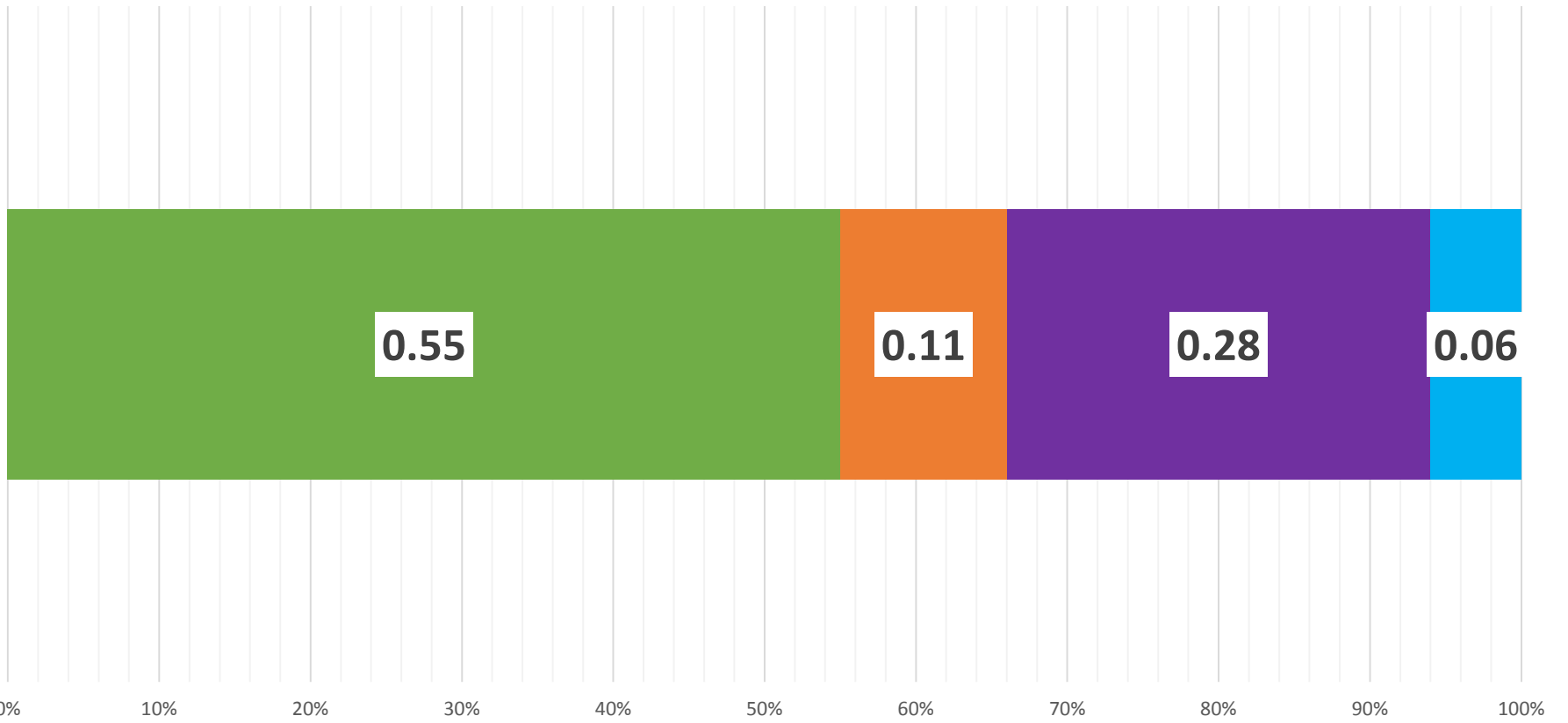


Performance and relative satisfaction

	Status quo	Downstream dam	Upstream release
Numbers of bird 1 (breeding pairs on forest)	200 (0)	220 (1)	205 (0.25)
Wildlife viewing at walkway site (qualitative scale)	One iconic sp < 5 (0.14)	One iconic sp < 5, one >5 (0.86)	Both >5 (1)
Flood events (annual average)	0.2 (0)	0.15 (0.8)	0.2 (0)
Cost (\$MM NPV)	0.1 (1)	1.0 (0)	0.8 (0.6)

Cumulative weight

■ Cost ■ Breeding Pairs ■ Flooding ■ Bird viewing



Weights and Overall Value

Measures (Weights)	Alternatives		
	Status quo	Downstream dam	Upstream release
Numbers of bird 1 (breeding pairs on forest) (w = 0.11)	200 (0)	220 (1)	205 (0.25)
Wildlife viewing at walkway site (qualitative scale) (w = 0.06)	One iconic sp < 5 (0.14)	One iconic sp < 5, one >5 (0.86)	Both >5 (1)
Flood events (annual average) (w = 0.28)	0.2 (0)	0.15 (0.8)	0.2 (0)
Cost (\$MM NPV) (w = 0.55)	0.1 (1)	1.0 (0)	0.8 (0.6)
Overall value	0.56	0.39	0.42

What is MCDA good for?

- Comparing/choosing (not accounting)
- Illuminating trade-offs
- Distinguishing “facts” from “values”
- Capturing expert opinion
- Using qualitative information
- Capturing sources of disagreement among disputing parties (often, differing preferences)

What does it mean to be “scalable”?

- Space
- Time
- Data availability
- Forms of stakeholder/citizen engagement
- Natural/social resource emphases
- Agencies

**PREFERENCES ARE
CONTEXT-DEPENDENT!!!**

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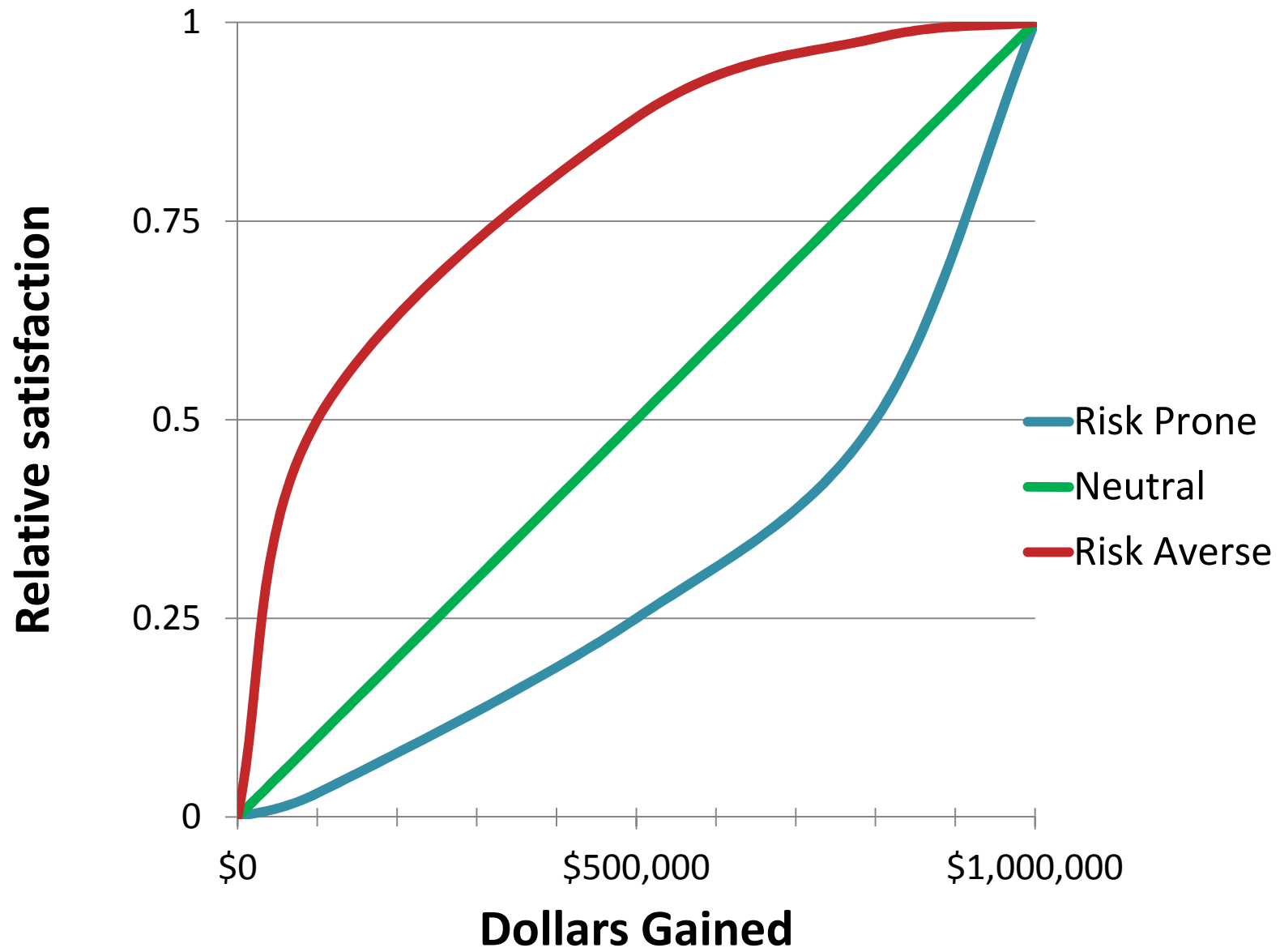
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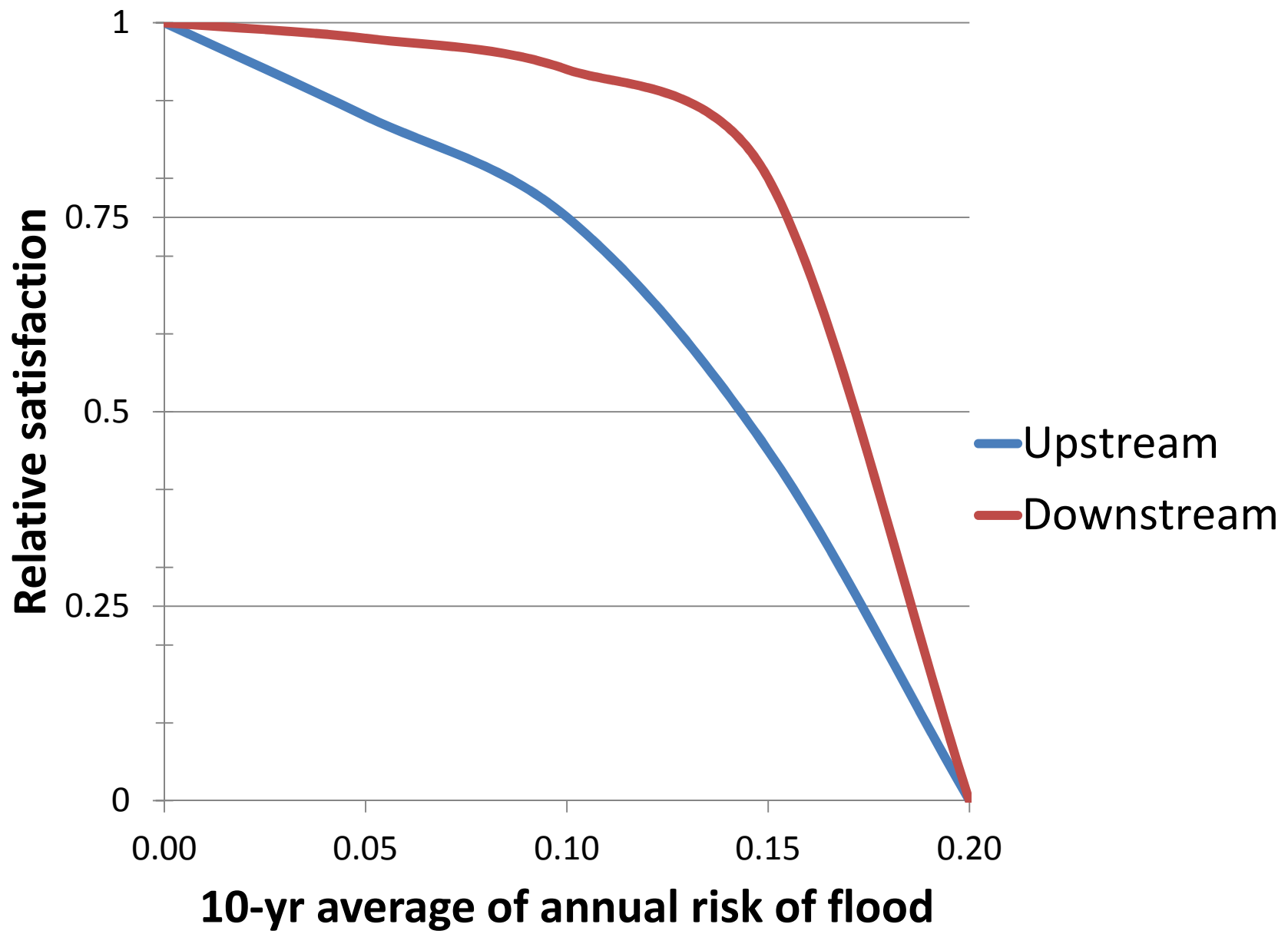
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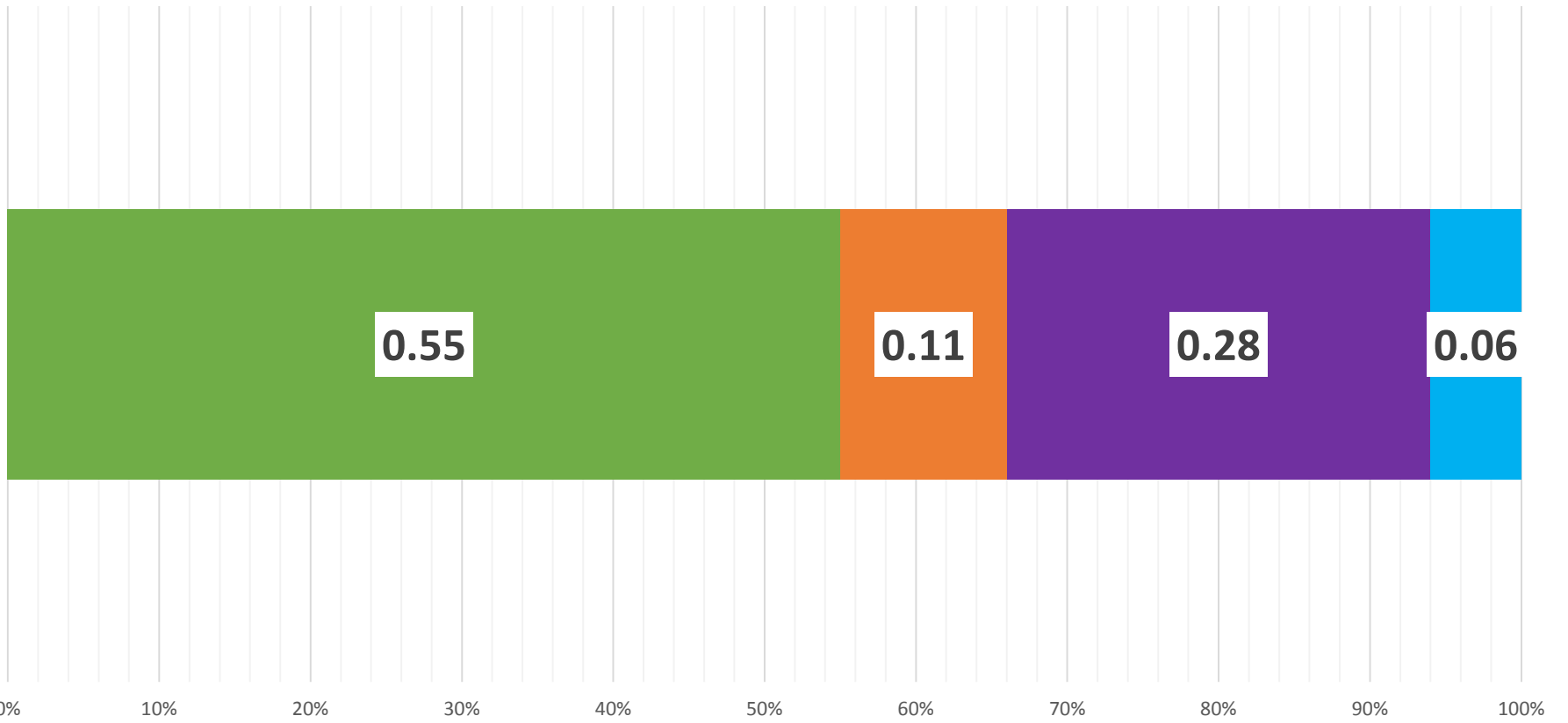
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The hard nuts to crack (and, why do we want to crack them?)

- Transferring preference information across decision contexts
- Aggregating preference information