

Assessing Best Available Science in Hydropower Relicensing Decisions

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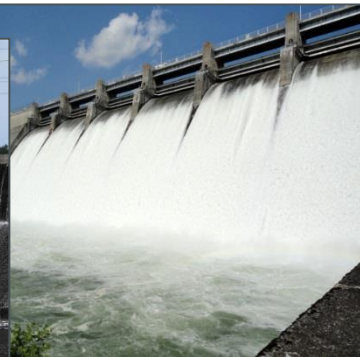
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Hydropower Relicensing

High stakes decision-
making process

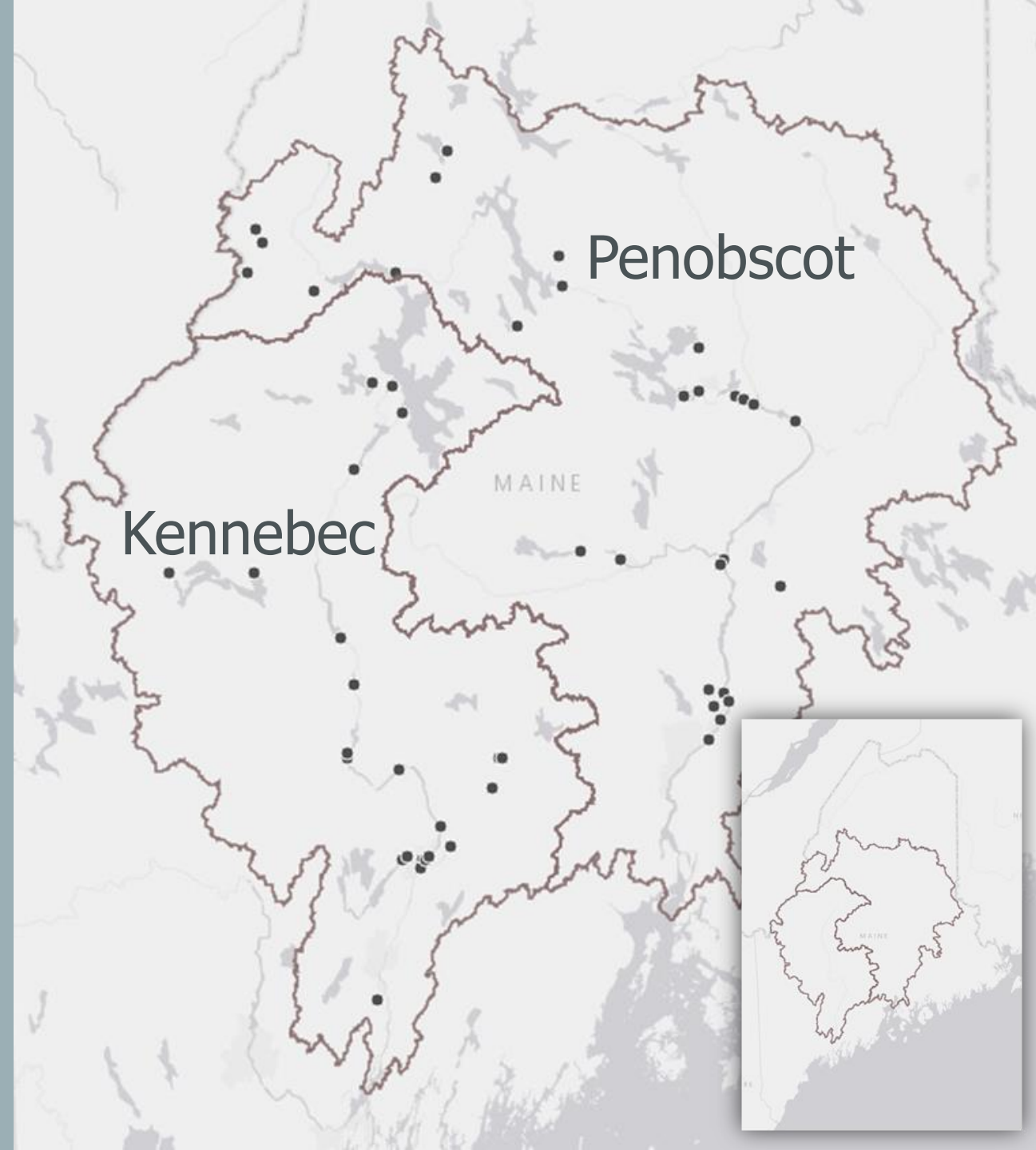
Dam operations set for 30-50 years



Area of Interest



West Enfield Project Fish Ladder: Enfield, Maine



BEST AVAILABLE SCIENCE



- Requires that decisions be made on “**the basis of the best scientific and commercial data available**”
- Expanded into many other federal and state statutes, agencies mandates, and is common practice





OBJECTIVES

1. Assess how stakeholders define best available science
2. Identify the information used in hydropower relicensing
3. Examine how that information is viewed by stakeholders



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CHARACTERIZING BEST AVAILABLE SCIENCE

*National Research Council (2004)
American Fisheries Society (2005)*

Relevance?

Comprehensiveness?

Objectivity?

Transparency?

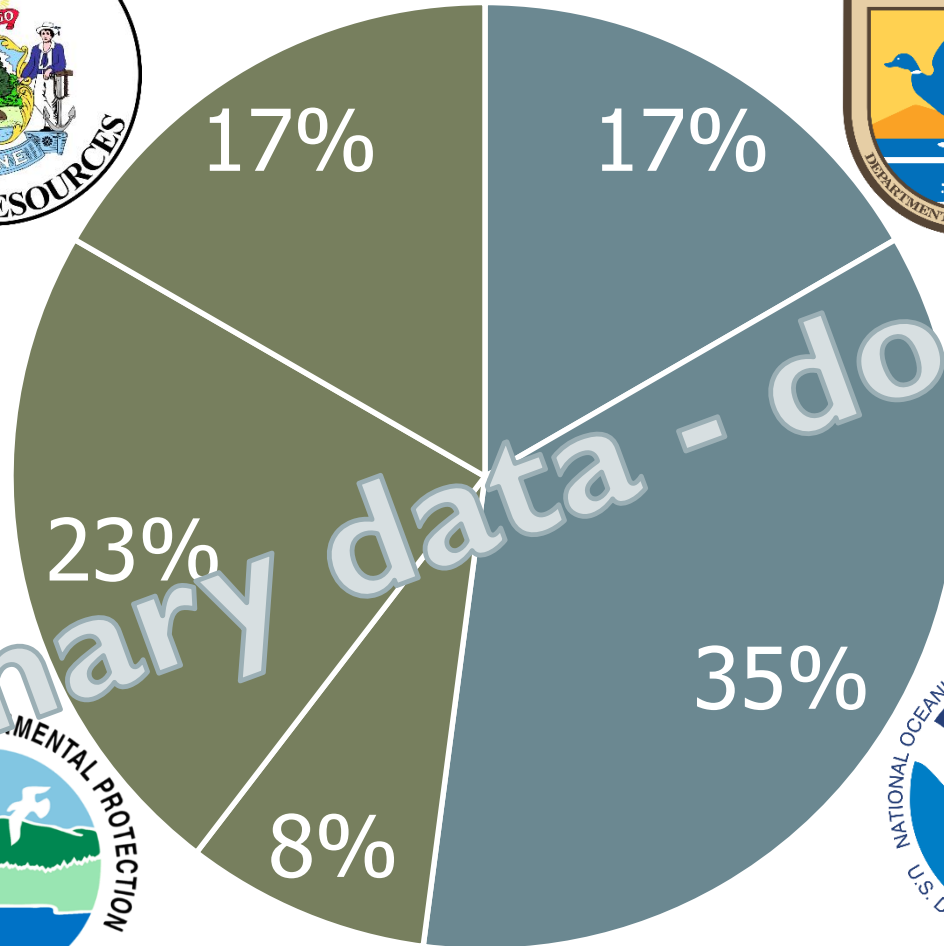
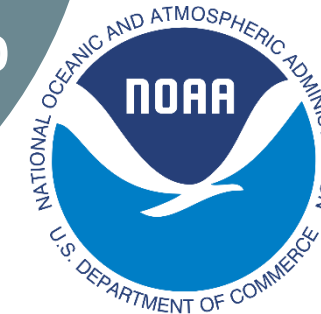
Availability?

STAKEHOLDER SURVEY

Federal & State
Resource Agency
Members

Active in
Maine
Hydropower

SURVEY RESPONSE BREAKDOWN



State

Federal

Preliminary data - do not cite

**OPEN-ENDED
SURVEY
QUESTION**

How do you define
best available
science?

CHARACTERIZING BEST AVAILABLE SCIENCE

Stakeholder Survey, 2019

Relevance

“latest” “up-to-date” “current” “most recent” “state-of-the-art” “innovative methods”

CHARACTERIZING BEST AVAILABLE SCIENCE

Stakeholder Survey, 2019

Comprehensiveness

“we must learn to incorporate different types of knowledge when doing any kind of scientific work”

CHARACTERIZING BEST AVAILABLE SCIENCE

Stakeholder Survey, 2019

Objectivity

“biases are acknowledged/explained
and put into context”

CHARACTERIZING BEST AVAILABLE SCIENCE

Stakeholder Survey, 2019

Transparency

“recorded collection of rigorous hypothesis testing, observations, and analysis”

CHARACTERIZING BEST AVAILABLE SCIENCE

Stakeholder Survey, 2019

Availability

“available to the public” “published”
“available for a particular project”



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CITATION ANALYSIS

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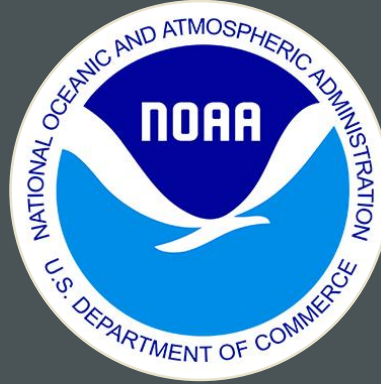
PROCESS DOCUMENTS



Pre-app
Documents
(5)



Study Plans &
Reports (15)



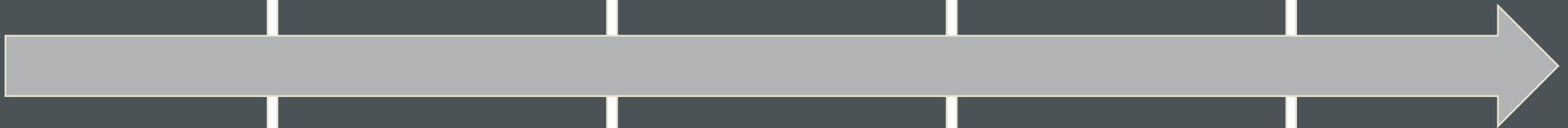
Biological
Opinions (8)



Environmental
Assessments
(16)



Application
Documents
(11)





SOURCES OF INFORMATION

Federal

State

University

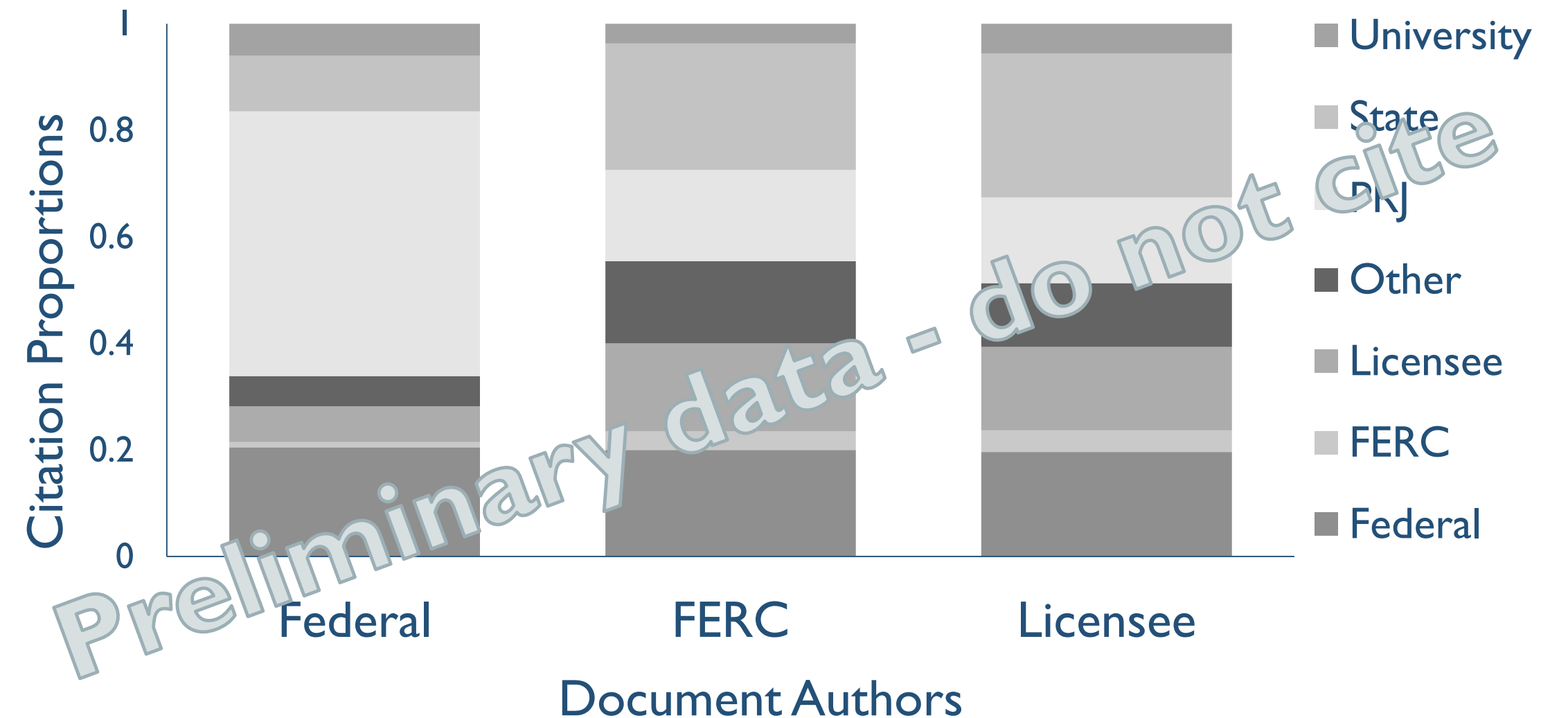
Licensee

FERC

Peer-reviewed journals

Other

INFORMATION USE BY STAKEHOLDER





OBJECTIVES

1. Assess how stakeholders define best available science
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SOURCES OF INFORMATION

Unpublished academic research

Agency grey literature

Industry reports

Community comments

Peer-reviewed publications

Expert opinion

QUESTION EXAMPLE

In your opinion, how relevant is the information provided by the following sources to your work? (i.e., How appropriate to the current time period and circumstances is the information?)

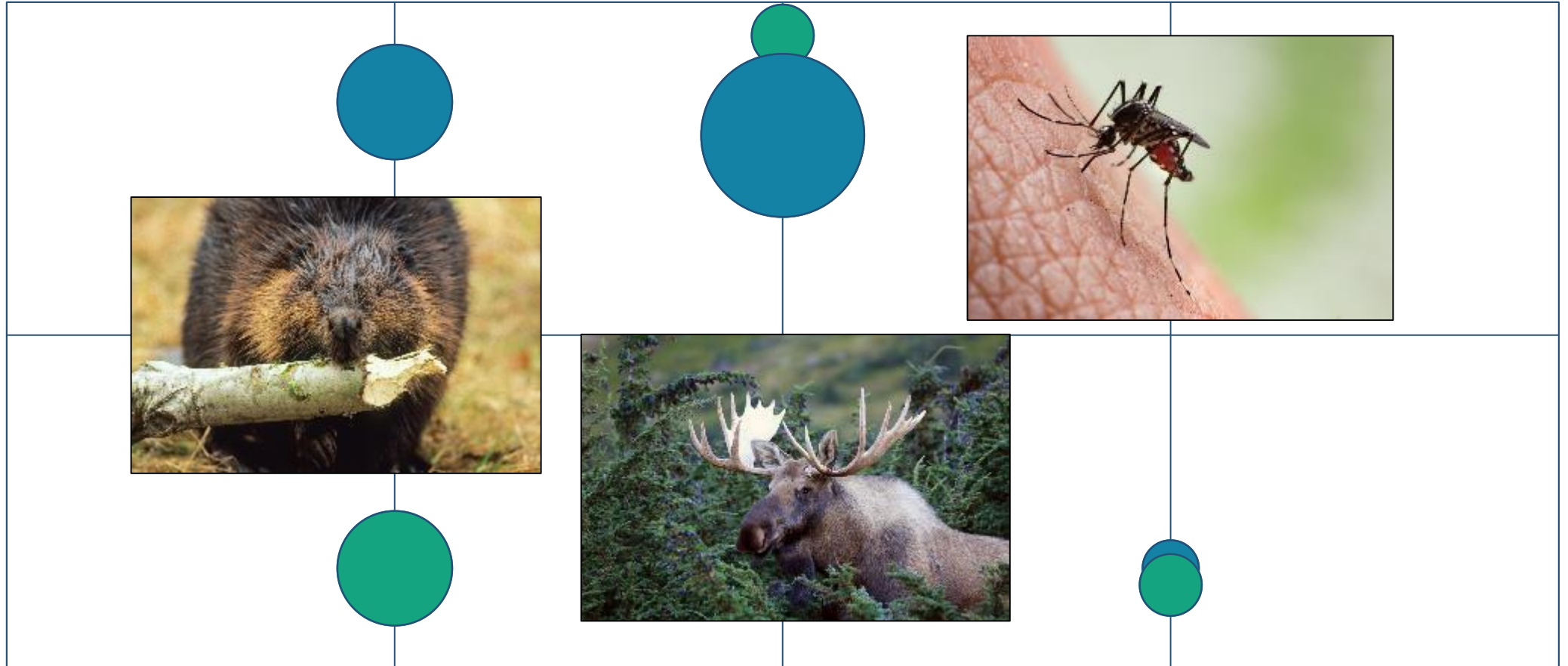
	Not relevant				Extremely relevant
Unpublished academic research (e.g., theses)	1	2	3	4	5
Agency grey literature	1	2	3	4	5
Industry reports	1	2	3	4	5
Community comments	1	2	3	4	5
Peer-reviewed publications	1	2	3	4	5
Expert opinion	1	2	3	4	5

POTENTIAL FOR CONFLICT INDEX₂

5

3

1



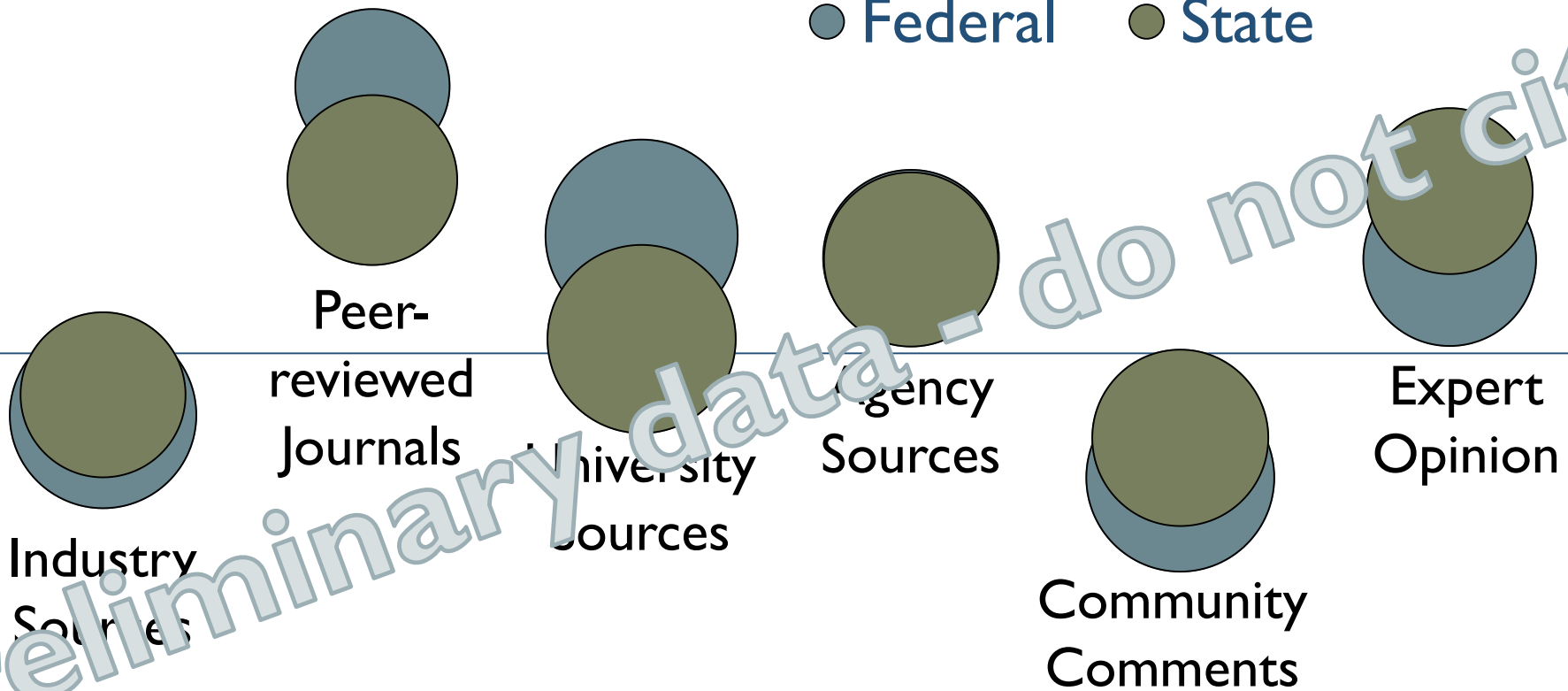
METRICS OF BEST AVAILABLE SCIENCE

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Best Available Science

● Federal

● State



ADDITIONAL STAKEHOLDER CONCERNS

- Accuracy of information - general consensus among scientists
- Value of professional judgement & expert opinion



IMPLICATIONS

- Peer-reviewed literature remains the standard
- Many different sources of information are being used during relicensing
- Inconsistencies remain in how individuals perceive best available science

FUTURE OF DAMS PROJECT



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