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What Scientists Should Do; What Scientists Can Do

Presented at
The Aspen Global Change Institute

June 5 - 10, 2003 Summer Science Session I

"Learning from Regions: A Comparative Appraisal of Climate, Water, and Human Interactions in the Colorado and Columbia River Systems"

What Scientists Should Do; What Scientists Can Do

What Scientists Should Do

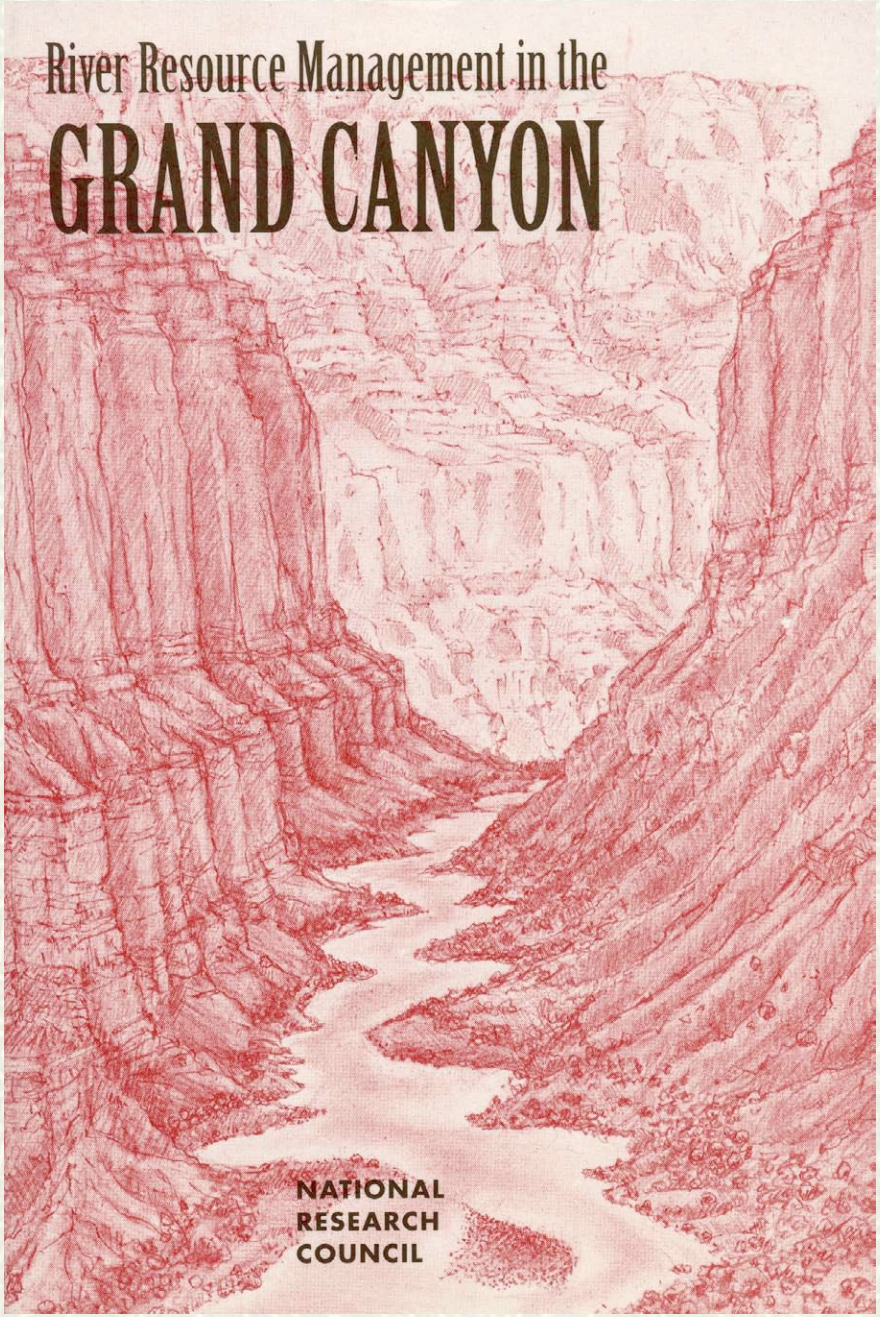
- The scientist as advocate
- The scientist as professional

What Scientists Can Do

- Respect and employ the scientific method
- Understand the policy tools through which science can be used
- Recognize that policy is not entirely scientific

Basis for Proposed Action	Scientific Support	Possibly Correct?	Potential to be Incorrect
Intuition, Unsupported Assertion	None	Yes	High
Professional Judgment			
Inconsistent with Evidence	None	Unlikely	High
Professional Judgment with			Moderately
Evidence Absent	Weak	Yes	High
Professional Judgment with			
Some Supporting Evidence	Moderate	Yes	Moderate
Hypothesis Tested by One Line	Moderately		Moderately
of Evidence	Strong	Yes	Low
Hypothesis Tested by More			
Than One Line of Evidence	Strong	Yes	Low

Effects of Glen Canyon Dam on the Colorado River

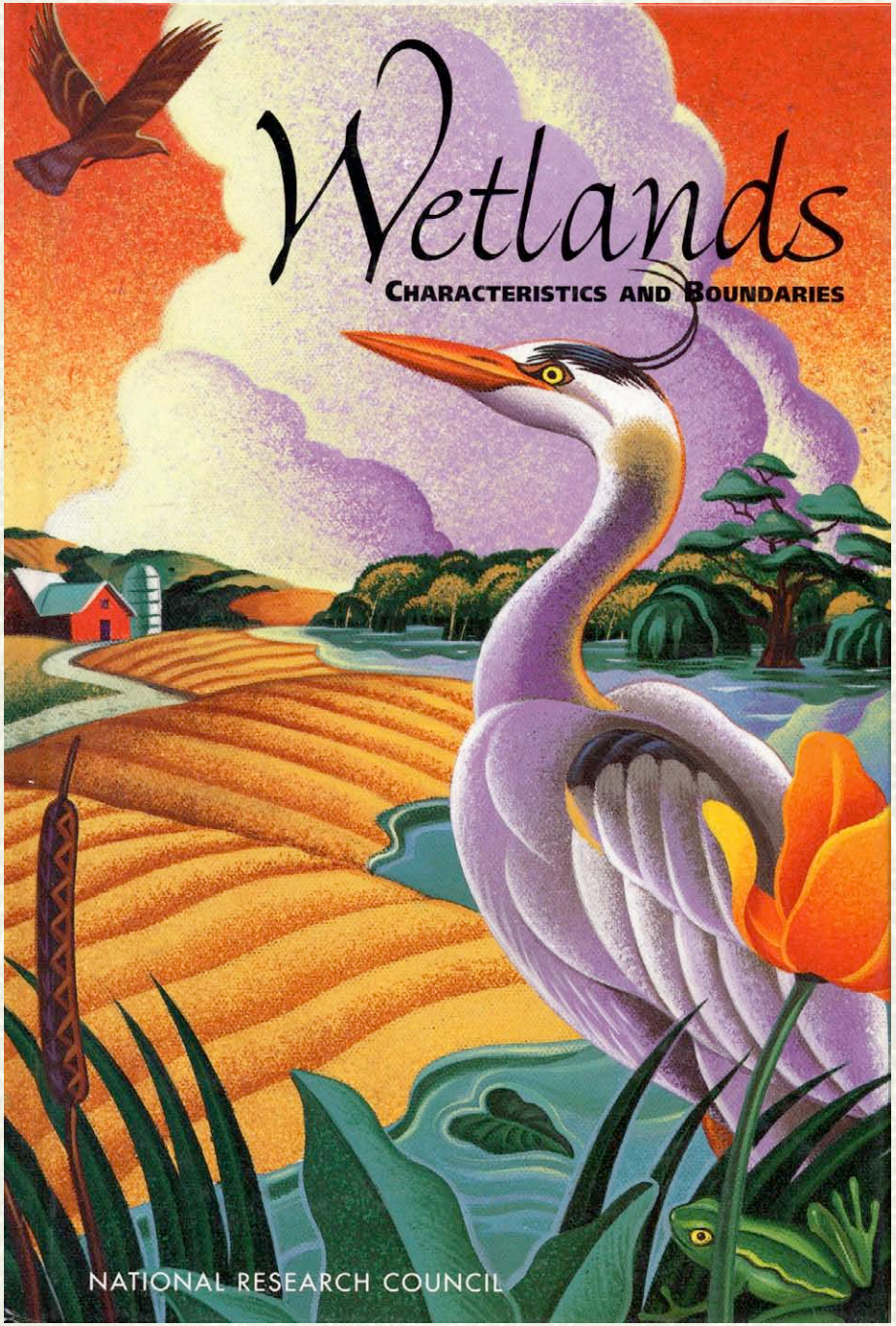

River Resource Management in the
GRAND CANYON
NATIONAL
RESEARCH
COUNCIL

Deficiencies

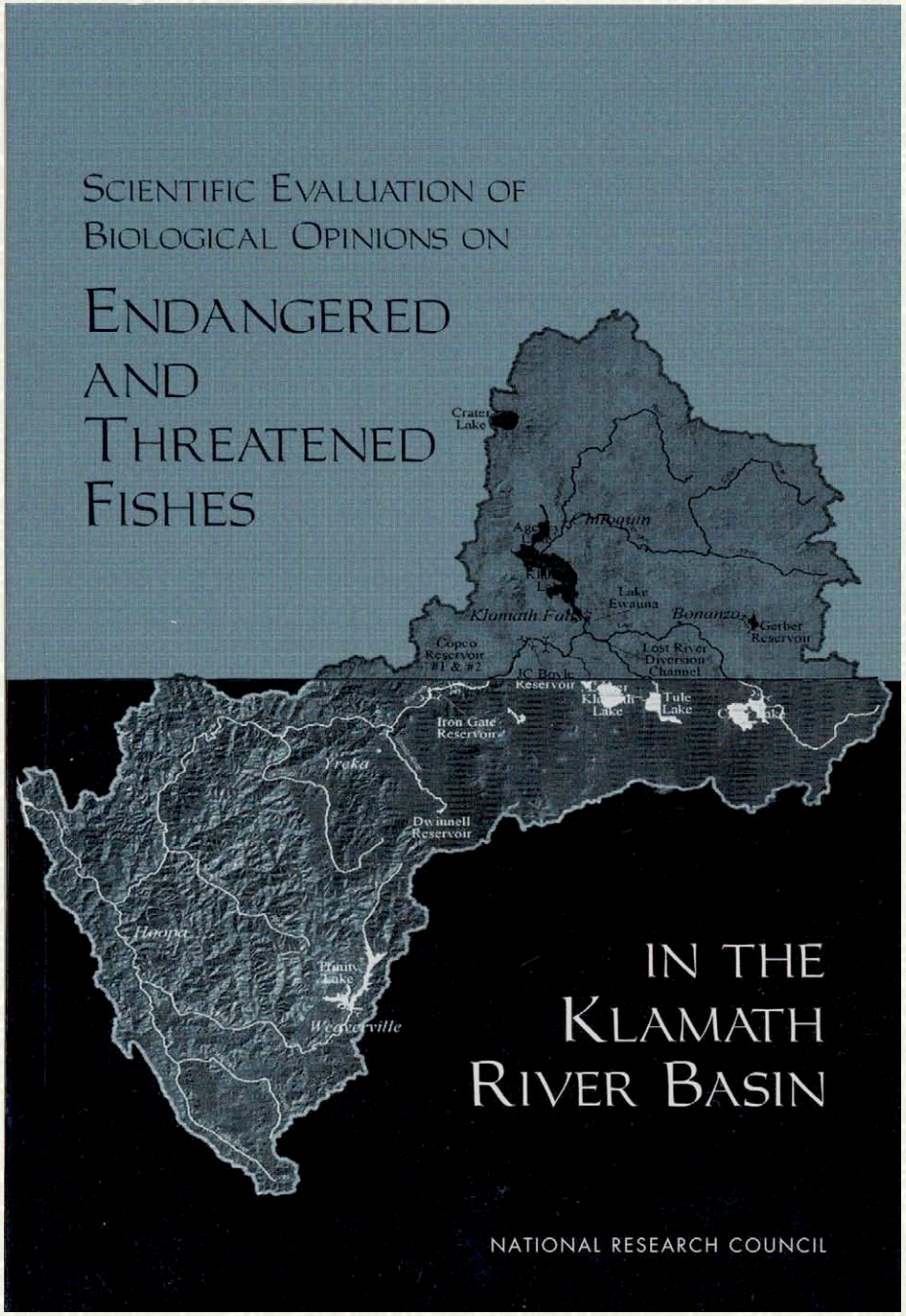
- Excessive costs
- Weaknesses in assessment
- Programmatic rigidity

Advances

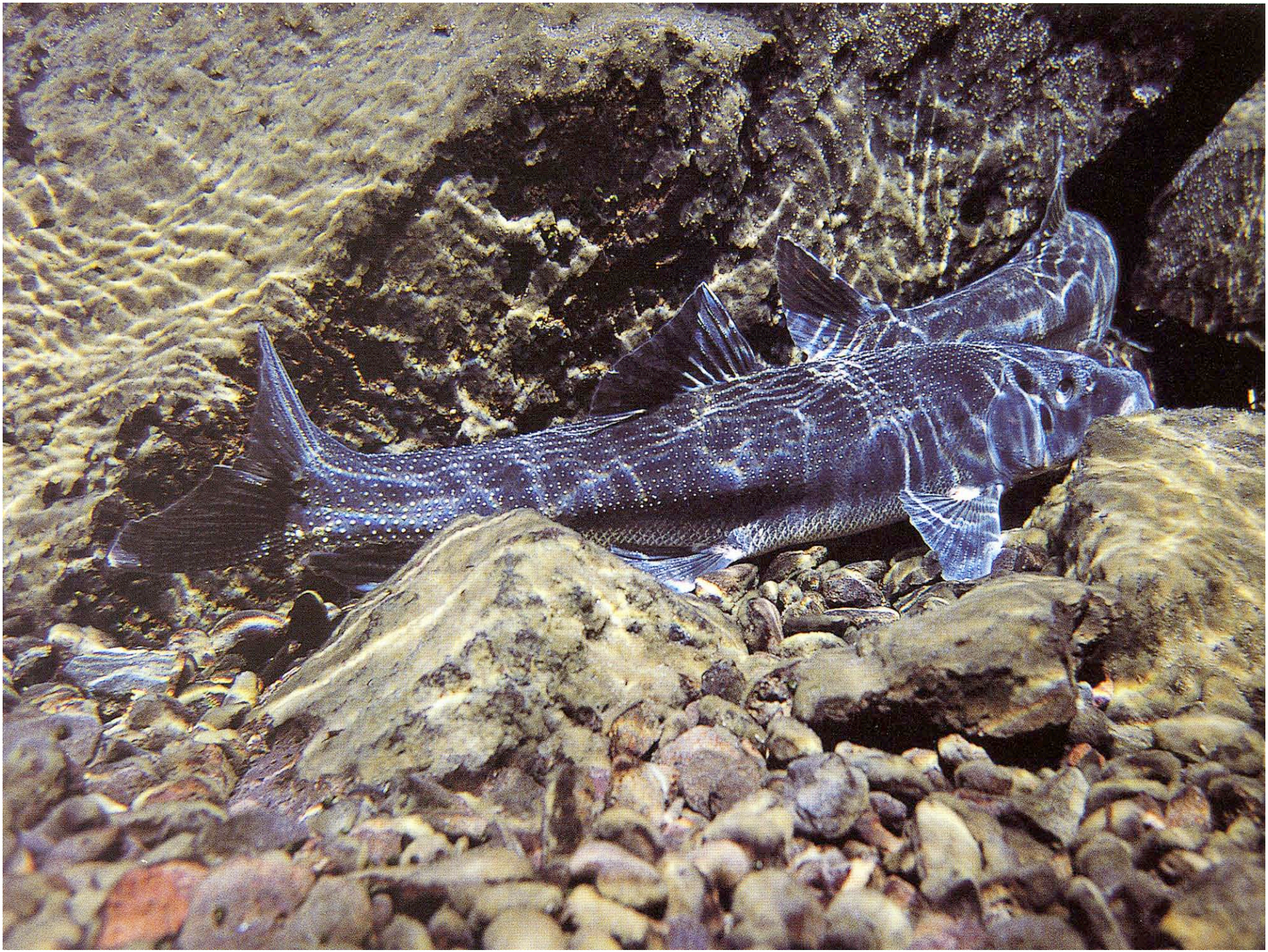
- Commitment to environmental monitoring and research
- Commitment to external review
- Management on behalf of environmental objectives
- Experiments in management (adaptive management)

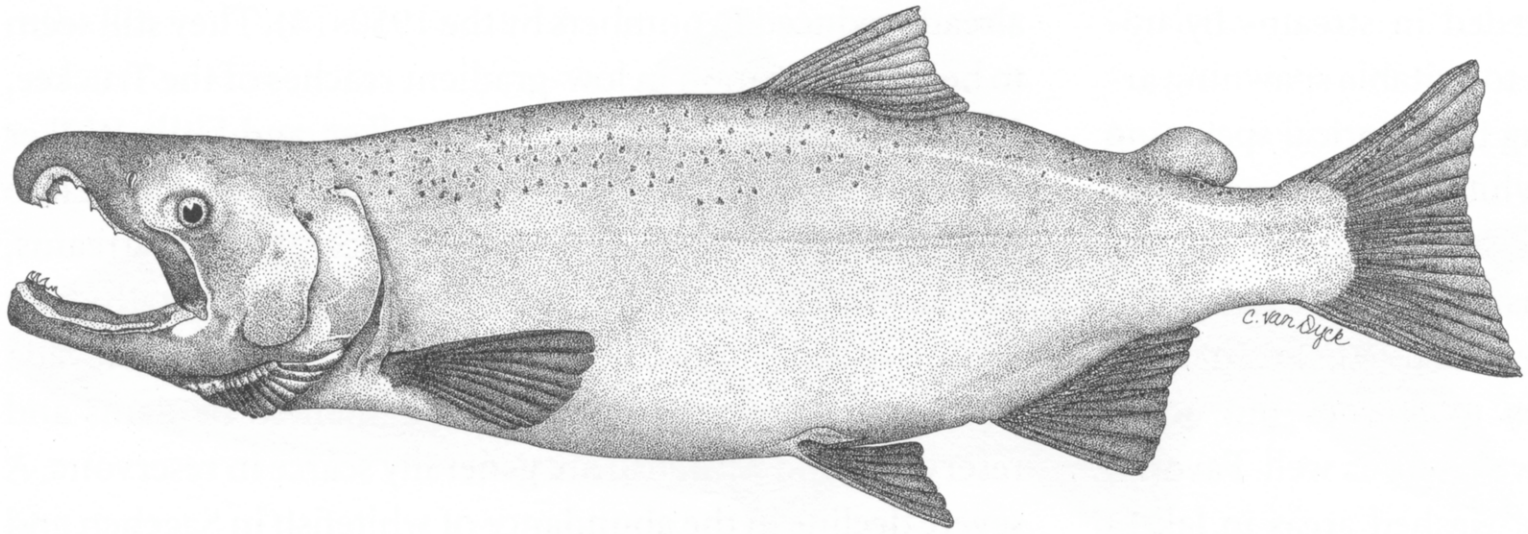

Wetlands
CHARACTERISTICS AND BOUNDARIES
NATIONAL RESEARCH COUNCIL

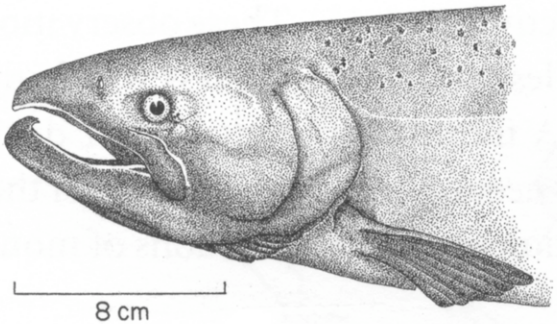
Scientific Evaluation of Biological Opinions on Endangered and Threatened Fishes in the Klamath River Basin



NATIONAL RESEARCH COUNCIL




C. van Dyke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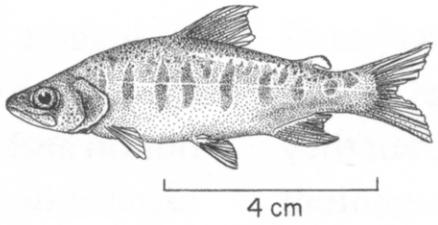
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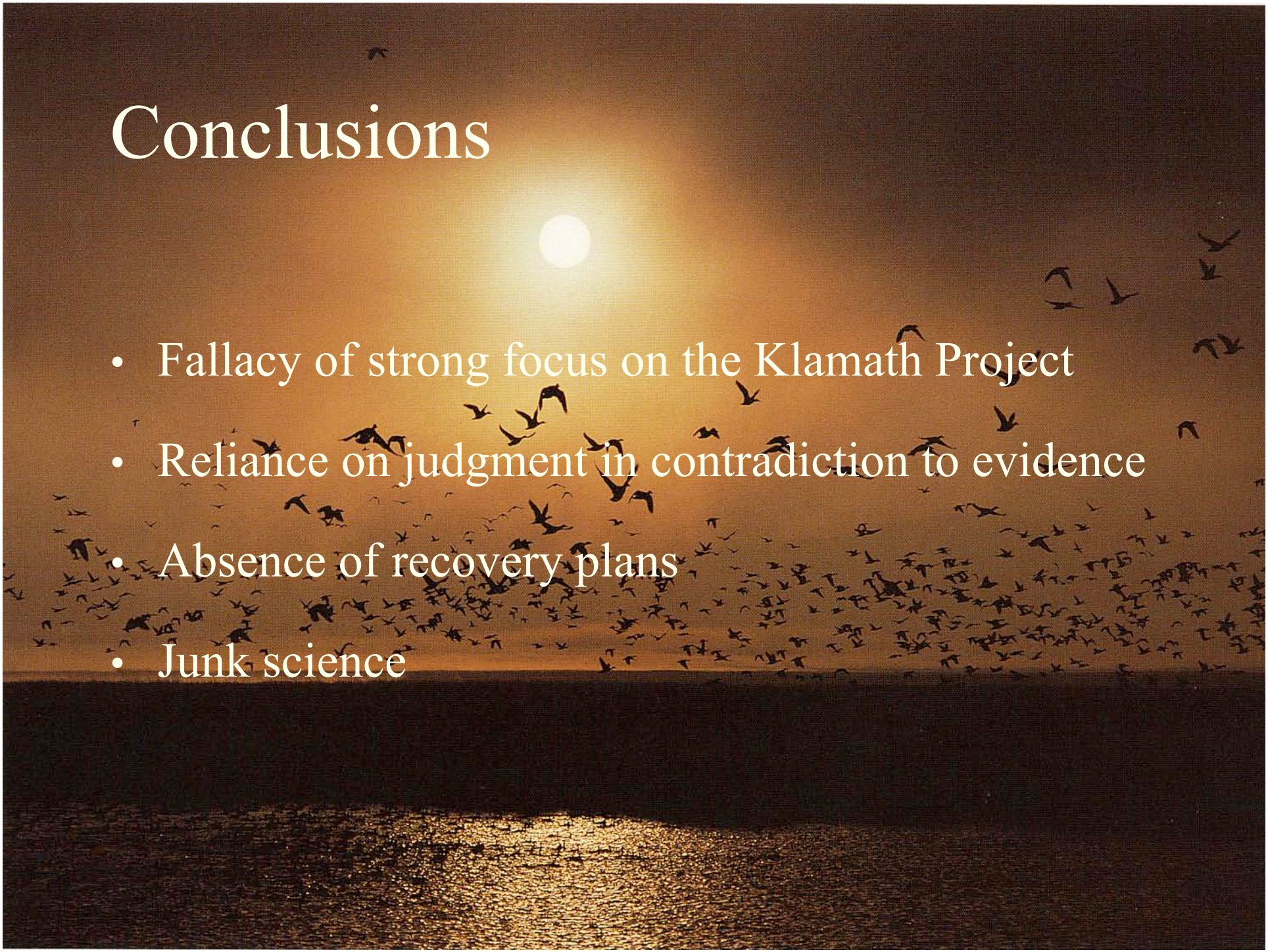

Conclusions

- Fallacy of strong focus on the Klamath Project
- Reliance on judgment in contradiction to evidence
- Absence of recovery plans
- Junk science