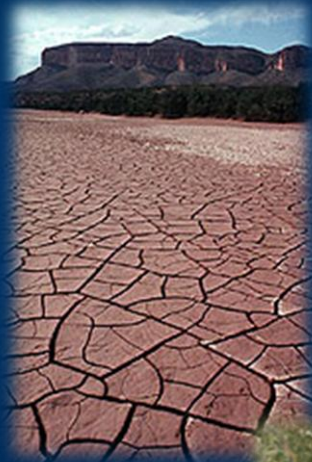
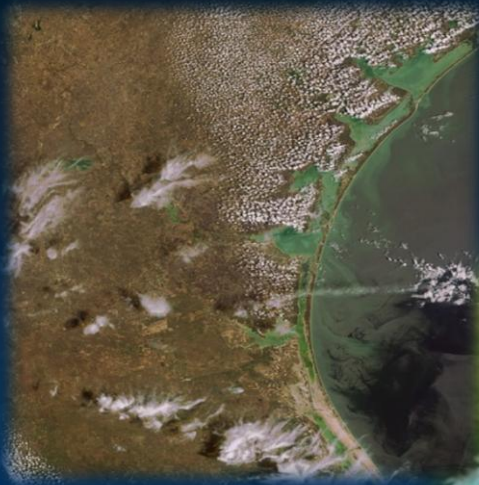


Freshwater Inflows – 2010 And Beyond...

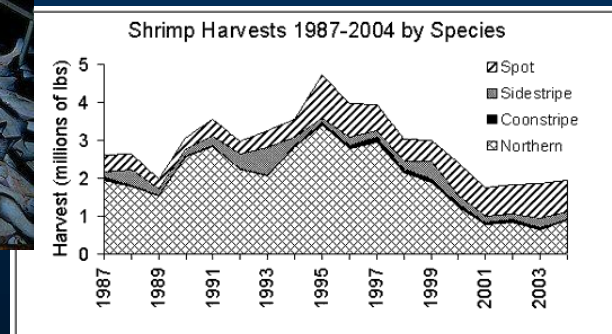
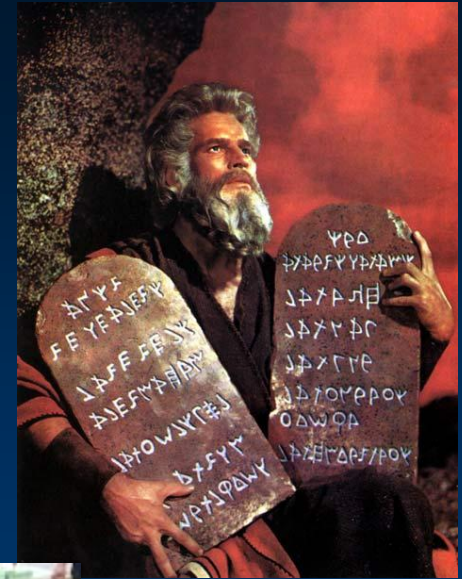


Dr. Larry McKinney
Director – Harte Research Institute

Uncertainty, Resource Exploitation, And Conservation: Lessons From History

Donald Ludwig, Ray Hilborn and Carl Walters
Science 1993, Vol 260, pages 17 and 36.

Five principles for effective management



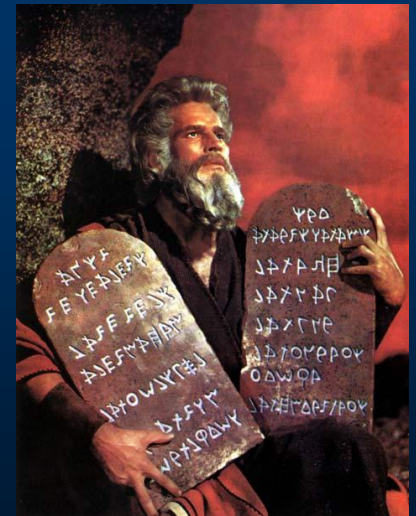
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ONE

Include human motivation and responses as part of the system to be studied and managed. The shortsightedness and greed of humans underlie difficulties in management of resources, although difficulties may manifest themselves as biological problems



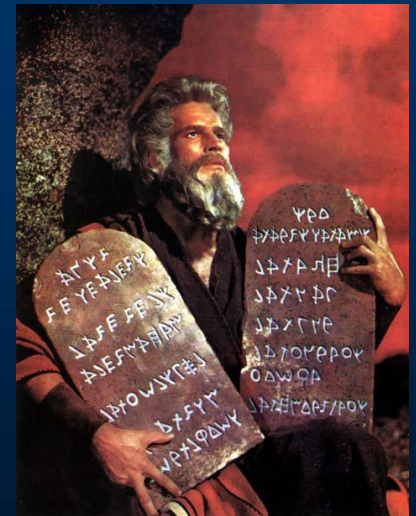
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TWO

Act before scientific consensus is achieved. We do not require additional scientific studies before taking action to curb human activities that effect global warming, ozone depletion... Calls for additional research may be mere delaying tactics



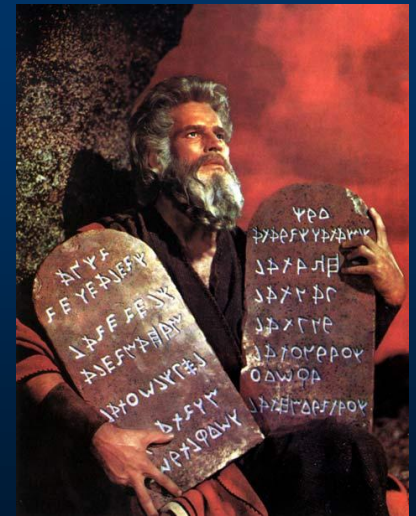
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THREE

Rely on scientists to recognize problems but not to remedy them. The judgment of scientists is often heavily influenced by their training and disciplines. Most important resource and environmental issues involve interactions whose understanding must involve many disciplines



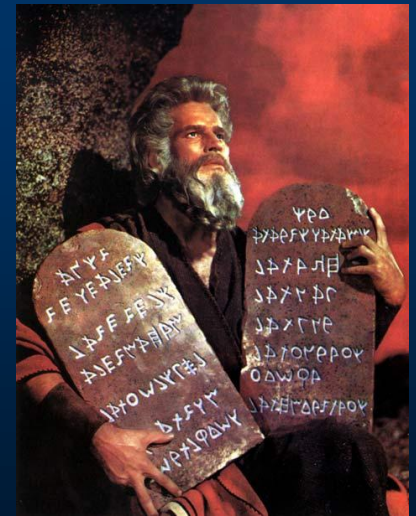
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FOUR

Distrust claims of sustainability. Because past resource exploitation has seldom been sustainable, any new plan should be suspect. True adaptive management strategies can help here if actions are specific and measurable, within broad but defined goals



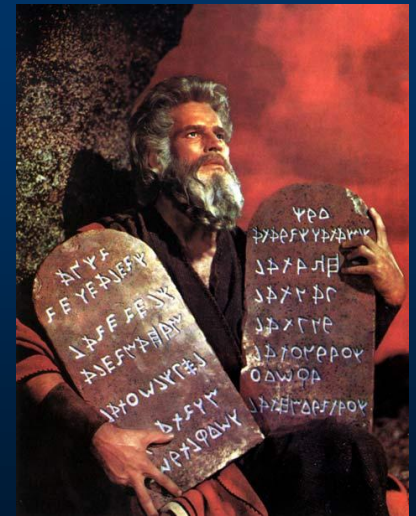
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Five principles for effective management

FIVE

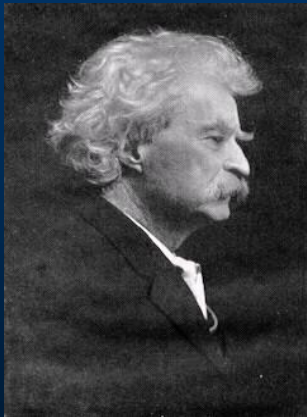
Confront uncertainty. Once we free ourselves from the illusion that science or technology (even if lavishly funded) can provide a solution to resource or conservation problems, appropriate action becomes possible



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*Resource problems are not really
environmental problems: They are human
problems that we have created at many times
and in many places, under a variety of
political, social and economic systems*



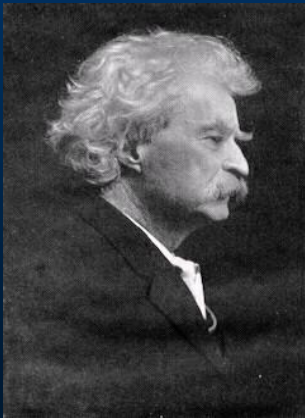
*Whiskey is for drinking
and
Water is for fighting*



Is There a More Simple Solution?



Do the Right Thing...



...It Will Gratify Some People

And Astound the Rest

Successful or new inflow recommendation methodologies

What do people want to know

Water managers:

- **Schedule of flow**
- **Volume of flow**
- **Potential new water sources (return flows)**
- **They want certainty – the ability to plan**

Stakeholders:

- **Educate the public and ensure an understanding of the process**
- **Target metropolitan areas for education**
- **Monitoring and management**

Successful or new inflow recommendation methodologies

General Ideas

- **How will adaptive management work specifically and how will this affect permits**
- **Involve stakeholders in the goal setting and definitions**
- **What specifically will we monitor**
- **What is the desired future condition**
- **Try to preserve inflows within range of natural variability since flows are variable**
- **Set goals of goal of conserving biodiversity – public appreciates diversity – monitor indicators of diversity**
- **Set goal of maintaining biological production**
- **SB3 reevaluated every 10 years. Develop a plan of what we should be doing**
- **Need biological indicators that don't move but preserve dynamics – mobile species are also important and provide valuable information**
- **Maintain habitat and monitor over time**
- **Inform people as to what changes have already occurred in the system so they know what has been lost**

Stakeholder involvement and policy implementation

Pro's and Con's of Current process

Pro's

- 1.interaction-understanding perspectives**
- 2.diversity of stakeholders**

Con's

- 1.getting stakeholders and science team up to speed and on the same page**
- 2.process timeline often not long enough**

Stakeholder involvement and policy implementation

Change Process

1. Effective communication of the science
2. more input from the stakeholders on the front end

Adaptive Management

1. Communicate inflows benefit to the environment as well as benefits to humans and the relationships to each other,
2. Maintain and monitor the continuum of stakeholder to keep momentum

Education Outreach

1. Until it pertains to them on a personal level, they won't change. Ie. Water restrictions

Tie

2. Notion of engagement is a better goal(means) than education.
2. Marketing strategy to educate. Ie. Audobon Society.