Multi-level Marine Governance and Scientific Advice for the Effective Implementation of Biodiversity Targets

Experiences from Fisheries

Doug Wilson

Innovative Fisheries Management

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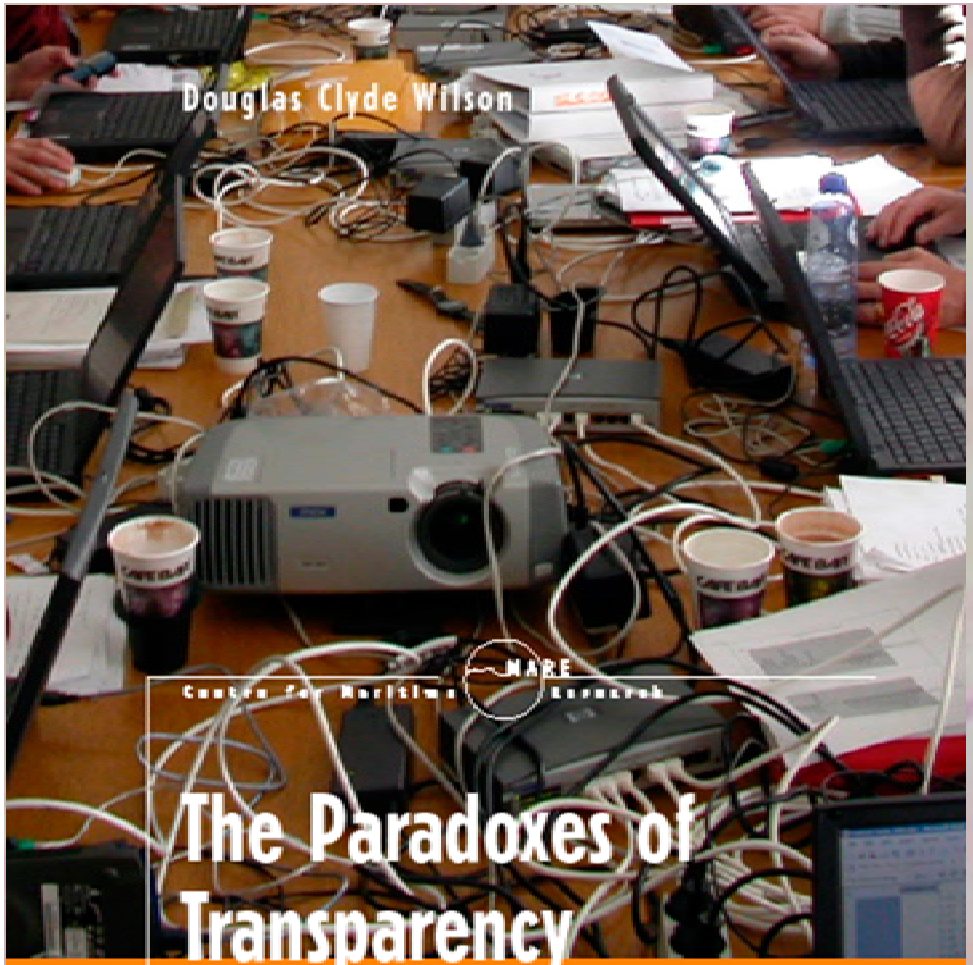
Talk Outline

- The Fisheries Disaster
  - Breakdown at the Science Policy Interface
- ICES scientists seeking reform:

  The Ecosystem Approach to Marine Management and its complexities
- Emerging institutional forms and their implications
  - Targets, limits and strategies



Based on an Institutional Analysis of the

International Committee for the Exploration of the Sea (ICES)

19 scientific meetings observed 2003 to 2008

35 formal in-depth interviews

Random attitude survey with 465 scientists

Analysis of documents

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From the European Commission Green paper on reform of the Common Fisheries Policy:

- "88 % of Community stocks are being fished beyond MSY....
- 30 % of these stocks are outside safe biological limits....
- European fisheries today depend on young and small fish that mostly get caught before they can reproduce."
- Wider impacts of fishing are hardly considered

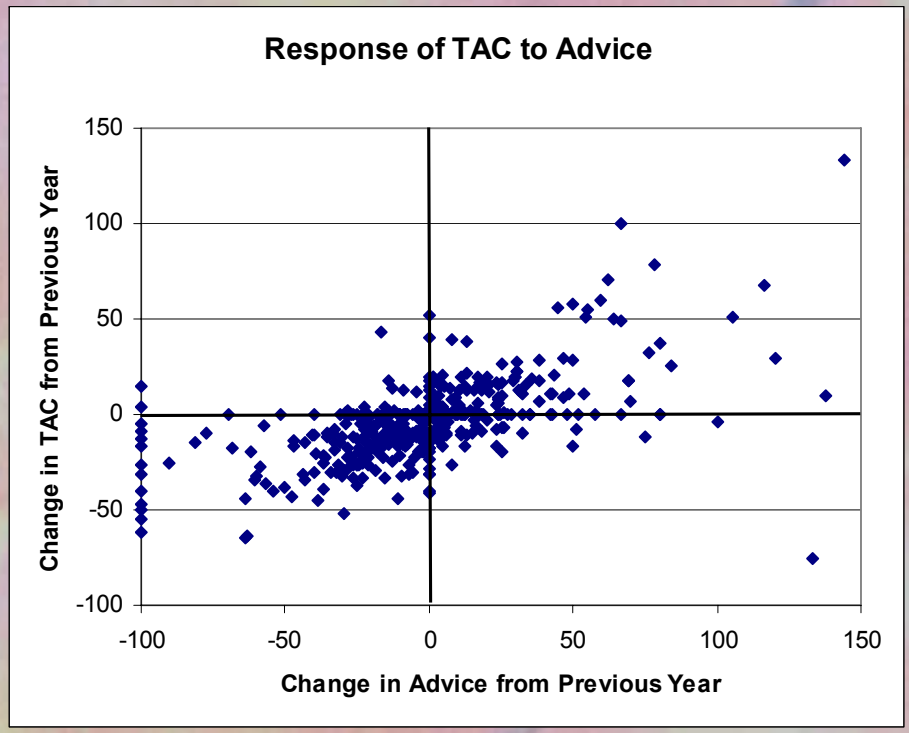
Why?

Because they failed to follow scientific advice of course!

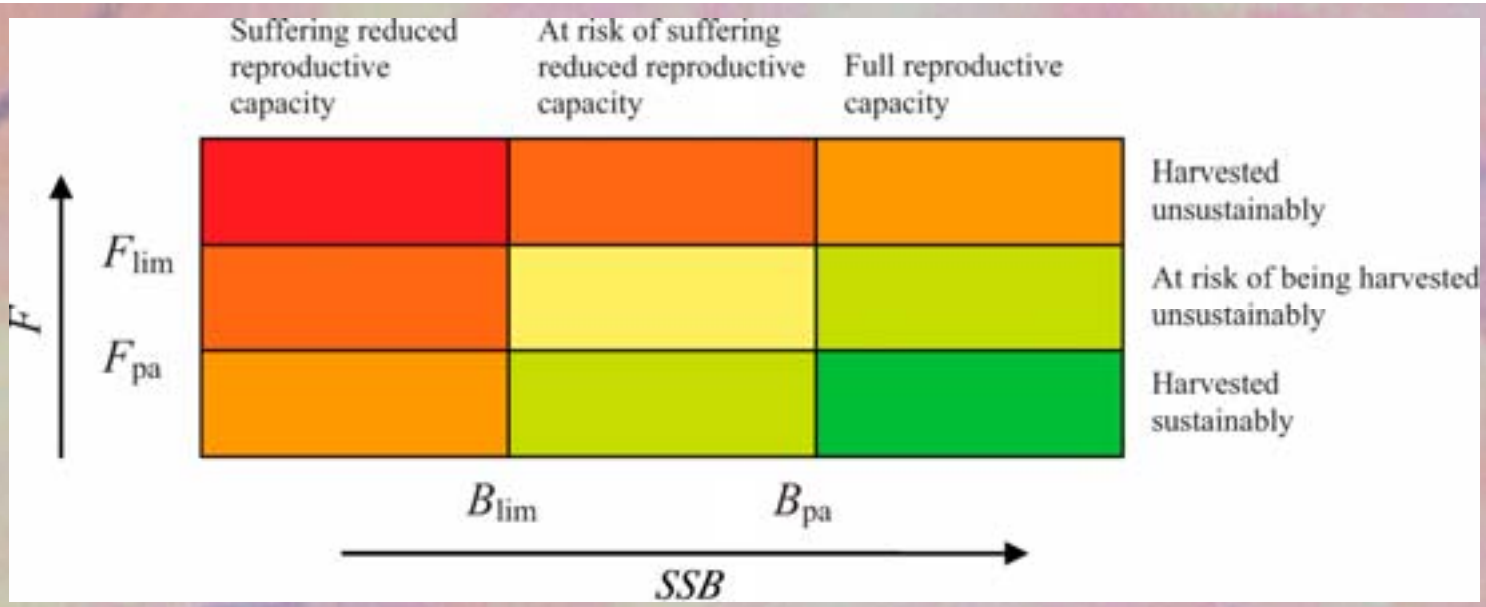
Buzz...

Wrong answer!

Have to dig a little deeper



Source: Patterson, K. and M. Résimont 2007 Change and stability in landings: the responses of fisheries to scientific advice and TACs. *ICES Journal of Marine Science* 64(4):714-717



The precautionary approach should be a move from a system based on targeting optimum yield to using the state of knowledge as the basis for decision making

(Degnbol 2003)

In European fisheries it became stochastic predictability:

the same old single species optimization

done a little more carefully

Uncertainty was reduced to a model error term

Why?
To serve the TAC Machine

- **Holm and Nielsen (2004): An institutional success - a conservation failure**
  - **The marriage of a massive age-based stock assessment technology and the annual setting of a *divisible* Total Allowable Catch**
  - **Creates ongoing incentives for single species management**
  - **The biology of many fish meets the organisation of political life in a yearly rhythm,**
  - **Management based on routine scientific practice with standardised data as input and a standardised product as output.**

From a DGMARE Scientist:

"If you are under pressure and you have to say so many days for a hundred different fleets you have to come up with a number for the next regulation you just need that number to come from somewhere and as long as it is on the best possible technical basis you could just consider it to be engineering rather than science and it may be perfectly valid without having all these features that you would need to have legitimate and credible science"

What is going on here?

A fisheries phenomenon?

No, environmental management

always has pressures toward

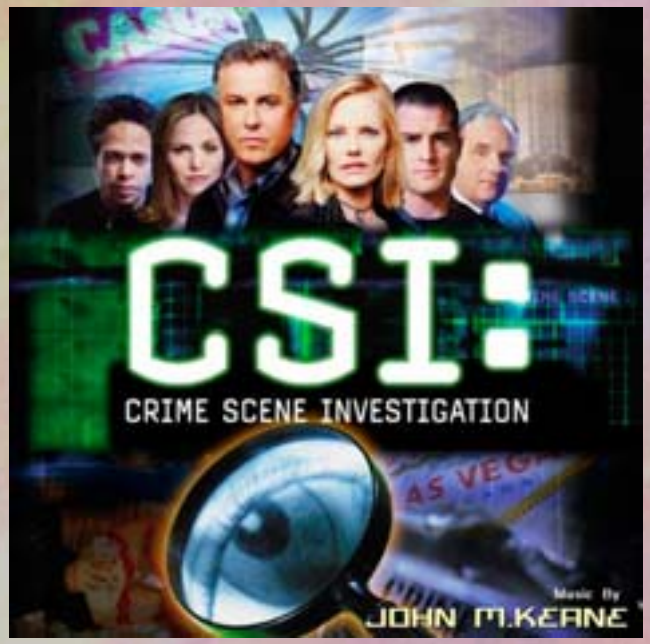
Inflating the Science Boundary:

Changing practical and moral questions

into technical ones

1. **Science is powerful rhetoric and ALL stakeholders try to make their values into technical requirements**
2. **Bureaucracies need ”objective” knowledge to justify decisions**

In Science for Legal Decision Making



Policy makers want science that is:

- Easily intelligible
- With clear evidence
- Free of value judgments
- Peer reviewed
- Offers clear policy choices.

Real science:

- Makes moral dilemmas explicit
- Has uncertainty that is not always resolvable
- Is produced under pressure by a trust-based scientific community

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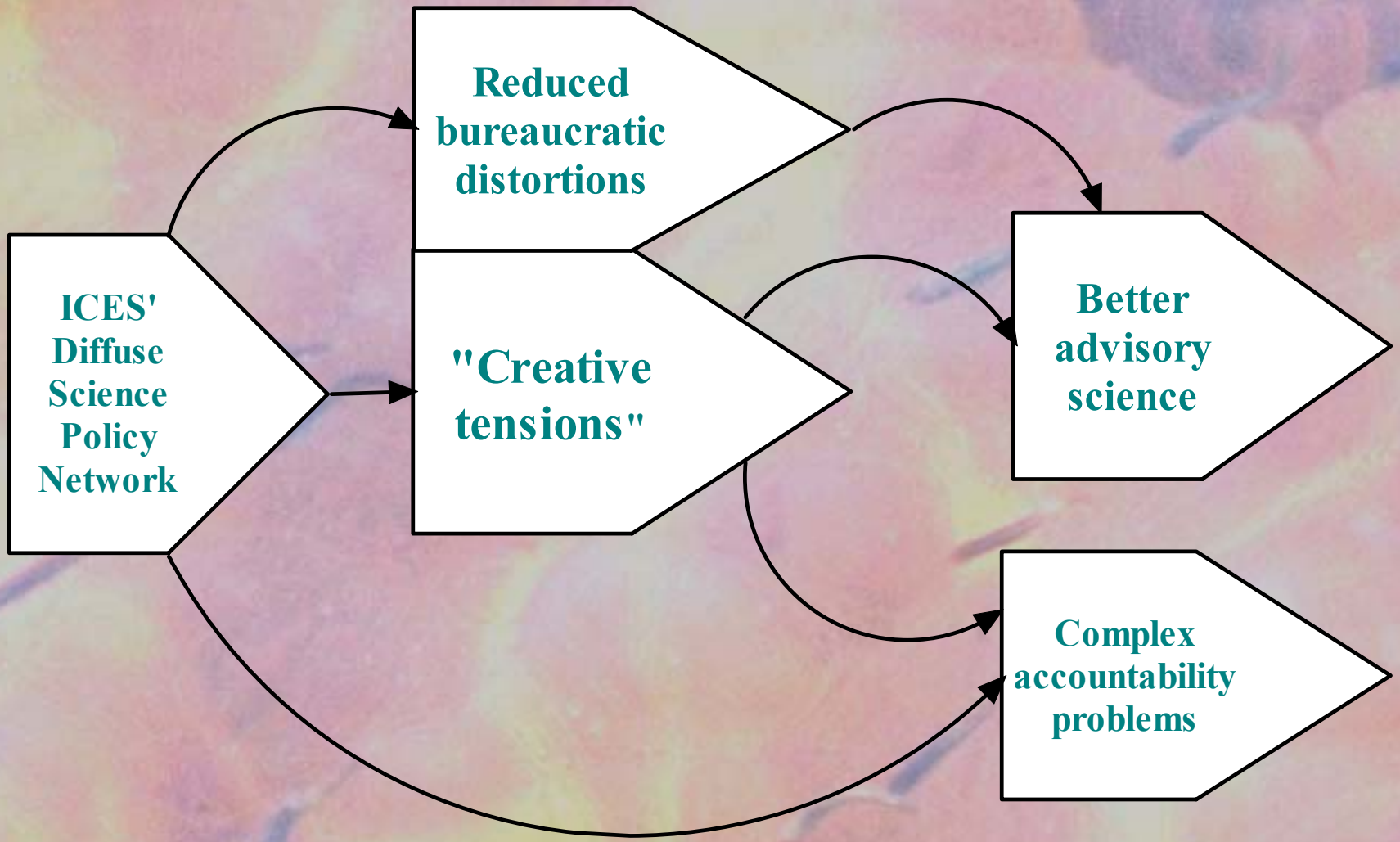
The Result in Fisheries:

- Fisheries scientists feel ”they are being asked to answer impossible questions”
  - 14% sometimes and 56% often or very often
- Fisheries scientists feel ”they are being asked to create certainty that is not really there”
  - 16% sometimes and 60% often or very often
- One scientist pleaded to his expert group: ”We should stop pretending we know how many fish there are!”

ICES Scientists have fought for reform!



For *Real Precaution* and an *Ecosystem Approach*

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The Governance Challenges of the Ecosystem Approach

Bureaucratic decision making requires firm legal definitions, calculable rules and clear mechanisms of accountability

Ecosystems don't cooperate.

Scientists ask for"clear objectives" but changing objectives is implicit in adaptive management in a democracy, so objectives often become either inoperable or very abstract.

Our surveys show that all fisheries scientists support an ecosystem approach, but scientists working closer

to day-to-day management are significantly less enthusiastic

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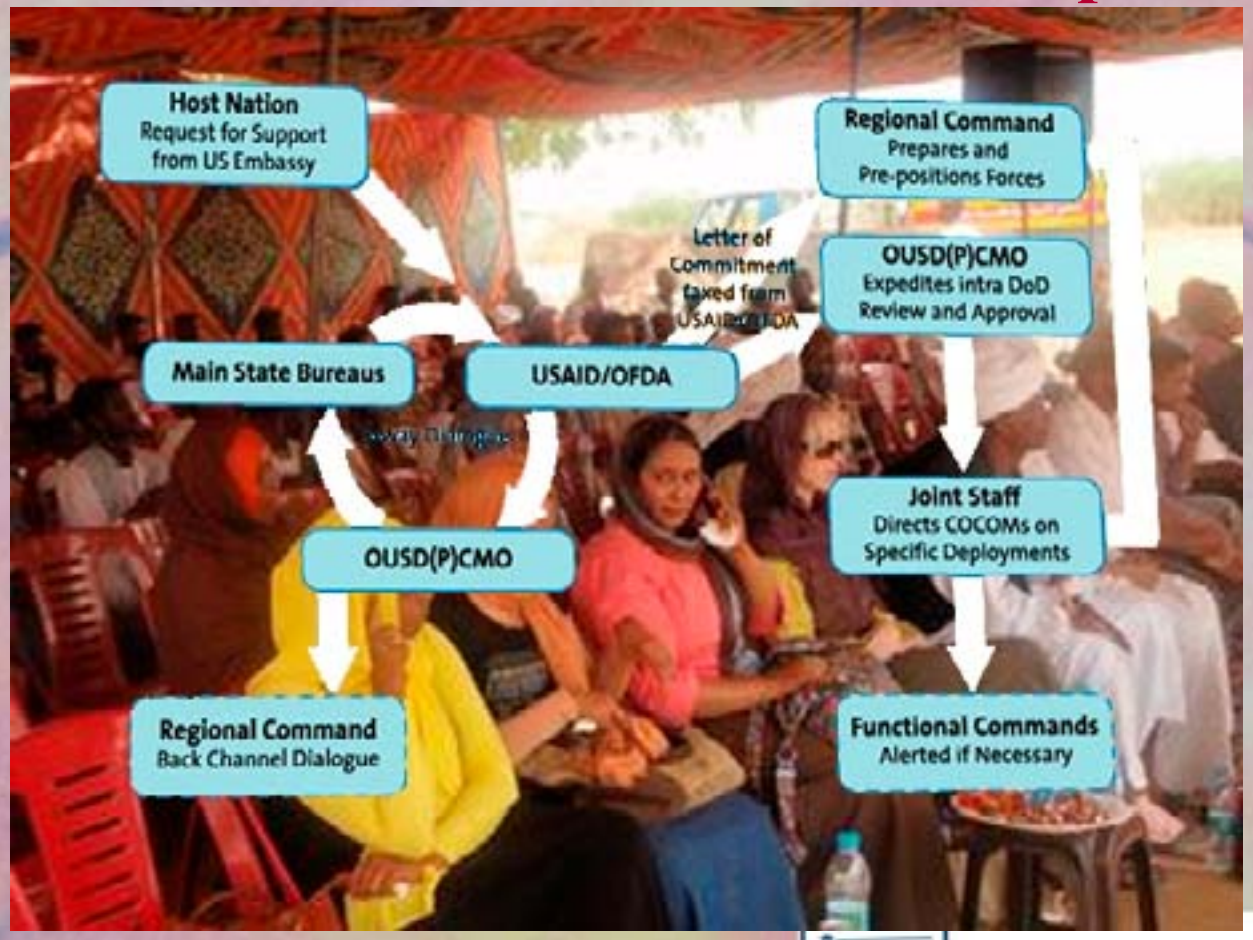
Key Tensions in Ecosystem Approach Governance

1. The Organizational Tension

Increased interagency coordination **and** **More decentralization and participation**



(Garcia et al. 2003 FAO Technical Paper)

The Scientific Tension

EA is a Technical Dilemma:

Understanding complexity

EA is Social Dilemma:

Opening up to mulitiple scientific questions

EA means New Roles for Science

- Scientists must be transparency experts facilitating knowledge commmunication as well as providing facts
- Creating ”Boundary objects”
  - Models
  - Indicators
  - Collaborative research
  - Joint data collection
- Moving uncertainty to the centre of the discussion

Meeting these challenges in Fisheries

A diffuse network helps

shield ICES science from Bureaucractic Pressures

ICES

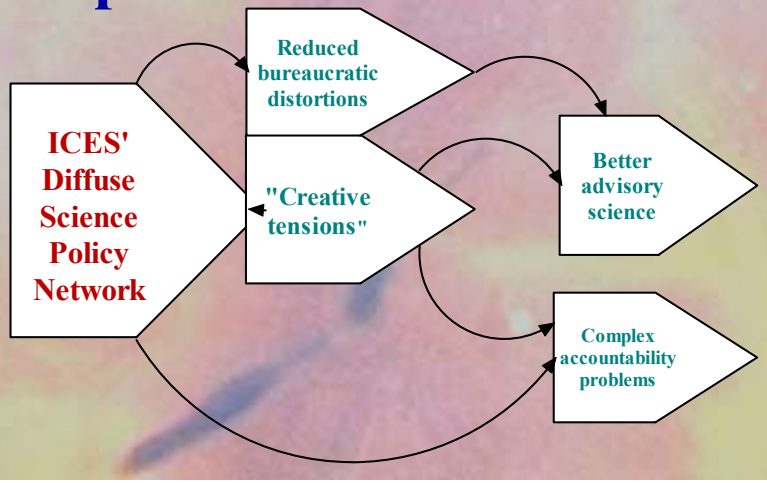
20 Member Countries

1600 Scientists

100 + Expert Groups

*.... Your clients are insane. "I want in 10 minutes a sound paper on the EAFM for the 21st century". This is difficult... **Expert groups** are the right people to write the advice, but they **are volunteers** and **you cannot order them to make the advice.** I am not sure if the advisory system, which is a big machine, is not forgetting this limitation.*

(Observer's notes at the Consultative Committee meeting, September 2007)



Ecosystem approach increases the diversity of advice science

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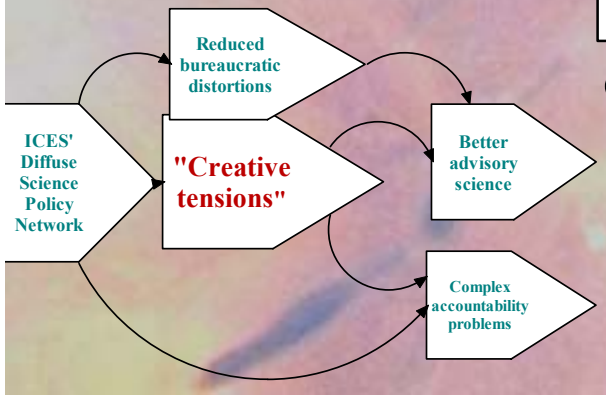
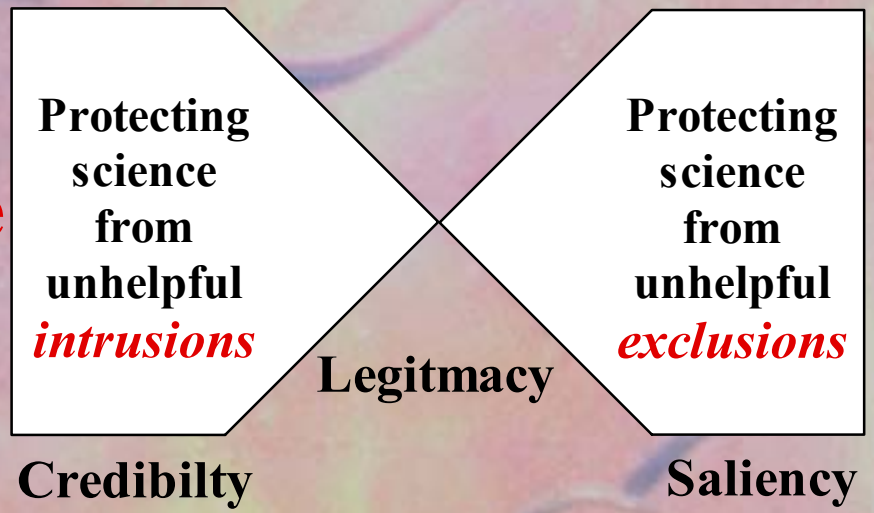
ICES' Creative Tensions Aid Reform

- Meaning of Peer Review
- Scientific activities
- Adequate science for advice

Science Side of ICES





Advice Side of ICES

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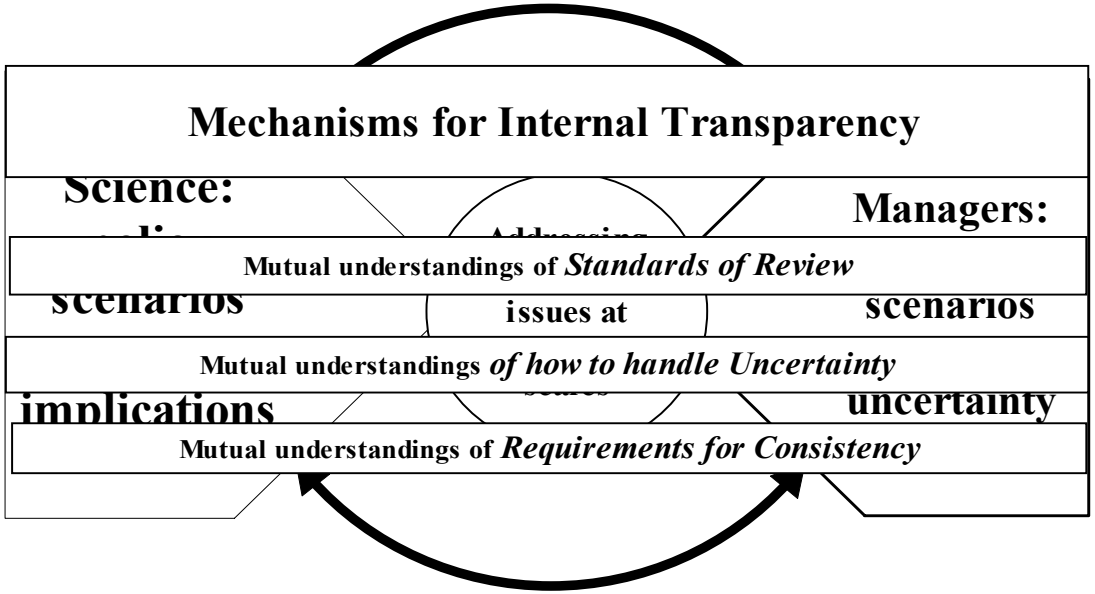
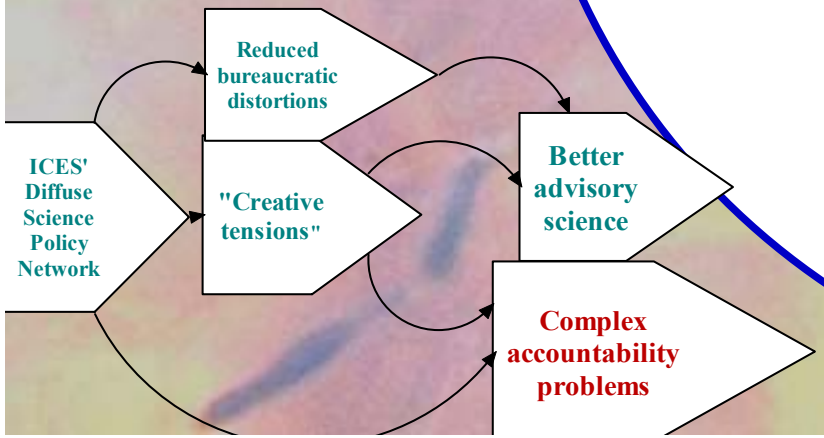
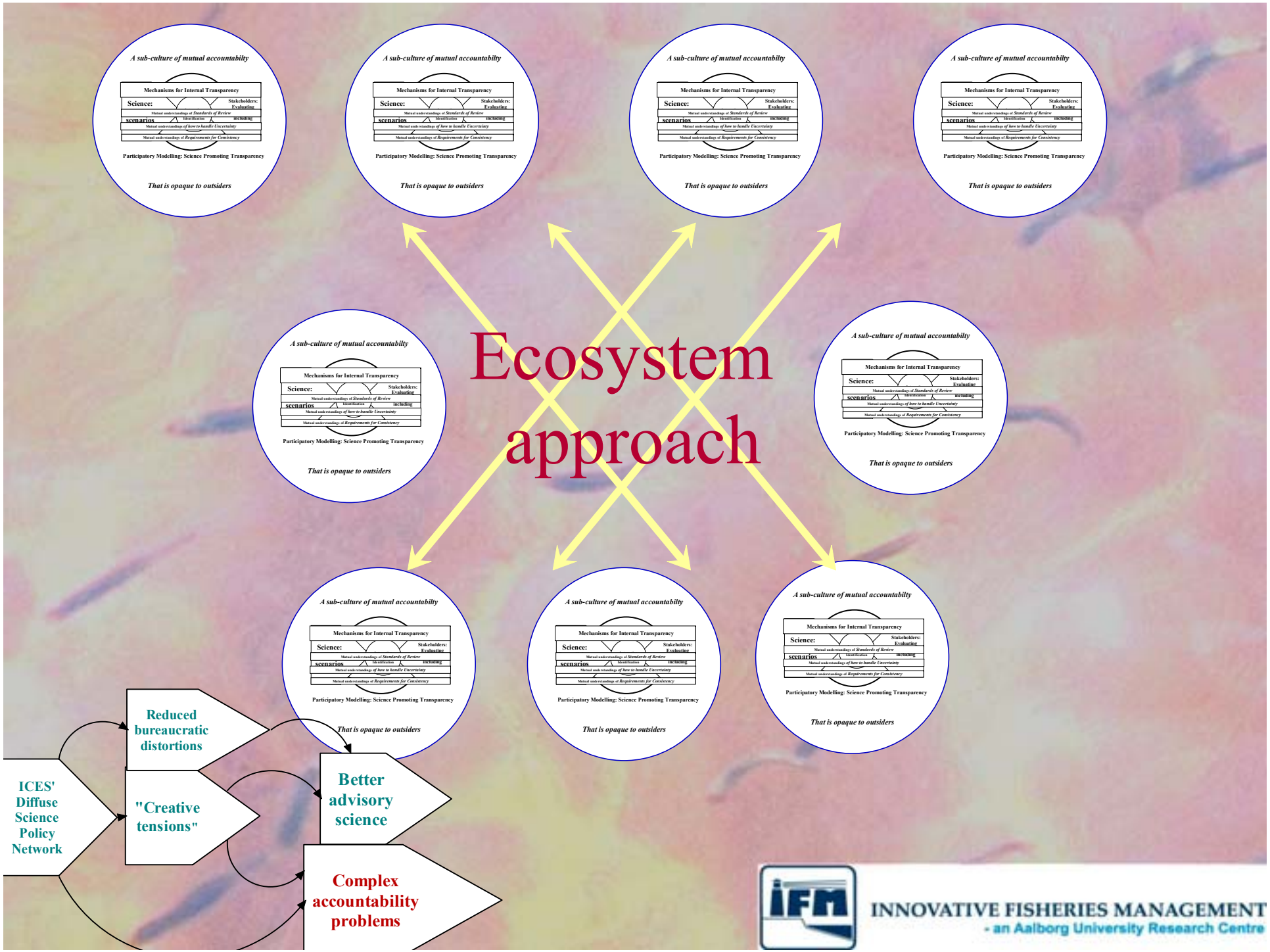
A sub-culture of mutual accountabilty



Ideal of Interactive Ecosystem Approach Science



that is opaque to outsiders


A sub-culture of mutual accountabilty
Mechanisms for Internal Transparency
Science:
Stakeholders: Evaluating
Mutual understandings of Standards of Review
scenarios
Identification
including
Mutual understandings of how to handle Uncertainty
Mutual understandings of Requirements for Consistency
Participatory Modelling: Science Promoting Transparency
That is opaque to outsiders
Ecosystem approach
Reduced bureaucratic distortions
"Creative tensions"
Better advisory science
Complex accountability problems
ICES' Diffuse Science Policy Network
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Implications

We need diffuse science/governance networks in an extended expert community

They help resist bureuacratic distortions of science

But the accountability problem must be met with *simple definitions* of impact limits

and *clear burdens of proof*

Spatial approaches help. They reduce the extent of the networks and facilitate a multi centred approach

In fisheries we are developing a new institutional framework for implementing scientific advice

- Setting limits on impacts and a shifting the burden of proof
- Directing scientific energy toward:
  - Setting ecosystem level and operational impact limits
  - Creating indicators of compliance with limits
  - Helping users to create strategies to meet their burden of proof to show they are operating within these limits
    - Boundary objects that put uncertainty at the centre
- Lots of unanswered questions and this is the key focus of current governance research