Fisheries Governance in an SES System: All Things for All People or All Things for All Creatures?

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Apologia and Self-endorsement

- Short notice so you hear thoughts and reflections
  - Individual questions may be obvious to some but collective look may be the value added –
  - Seeking COHERENCE of governance.
  - Could not research the data behind the ideas here -
- "Retirement" has been more like a transition of roles
  - 34 years as "classical" science advisor to various levels of government -Sub-national, national, international
  - Now a step closer to those *using* the advice
    - CBD. FAO. and DOALOS
    - Advise in broader contexts - IPBES

Why do we have governance institutions and processes at all???

- The institutions and processes of governance are designed to provide the protocols and rules by which three things are enabled
  1. the information needed for decision-making is available in ways that are usable to the participants in governance,
  2. the sectors of society considered to have a right to participate in decision-making are able to access, share, and exchange views on the relevant information, .and
  3. The decisions actually get made and implemented

What are the Decisions actually about? Biological / physical things

Stock related - (Classic fisheries science 1920s)

- What to fish,
- How much to fish,
- Where and when to fish,
- Methods allowed or prohibited.

Ecosystem-related - (Since the 1980s)

- What parts of the ecosystem to protect?,
- What other ecosystem properties to consider in management, and HOW (as forcers? Impacts?)

The other Decisions outside the ICES / PICES historical expertise

People related things (social science questions)

- Who can participate in fishing (or be excluded).
- How the opportunities / benefits of fishing should be distributed among participants,
  - What to do with those who are excluded.

The role of fisheries relative to other uses of the ocean; economies of regions; and livelihoods of communities

Thoughts on the Decisions and their very non-linear Evolution

- ALL the decisions have always been made
  - Increasing trend to make them **explicitly**
  - Have to *realize* they are being made before governance can *admit* they are being made
  - Have to *admit* they are being made before governance systems can actively seek the information needed
  - ONLY ***THEN*** DO WE SEE INSTITUTIONS & PROCESSES TASKED TO DO IT
- The decisions can be made separately, but are not independent in formulation nor in outcome,
- Scale of communities - ecological *an*d human - important to which decisions are highlighted by governance.

Different TYPES of Information Needed

OBVIOUS – but tendencies for

- Institutions ask incrementally wider range of questions of their traditional advisors
- experts try to incrementally answer a wider range of questions than covered by their area of expertise

Clash of cultures, methods, and practices across all (most?) types of decisions made by the fisheries management and other institutions

What ARE the main Stock-related decisions –

Core Questions

- Where the fish are and how to catch them;
- How many fish there are and how much (or what rate) can be taken;
- What are effective ways to manage the amount of capture;

Ecosystem-Related Decisions

- What other features in the ecosystem are vulnerable to fishing pressure / gears
  - how to protect the things that are vulnerable;
- how the ecosystem is being changed by fishing,
  - what changes to allow or prevent,
- How to achieve those outcomes (mitigation hierarchy and restoration / remediation)

The participation-related decisions

How many participants to allow

- Who wants to participate;
- “Carrying capacity” of the resource for effort

Which people / groups can participate

- Who deserves/claims access based on history
- Who deserves/claims access based on investment
- Who deserves access based on most economic benefit from their participation
- Who deserves access based on social consequences of inclusion / exclusion ;

The social and economic integration questions

- What other sectors USE the ecosystem components that may be changed by fishing
- What other sectors CARE ABOUT the ecosystem components that may be changed by fishing
- What other sectors have consequences on ecosystem components important to fishing
- How to allocate opportunities among the uses and constrain the potential cross-impacts.

Initial PROCESSES AND INSTITUTIONS and how they have evolved

- Separate consideration of institutions and processes that
  - provide the information needed for decision-making
  - use the information in making the decisions
- Start with information provision institutions and process because for single decision it comes first.
- In evolution an institution actively makes a type of decision (poorly) a few times before asking for the necessary information.

Fisheries Target species productivity questions

Where? How much? Bio-effective measures

Classical fisheries departments, ICES Committees, Assessment WGs and ACFM, ACOM and regional parallels.

- Science advisory processes developed lots of rules about
  - Peer review and 2nd review.
  - Validating computational methods and software, etc
  - Standard figures and tables
- STRONGLY "EXPERT DRIVEN"

Recent Evolution - Precautionary Approach and Harvest Control Rules

- Even MORE structured, rule-based HIGHLY Expert process

Target “fleets” licensing questions

Who is interested? Allowed?

Providing the information (Scale issue) –

- Who WANTS in? - Not studied or in fisheries development
- HOW MANY to let in? Science – management interaction
- Who has rights / deserves? Fisheries management, policy

INSTITUTIONS AND PROCESSES –

STRONGLY TOP-DOWN decisions well into 1980s, some consultative..

Social Science engagement *adapted* expert processes (STECF, etc) but by adding different types of experts

Bottom-up input to decision came LONG before decision-making was shared (meetings cheaper than research)

The Ecosystem Questions

What is vulnerable? Changed? How to protect?

All done as EXPERT PROCESSES

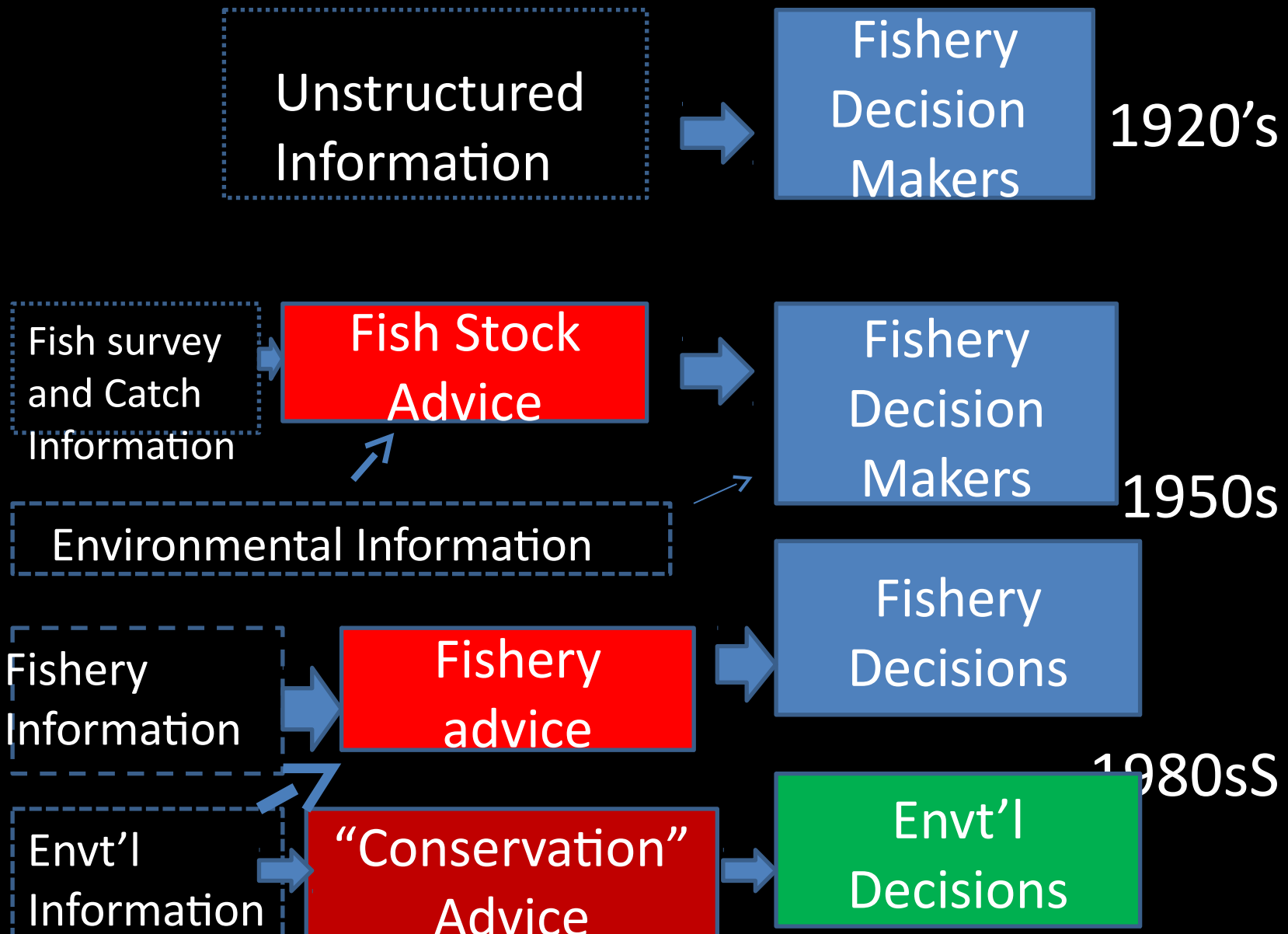
- For ICES initially WGECO and subsequent diversification.
- **New mixes of experts** from the national research centres and universities,

Advisory institutions had to adapt

- Initially just to ACFM to adjust F and B contexts
- "What was changing" questions added ACME as well
- "How to protect" questions led to creation of ACE
- Need for coherence – ACOM replaced all three

RULES and ADVISORY PRACTICES –EXPERT Driven

BIO-ECOLOGICAL QUESTIONS……



And what about USING the information in Decision-Making

Evolution there as well

Target Species Decisions

- Started top down and expert-informed
- Increase in number and structure of consultation processes to get industry views on interpretation of expert advice before top-down decision made
- Led to more stringent legislation to "balance" consultation processes and expert content of advice-
  - MSA "national standards",
  - Canada guidance on application of application of precaution
- Goal seemed to be to maintain inherently "expert process", while increasing opportunity to give sectors of society place to express their voices

Participation Decisions

Also began as top-down processes.

These were vulnerable to power and patronage through Industry Input to political process

- Wealth & power driven engagement for :"big" industry,
- Collective-action tactics for labour-intensive fisheries.

Degree processes became politicized provided incentives for structured consultative processes.

- Sectors in oppositions began to bring their own "experts" to interpret information from multiple perspectives.
- Could not break free of different values of different participants – choices HAVE political dimension

Ecosystem Decisions

- All wanted knowledge-based decisions - but how & where should they be made? ?
- Those USING the information wanted familiar processes.
  - Fisheries trying to have management benchmarks just estimated with more ecological factors in the models;
  - Conservation biology community rejected Ecosystem Approach as solely fisheries process – wanted their experts participating,
  - Also had THEIR preferred fora for exploring these questions
- Dueling experts advising separate decision processes with different interpretations of the same central information
  - Separate requests to ACFM and ACME/ACE for Haddon Bank "closure" in very early 2000s led to creating ACE

Several challenges to institutions and processes at once in early 2000s

- Dueling experts from natural sciences as decisions to be made became ecologically more complex (FAO-CITES)
- Consultative processes to de-politicize decisions (esp on participation) brought in social scientists as experts with different ideas about role of civil society in governance (inclusiveness)
- And the new decisions ARE in part unavoidably political NOT expert

Institutions did try to adapt

At the expert level - to keep appearance of "decision guided by the expert advice"

- Changes in advisory processes
- WGRED and successors to increase ecosystem content in advice
- Management strategy evaluations to commodify and model everything

At the decision level

Higher profile to consultancy bodied – RACS

Commitments (voluntary and judicially driven) to "co-management" without any consensus on what it is.

Size and Insistence of Demands for Change are Exceeding Adaptive Capacity of Institutions and Processes

Major Challenges to Institutions and Processes

- Conservation biology participation changes in the breadth of relevant "science knowledge" necessary to consider, and which risks to accept or avoid
- Economists and social scientists introduce new types of information and new ways to use information (e.g. more structured trade-off analyses, valuation etc)
- Inclusiveness of industry participants, civil society and Indigenous Peoples (supported by court decisions on rights and roles) brought fundamental challenges to the science knowledge system as the only knowledge to be collected and used.

And now the scope of governance itself has changed in 20-teens

- Other dimensions of the ocean and other institutions of governance eclipse fisheries
  - IPCC: and fisheries management – no longer just predicting where habitat envelops will be
  - CBD and AICHI Biodiversity Targets 6 and 11,
  - UN SDGs and fisheries (more than just SDG 14)
  - Diversification of legitimate knowledge systems through IPBES – no longer have to come to us.

In two decades fisheries policy-making and management has changed in three fundamental ways.

1. from either largely-top-down management, particularly of large-scale fisheries and largely bottom up management of artisanal and some small scale fisheries to a mosaic of scales of management with a diversity of participants and rules of engagement.

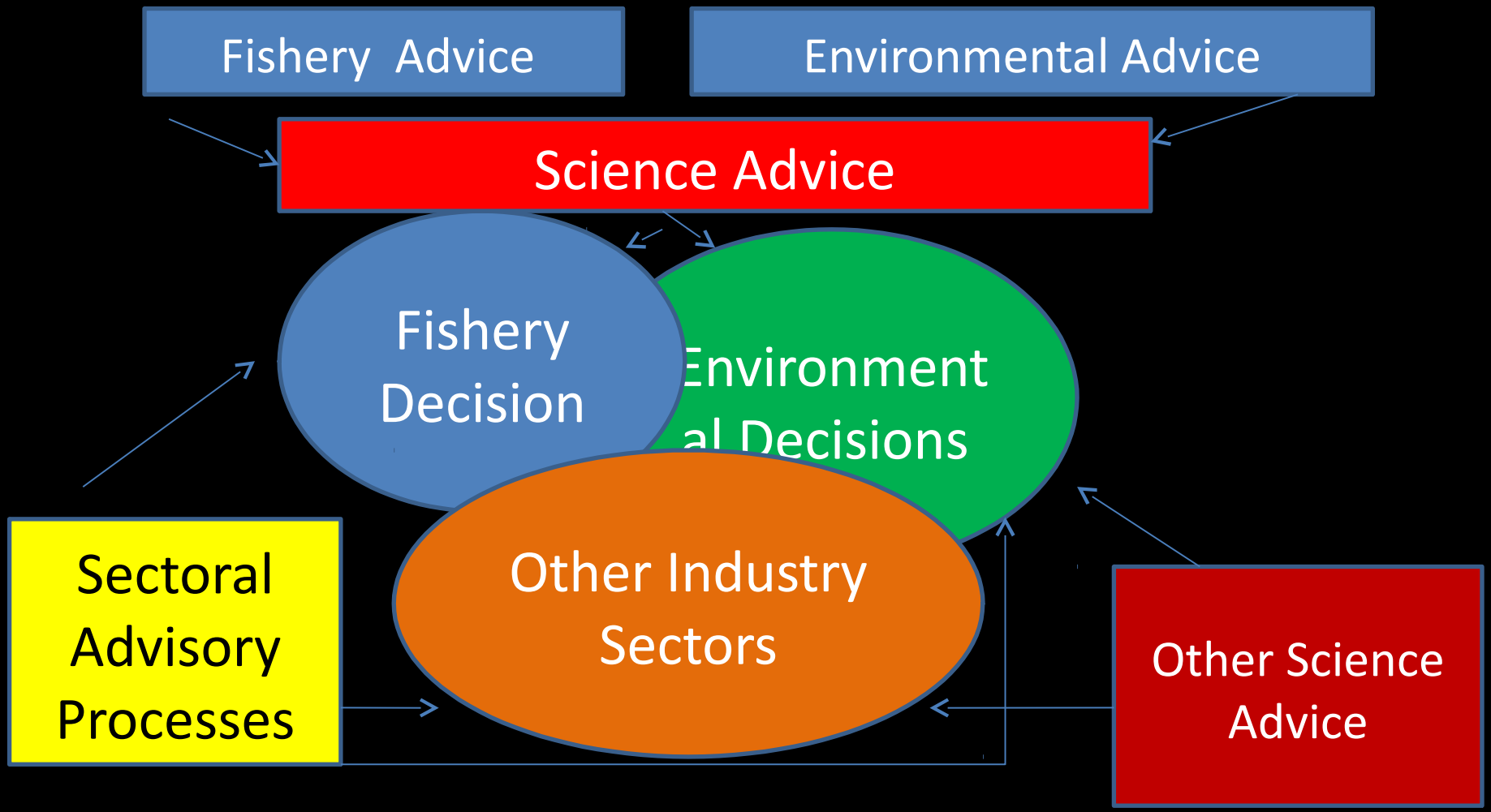
The Second Change

2. Factors considered explicitly relevant to the decision-making, from producing maximum sustainable yield from the target species, to considering for each decision:

- many social and economic consequences of available options,
- a broad range of ecosystem impacts, particularly on biodiversity
- interactions of fisheries with other sectors,

And this inter-sectoral change is profound – and UNSUPPORTABLE

3. Fisheries management is being affected <u>directly</u> by decisions and policies made elsewhere than in fisheries policy and management bodies.
   - Foreshadowed in Europe by MSFD, (all sectors struggling – fisheries no less than others and maybe more)
   - Globally and stronger by IPCC, CBD, SDGs, and now UN-BBNJ agreement


Fishery Advice
Environmental Advice
Science Advice
Fishery Decision
Environment al Decisions
Other Industry Sectors
Sectoral Advisory Processes
Other Science Advice

For rest of talk consider the implications of this new and largest challenge

INDIVUAL adaptations have been discussed in many places

For integration OF the suite together I will attempt to:

- Describe what properties a set of institutions and processes would have to have, in order to ensure **coherence f**or governance taking account of all the aspects of integrated socio-ecological sustainability in a true ecosystem approach context, and
- What paths might take us there

How are the knowledge institutions being challenged and changed –

- Other industries have their own experts, information sources and decision processes.
  - Some information shared and cross-participation – you come to my meeting and I'll come to yours
- Some successes but MANY misunderstandings
  - Information used in different ways
  - Risks assessed with different default tolerances
  - Do NOT stay expert processes for very long.

How policy outcomes intrude on the science processes and vice versa

- Species at risk experience
  - With uncertain information some error rate inevitable, but what TYPE of error?
  - Not acting when you should have (Miss), or over-regulating without incremental benefit (False Alarm)
- Spatial conservation
  - Identify important areas and protect from ALL threats first, or used threat-based assessments sector by sectpor
- BOTH are policy choices being made in science institutions and processes
- Alternative of policy on same issue being made in two institutions no better

There are expert areas where Social Sciences can help make decision-support more complete

- Characterize the different risk tolerance profiles of biodiversity and user communities
- Estimates of alternatives among economic optimality, maximum reasonable livelihoods etc
- Distribution of burden for fisheries to taken on for. say. recovery of depleted species if ;

  a) fishery was part of cause of the decline,

  b) not part of the cause but a necessary part of the solution or

  c) not part of the cause but a more cost-effective option than some other equally effective actions

The decisions themselves are value-based - and value to WHOM is key?

- Now fisheries "constituencies" contain greater diversity of interests with more valued things
- More sectoral constituencies involved in all major and many minor decisions – greater diversity of values for the same things
- Globalization of trade, food security, climate change mitigation etc are causing decisions with local impacts to be taken on planetary scales

WHAT INSTITUTIONS / PROCESSES NEEDED TO DEAL WITH THE VALUE-BASED CHALLENGES???

And time to add current political science / governance thinking

- Efforts to depoliticize decision-making to be objective and knowledge-based on social issues
  - Weak in practice and
  - Wrong in principle
- Reasons are entrenched among power and knowledge systems

Necessary Properties of the Institutions and Processes

Participatory decision making

- Least controversial – (Symposium program).
  - Consensus that top-down power should be reduced
- Challenges underestimated if thinking about from any one perspective (tokenism doesn't work)
- Top-down power not eliminated – just re-distributed.
- Institutions must decide what is EQUITABLE?
  - Must have explicit priorities for history (culture), investment, economic return, and social need
  - Institutions with affiliation to any <u>one</u> of those four priorities is inappropriate to decide on redistribution.

Not yet an institution / process to do redistribution of power on large scales

- Took UN Biodiversity Beyond National Jurisdiction process 6 years to agree that a new third instrument will be negotiated
  - Scope of instrument not yet agreed beyond inclusion of MPAs, MGRs, and EIAs
  - Sanctity of provisions in existing agreements (including Fish Stocks Agreement) unclear
- Without global agreement of how top-down power re-distributed, interests feeling they did not get equitable outcome will challenge legitimacy of whole process
- **Time is needed to break molds of governance**

How institutions can make decisions (What is a legitimate process)

- Consensus processes
  - give each interest allowed at the table a veto power –
  - leads to search for vague decisions that mean people agree but leave the process with different expectations of what implementation will be
  - the “other effective area-based measures in Target 11”
- Majority processes can consistently disenfranchise the weak, vulnerable, novel
  - Still domination by the advantaged participants , just now an unelected “advantaged”
  - Also getting the most attention

The knowledge provision institutions and processes also affected

- Credibility of Multiple knowledge systems implicit in broadening range of questions in decision-making.
  - "Scientific", Indigenous, Local knowledge
  - Each come from different experts (recognized)
  - *Each has different* processes for establishing "excellence" (NOT recognized in current processes)
- Growing agreement that synthesis of multiple systems stronger than any one alone, BUT
  - Process for assembling all three knowledge streams primitive or non-existent
  - Processes for synthesizing the knowledge systems in very early stages of development (talk in later session)

Each knowledge system has different strengths

- Science –impartiality, replicability, known accuracy and precision with technology to improve both. Broad but tendency to be reductionist
  - What you want the answer to be, and what you feel about the answer do not matter. Learned in school and career.
- Local Knowledge – focused on things tied to livelihoods, what really matters to success of fishing. Deep but specific to livelihoods
  - How you feel about the answer does matter – but still gap between experience and answer.– learned by experience and apprenticeships.
- Indigenous knowledge – longest in content, accuracy and precision least quantifiable. . Most inherently synthetic.
  - Boundary between what one knows and how one feels about it artificial. Learned by culture, so narrative transfer important.

And new Institutions and Processes have to be more sectorally integrative

In fisheries highest visibility in

- globalization and integration of economies,
- hunger and food security, and
- climate change (mitigation soon will overtake adaptation)

"outside range of natural variation" –

15 years ago great insight. because not assuming a fixed equilibrium. Now a JOKE (1.4 degree increase?_

Governance processes need to do better job of accommodating drivers that are outside their scope of control and sometimes even influence

Limitations on finding effective institutions and processes for these new Challenges

- Mindset that Management Strategy Evaluation can simulate everything relevant to decisions
  - Not just the “black swan” problem, but multiplicative inter-dependent complexities across sectors
- Mindset that quantifying trade-offs is the ideal knowledge support for decision-making
  - Multiple cultures and knowledge systems make currency for equitable trade-off analyses intractable
  - Choice of currency biases all subsequent uses of it to favour some cultures and knowledge systems over others, so policy choices being made at the knowledge process level – **Unfair and Unstable**

WHAT INSTITUTIONs AND PROCESSES WILL HAVE THE NECESSARY PROPERTIES

Inclusiveness and participatory –

- Transparent rules for allowing a place at the table,
- People excluded feel they were treated fairly.
- The decisions that get made have everyone n the room leave with the same understanding of what is to happen

Use Multiple knowledge systems –

- All relevant knowledge systems input with their own voice;
- All systems feel they had adequate support to get their knowledge in format to contribute
- Decision show use of knowledge from each contributing system;

Outputs that are both coherent across participants AND ecosystems, and robust to all relevant drivers.