

Governing marine protected areas: social-ecological resilience through institutional diversity

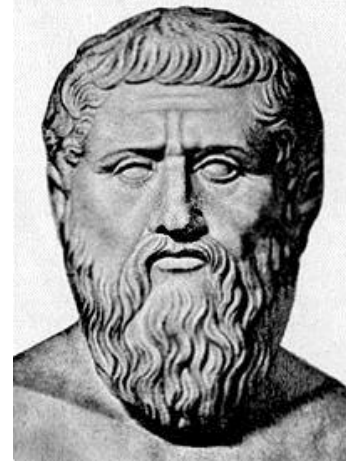
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#GoverningMPAs



UCL

Governance = *steer* of people and the society they constitute in order to achieve strategic collective objectives



Plato, 360 BC

State control – government and law

Market forces – capitalism and economies

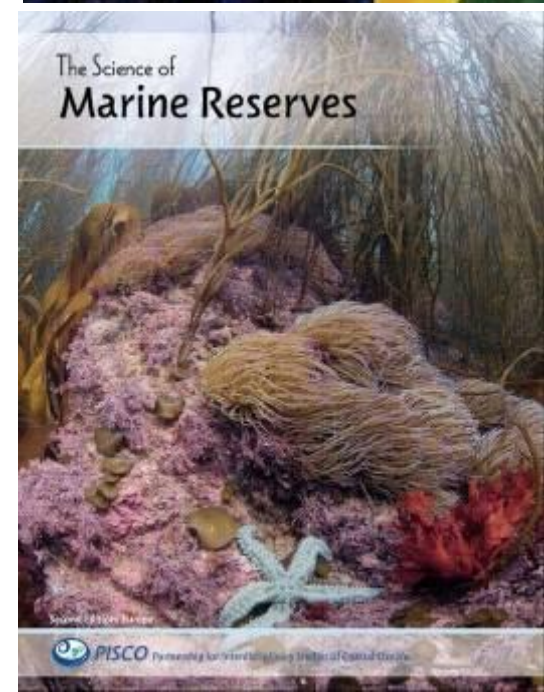
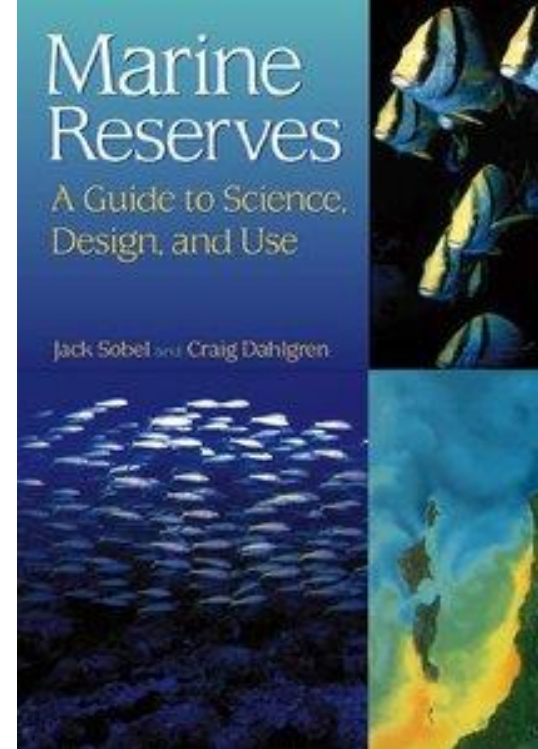
Public interests – people and civil society

Marine protected areas (MPAs) are an ideal vehicle for exploring the effectiveness of different governance approaches

The need for MPAs to address growing concerns & achieve conservation objectives is now *quite* widely accepted

Debates are moving on to how we can design networks of MPAs, and the knowledge-base and guidance is rapidly developing

Also a need to develop knowledge-base and guidance on how to **effectively** manage or **govern** MPAs



Co-management is the recommended approach

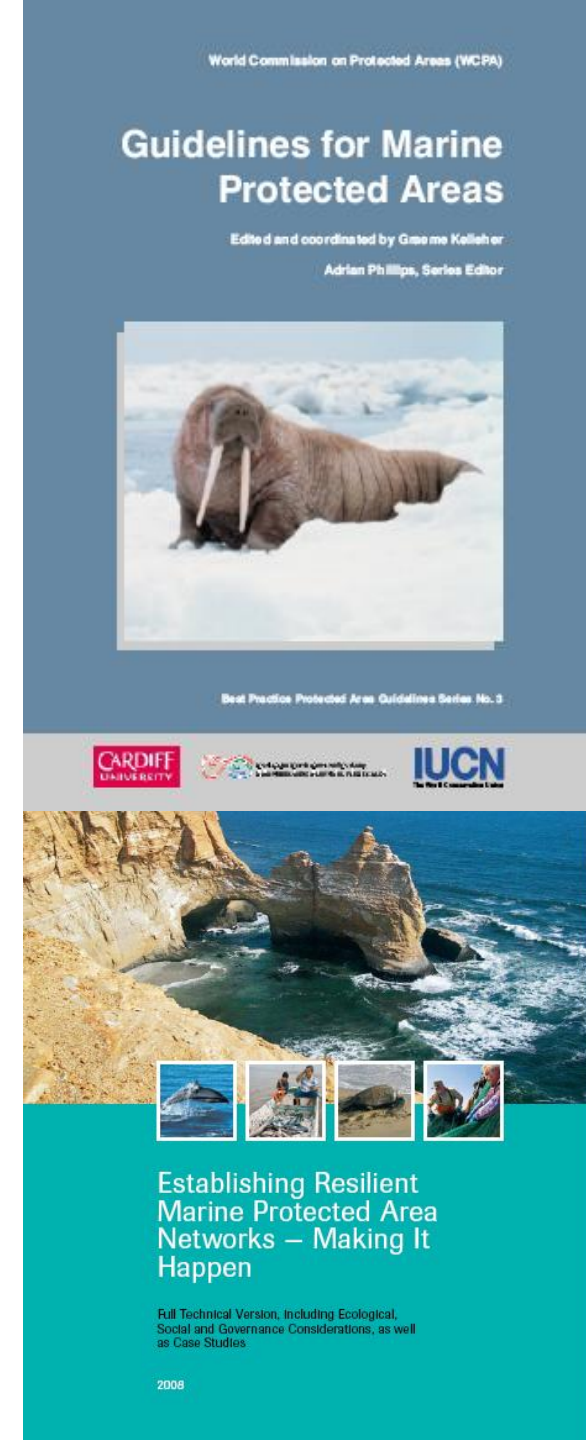
IUCN MPA Guidance

Combine top-down & bottom-up approaches

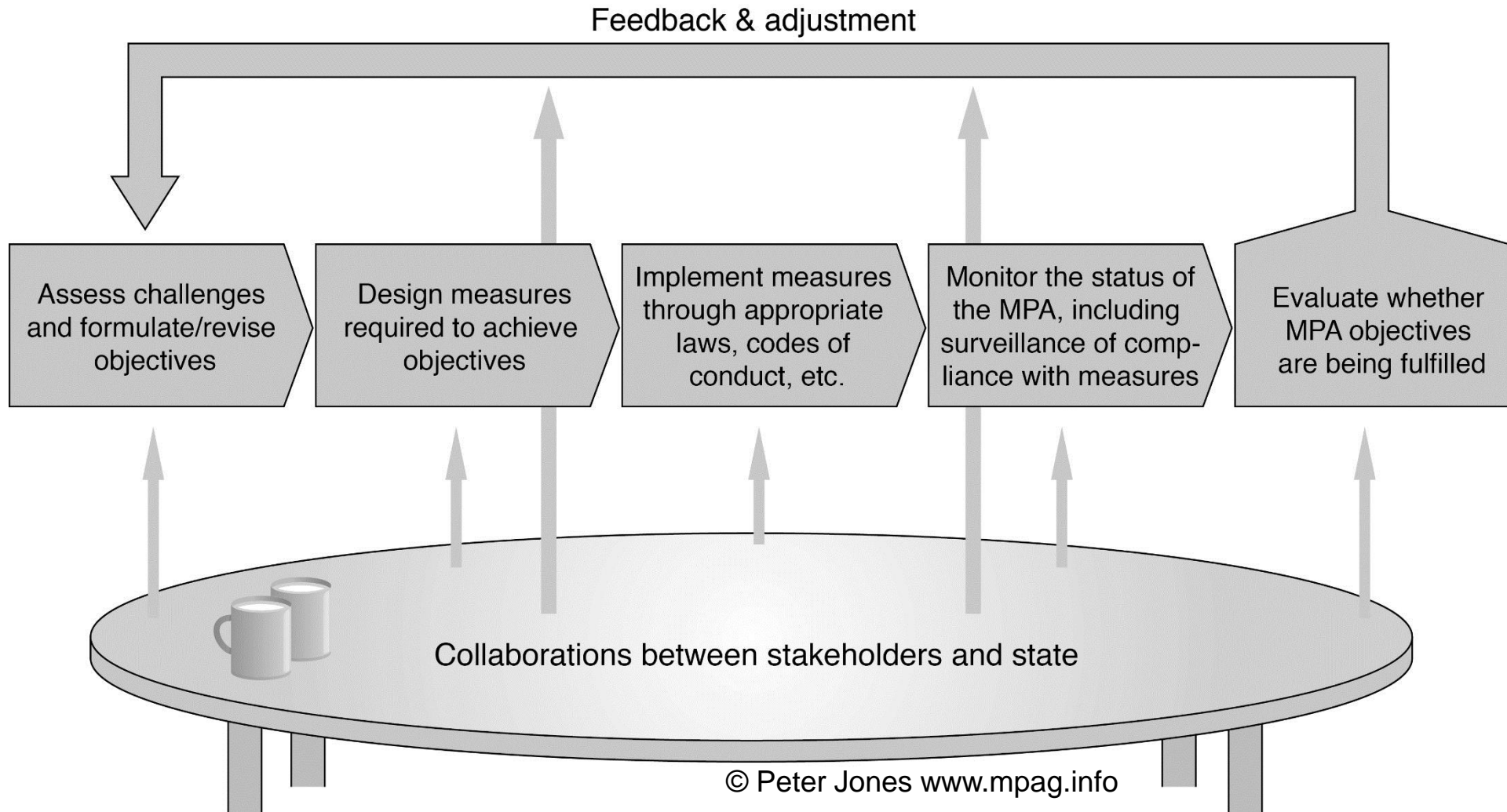
“design and management of MPAs must be both top-down and bottom-up”
(Kelleher 1999)

IUCN MPA Network Guidance (2008)

Recommends both top-down & bottom-up approaches



Adaptive co-management considered by many to be way forward

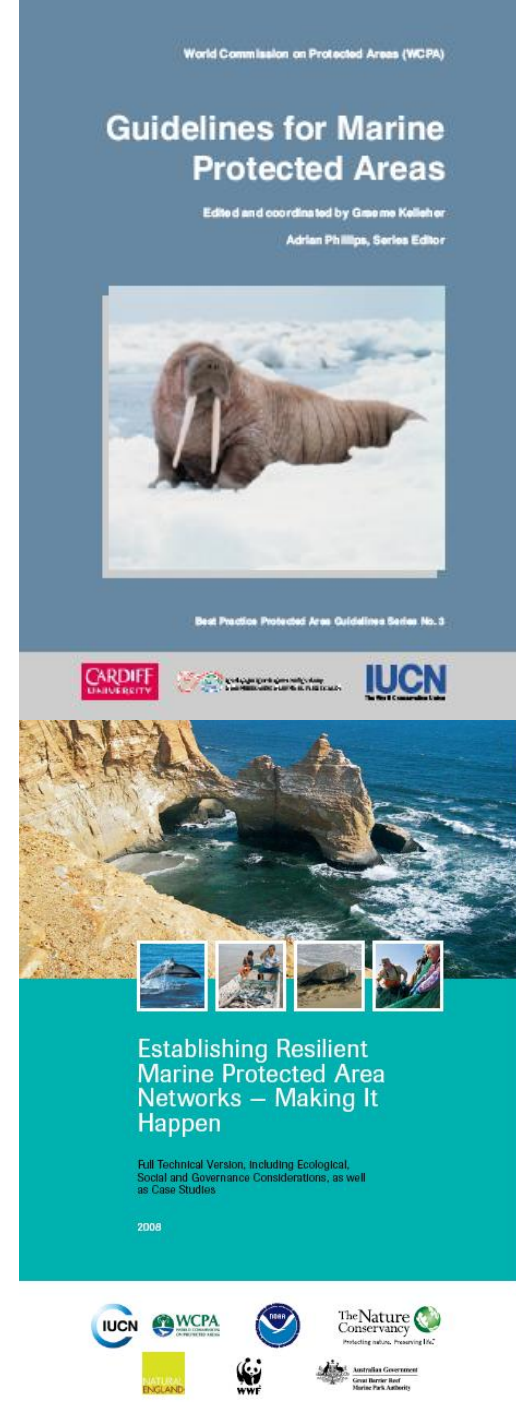


Too simplistic and linear to provide guidance on the **complex interactions** between stakeholders and the state in governance processes, **including the diversity of different priorities & values**

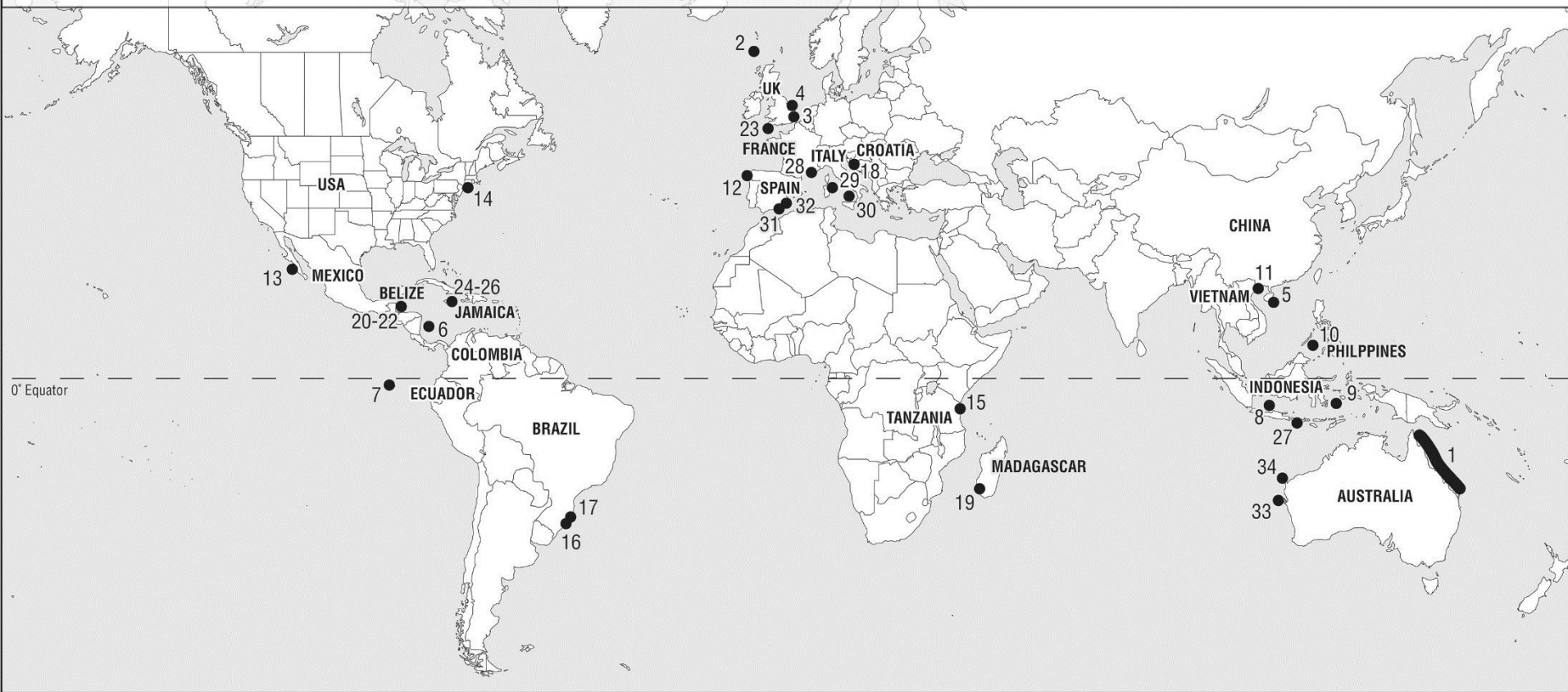
So what does

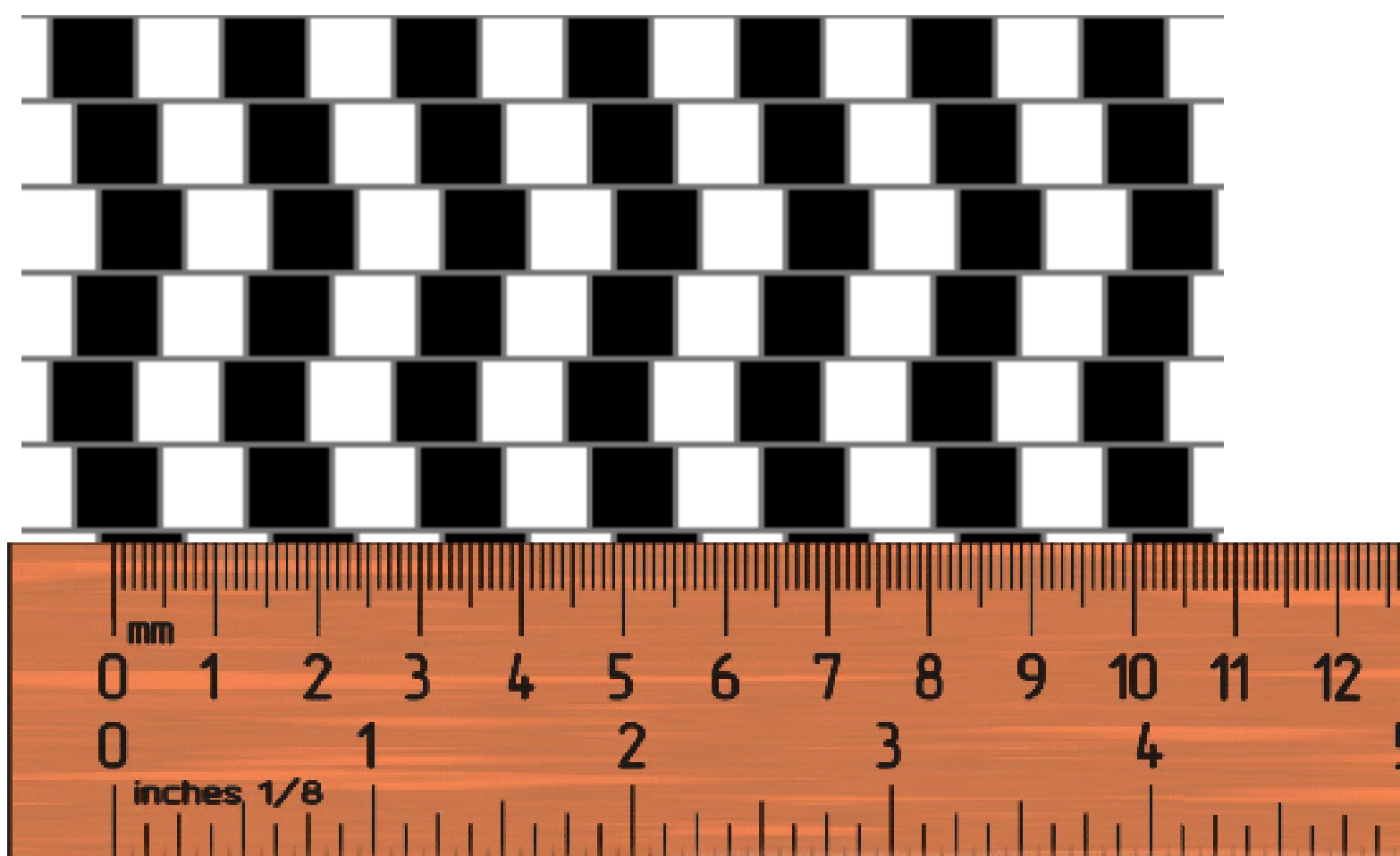
“design and management of MPAs must be both top-down and bottom-up” (Kelleher 1999) actually mean in practice?

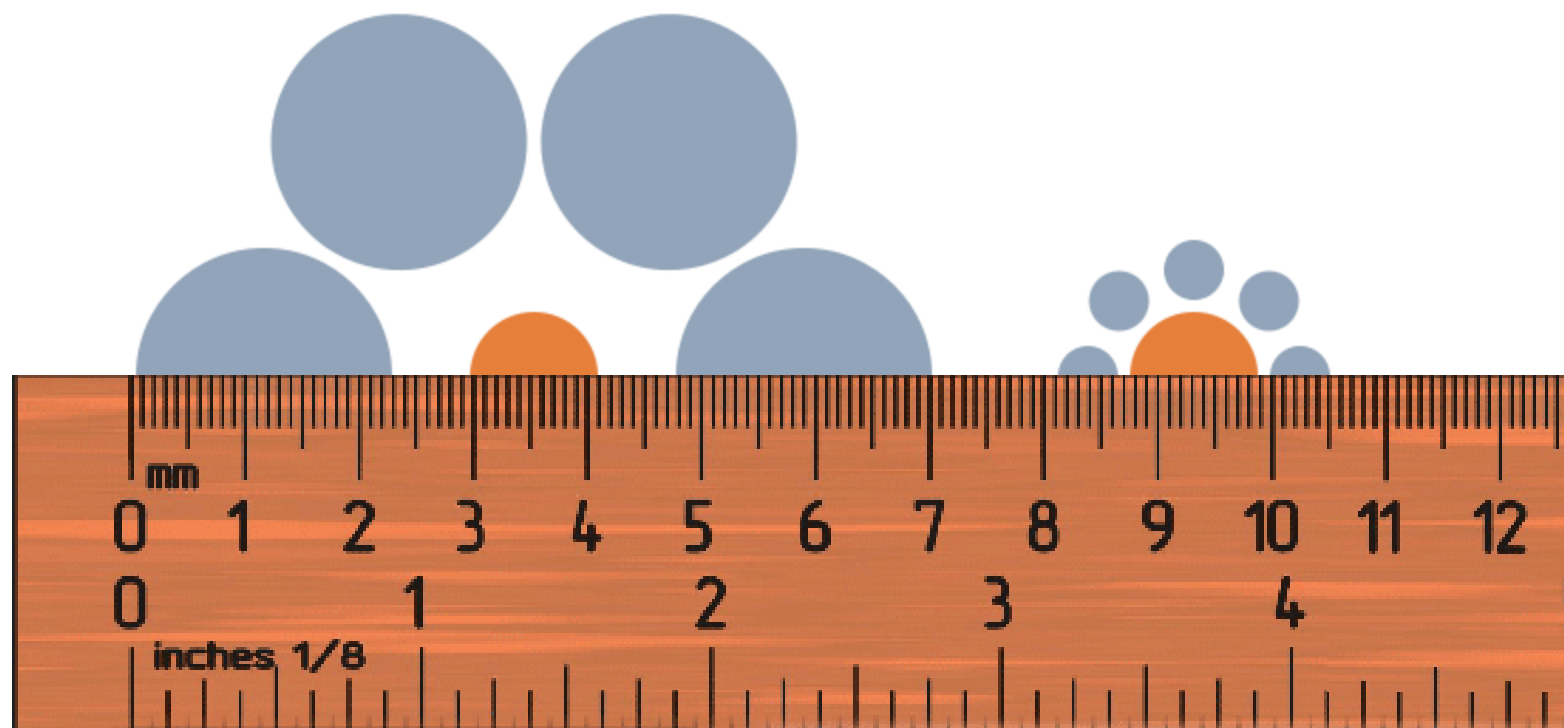
Recognising governance complexity and diversity, this is the key question that the MPA governance project aims to address, initially through 20 case studies – now 34 with further 14 being analysed



1. Great Barrier Reef Marine Park
2. Darwin Mounds European Marine Site (EMS)
3. North East Kent EMS
4. The Wash EMS
5. Sanya Coral Reef National Marine Nature Reserve
6. Seaflower Marine Protected Area (MPA)
7. Galapagos Marine Reserve
8. Karimunjawa Marine National Park
9. Wakatobi National Park
10. Tubbataha Reefs Natural Park
11. Ha Long Bay World Natural Heritage Area
12. Os Miñarzos Marine Reserve of Fishing Interest
13. Isla Natividad MPA
14. Great South Bay Marine Conservation Area
15. Chumbe Island Coral Park
16. Baleia Franca Environmental Protection Area
17. Pirajubaé Marine Extractive Reserve
18. Cres-Lošinj Marine Natura 2000 Site
19. Velondriake Locally Managed Marine Area
20. Hol Chan Marine Reserve
21. Caye Caulker Marine Reserve
22. Bacalar Chico Marine Reserve
23. Fal & Helford EMS
24. Sandals Boscobel Special Fisheries Conservation Area (SFCA)
25. Oracabessa SFCA
26. Bluefields Bay SFCA
27. Nusa Penida MPA
28. Port-Cros National Park
29. Tavolara-Punta Coda Cavallo MPA
30. Ustica Island MPA
31. Cabo de Gata- Nijar MPA
32. Cabo de Palos-Islas Hormigas MPA
33. Shark Bay Marine Park
34. Ningaloo Marine Park







MPAG analytical framework [[full outline](#)]

- Context including metrics: per capita GDP and growth rate, HDI, state capacity, population below poverty line, unemployment rate
- Objectives
- Driving Forces/Conflicts
- Governance Framework/Approach
- **Effectiveness (0-5)**
- Incentives **employed & needed:**



Economic
Communication
Knowledge
Legal
Participation

*: how incentives interact and are **combined***

- Cross cutting themes: equity issues, role of leadership, role of NGOs,



Economic incentives (markets): using economic and property rights approaches to promote the fulfilment of PA objectives (10)

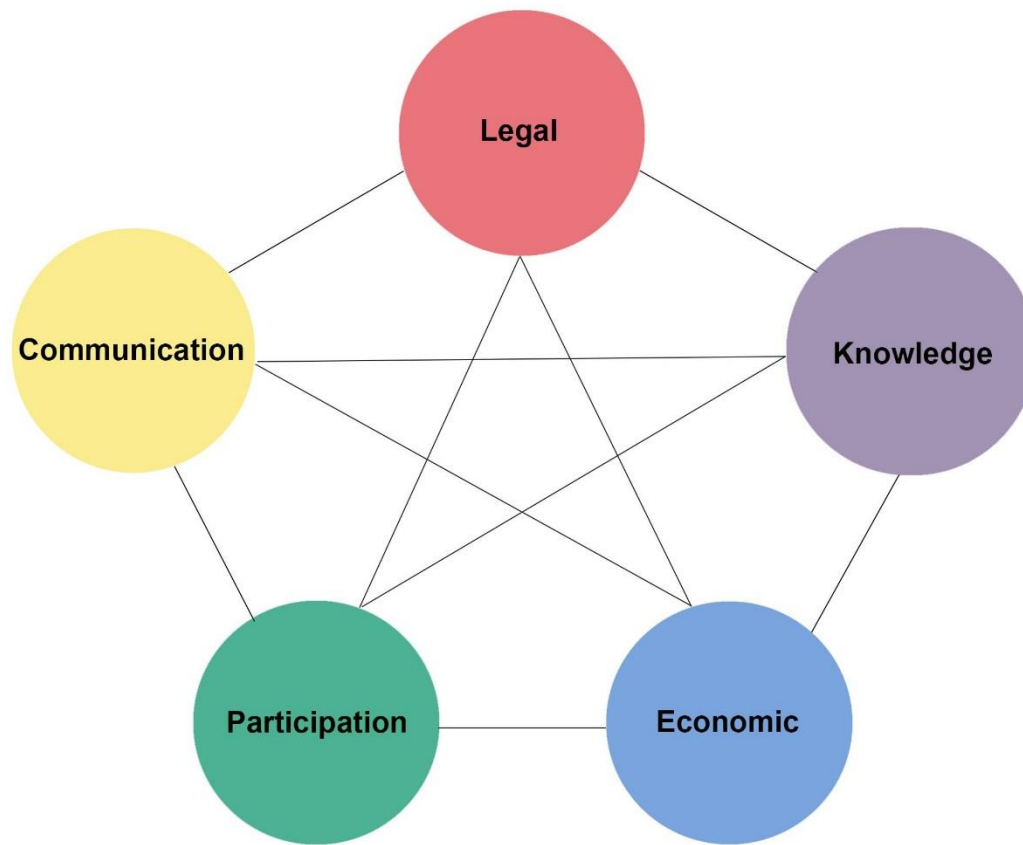
Communication incentives (education and awareness raising): promoting awareness of the conservation features of the PA, the related objectives for conserving them, the policies for achieving these objectives and support for related measures (3)

Knowledge incentives (collective learning): respecting and promoting the use of different sources of knowledge to better inform PA decisions (3)

Legal incentives (top down): use of relevant laws, regulations etc. as a source of 'state steer' to promote compliance with decisions and thereby the achievement of PA obligations (10)

Participation incentives (bottom-up): providing for users, communities and other interest groups to participate in and influence PA decision-making that may potentially affect them, in order to promote their 'ownership' of the PA and thereby their potential to cooperate in implementation of decisions (10)

Incentive Category	Incentive	Associated Governance Approach
Economic	1. Payments for ecosystem services (PESs) 2. Assigning property rights 3. Reducing the leakage of benefits 4. Promoting profitable and sustainable fishing 5. Promoting green marketing 6. Promoting diversified and supplementary livelihoods 7. Providing compensation 8. Investing MPA income/funding in facilities for local communities 9. Ensuring sufficient state funding 10. Provision of NGO, private sector and user fee funding	Market approach
Communication	11. Raising awareness 12. Promoting recognition of benefits 13. Promoting recognition of regulations and restrictions	Supports all three approaches
Knowledge	14. Promoting collective learning 15. Agreeing approaches for addressing uncertainty 16. Independent advice and arbitration	Supports all three approaches
Legal	17. Hierarchical obligations 18. Capacity for enforcement 19. Penalties for deterrence 20. Protection from incoming users 21. Attaching conditions to use and property rights 22. Cross-jurisdictional coordination 23. Clear and consistent legal definitions 24. Clarity concerning jurisdictional limitations 25. Legal adjudication platforms 26. Transparency and fairness	State approach/ top-down
Participation	27. Rules for participation 28. Establishing collaborative platforms 29. Neutral facilitation 30. Independent arbitration panels 31. Decentralising responsibilities 32. Peer enforcement 33. Building trust and the capacity for cooperation 34. Building linkages between relevant authorities and user representatives 35. Building on local customs 36. Potential to influence higher institutional levels	People approach/ bottom-up

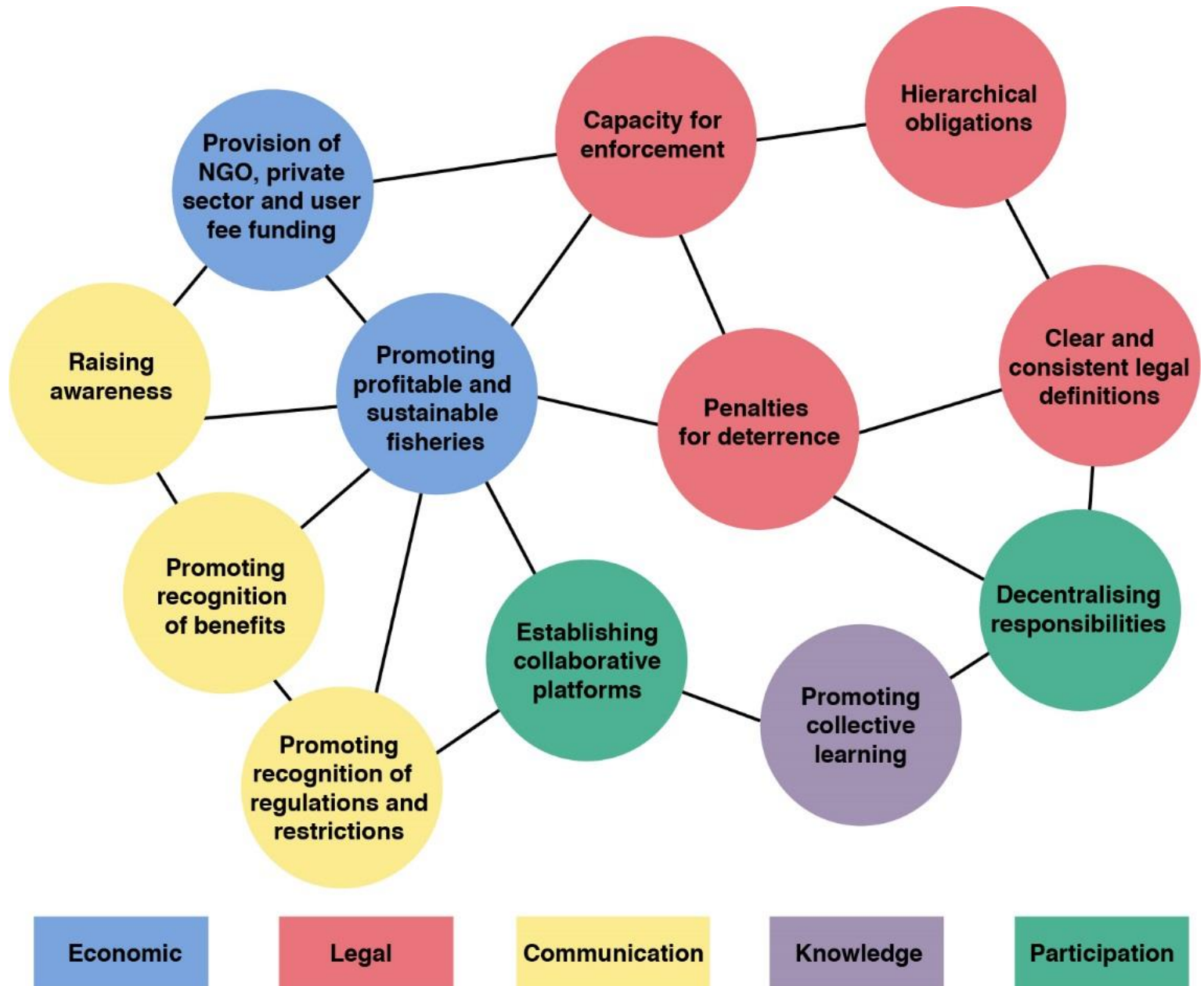


Also important to consider how incentives from different categories interact with and support each other, working in combination

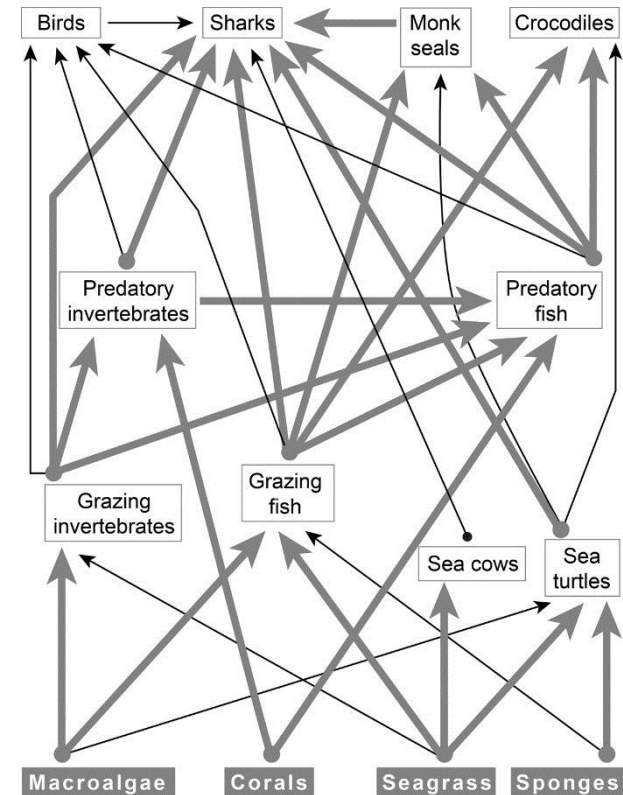
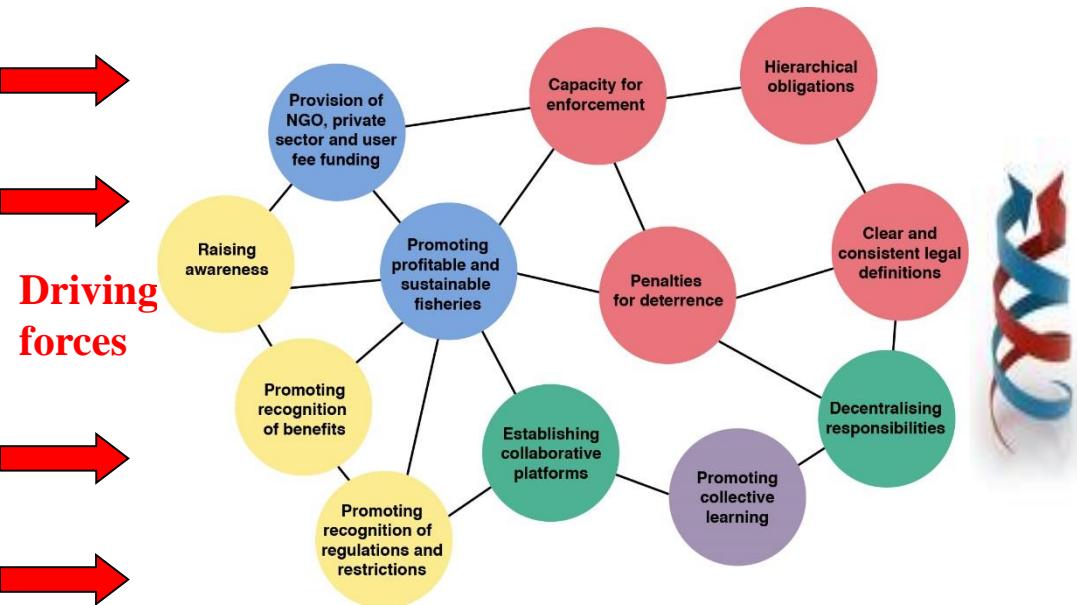
Distinction between top-down, bottom-up and market approaches thus becomes blurred, if not irrelevant, as you need to combine incentives based on all three approaches, including supporting role of communication & knowledge incentives

Polis (1998) *Nature* **395**(6704), 744-745

What key attribute confers stability in governance systems?



Incentive diversity → more resilient governance framework →
 increased effectiveness of MPA → increased biodiversity → more
 resilient ecosystem → increased ecosystem services: fish catches,
 tourism, coastal defence, etc → more resilient social system →
increased resilience of social-ecological system



Jackson et al (2001) *Science*, 293, 629-638

Great Barrier Reef Marine Park (Australia)

Uncertain whether declines in fish populations and/or terrestrial run-off exacerbating crown of thorns starfish outbreaks;

No-take zones (NTZs) area increased on a precautionary basis;

Recoveries in health of NTZs make them more resilient: fewer starfish outbreaks than fished areas leading to higher coral cover.

Isla Natividad (Mexico)

Relatively large body size & high egg production of abalone populations in NTZs conferred resilience to anoxia episodes related to ocean warming: increased survival and recovery rate;

Larval export promoted replenishment of populations in fished areas

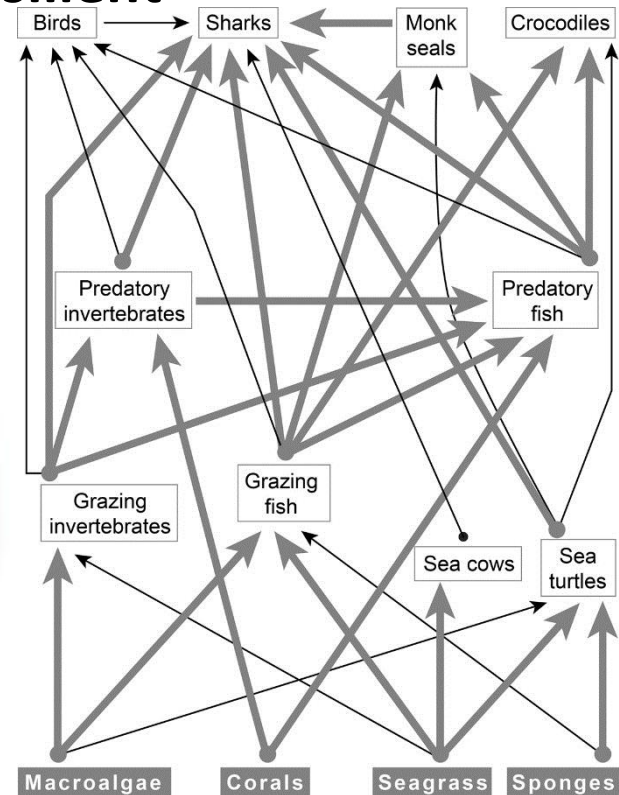
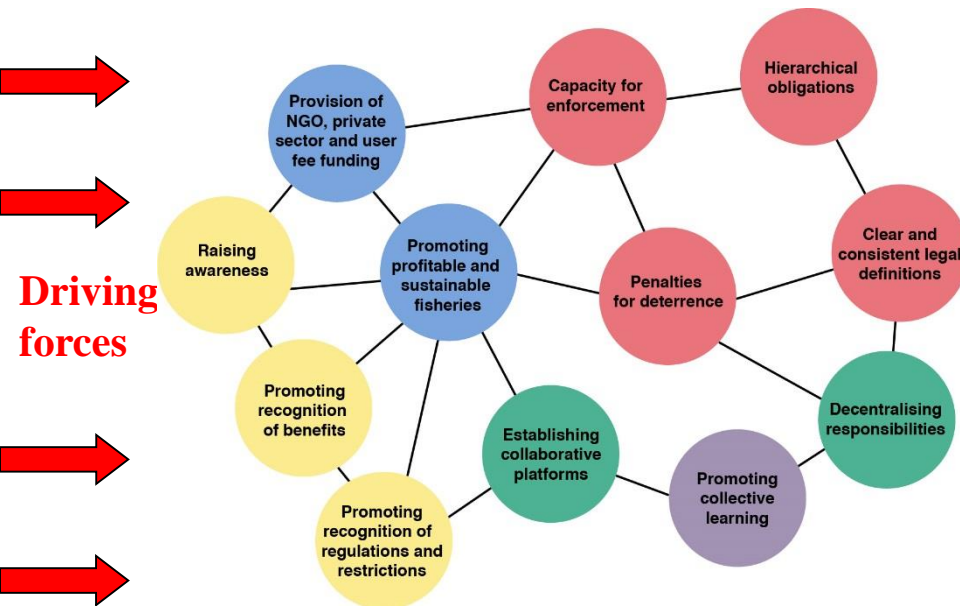
Chumbe (Tanzania)

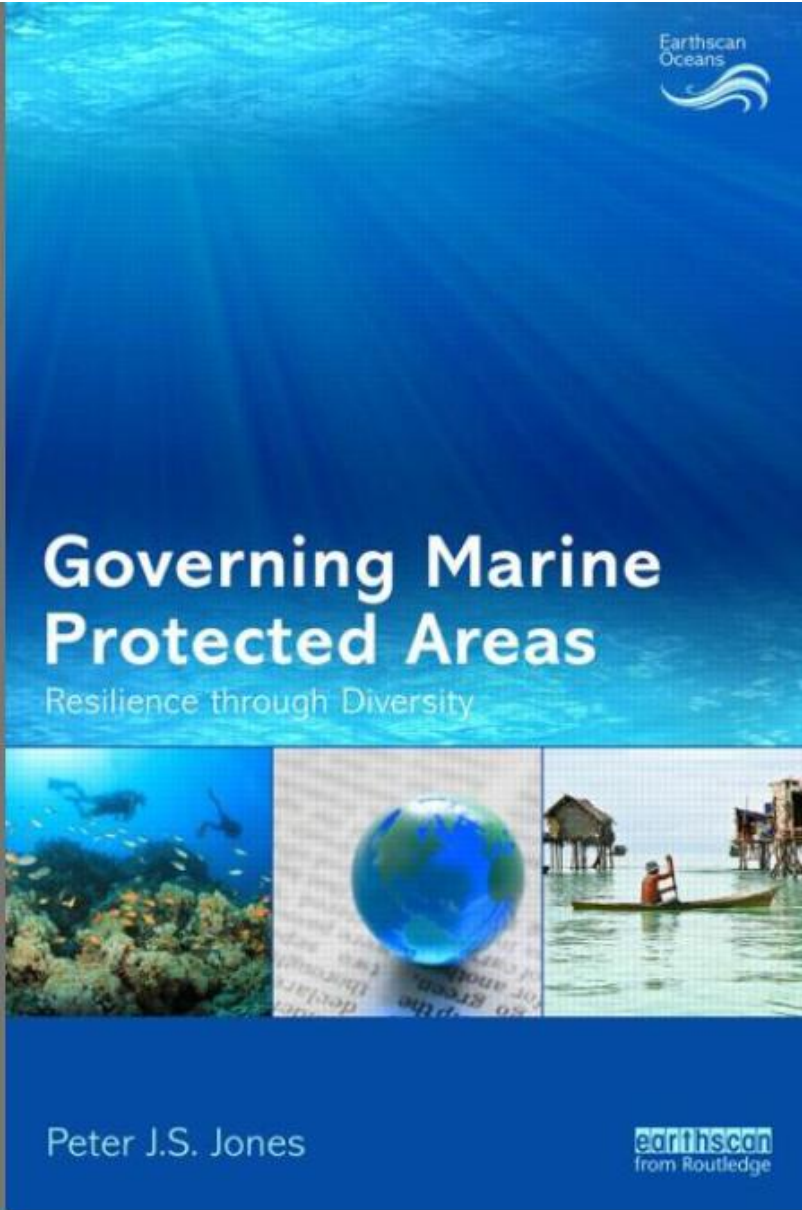
Coral reefs in no-take MPA less impacted by coral bleaching and recovered sooner: considered most resilient in Western Indian Ocean

In the face of strong driving forces, the combined use of a diversity of inter-connected incentives makes MPA governance frameworks more resilient.

Resilience in MPA governance frameworks is therefore **woven by complex webs connecting incentives from all five categories**

... but **without strong legal incentives to reinforce the MPA governance framework, it will not be resilient**





Systematic way of '**deconstructing**' MPA governance into different categories of incentives and governance approaches

MPAG analysis framework can be applied on a **multiple case study basis** to a larger sample of MPAs

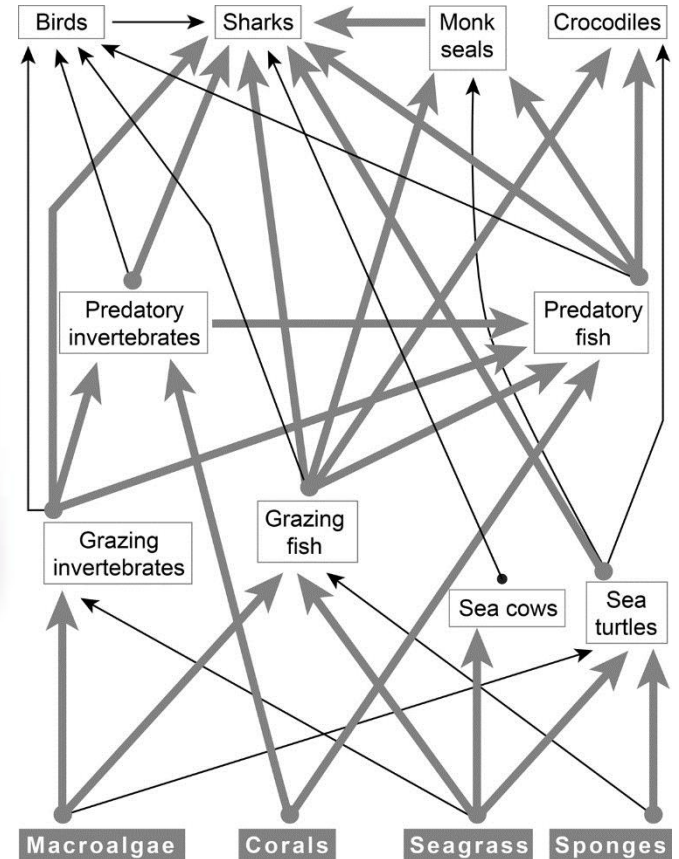
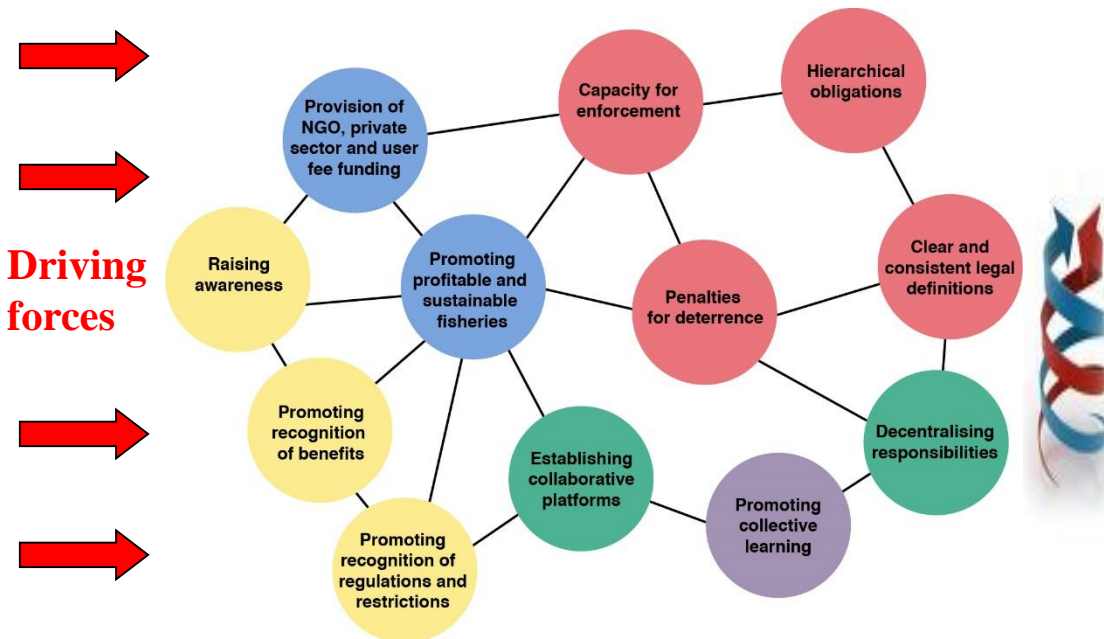
Guidance for assessing governance issues in any given MPA and transferring 'good practice'

More realistic theoretical and empirical framework for studies related to wider natural resource governance

Published February 2014

tinyurl.com/GoverningMPAs

Diversity is the key to resilience, both of species in ecosystems and incentives in governance systems



Jackson et al (2001) *Science*, 293, 629-638

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Implications for MPAs in the UK

Objectives

Move beyond bureaucratically reductive features focus to encompass the integrity and diversity of habitats and all the species they support. Aim more for recovery and restoration, rather than 'maintain', recognising the need for no-take zones and wider restrictions to achieve this.

- Need for effective leadership: particular agency to take a strong lead
- Equity less of an issue in UK as fishing industry is more profitable and adaptive, and there are alternative livelihoods
- A systematic, adaptive approach to the governance of UK networks of MPAs is needed: learning & good practice exchange network needed

Diversity of governance incentives from all five categories is always needed for effective MPAs

Economic incentives

- Recognise that MPAs can play an important role in fisheries management through spillover/export benefits of recovered populations, etc
- Green marketing of fish from MPAs as well as of MPAs as a tourism and recreation attraction
- Ensure that agencies have sufficient budgets to play their role, perhaps also seeking private sector sponsorship of particular MPAs, ensuring that this does not lead to undue influence ('capture')

Communication incentives

- Need to raise awareness of the conservation features of MPAs and their importance, *eg* <http://poolerocksmcz.uk> including the benefits of their protection, otherwise MPAs perceived just as a cost

Knowledge incentives

- More collective learning partnerships such as that for Lyme Bay
- Take a more adaptive precautionary approach as present reductive features focus and requirement for firm evidence of distribution, exposure to impacts, significance of impacts, etc. is too evidence hungry

Legal incentives

- Must begin to engage with the EC's CFP for all MPAs >6nm, otherwise Brexit paralysis could fatally stall the process for these offshore MPA designations and they will remain merely as ineffective 'paper parks'
- Voluntary measures alone do not represent 'better regulation', *ie* will not be effective without legal back-up, enforcement, appropriate penalties, etc
- Legal obligations and incentives are essential for reinforcing governance frameworks, *eg* the most effective MPAs so far are driven by legal incentives to EC: these obligations need to be maintained post Brexit
- Need for cross-sectoral coordination with an agency taking a lead on this

Participation incentives

- Need to establish collaborative platforms, *eg* advisory committees, so that local users of MPAs can be involved, helping to promote cooperation, peer enforcement and a sense of local stewardship

