Making marine protected areas more effective: resilience through diversity

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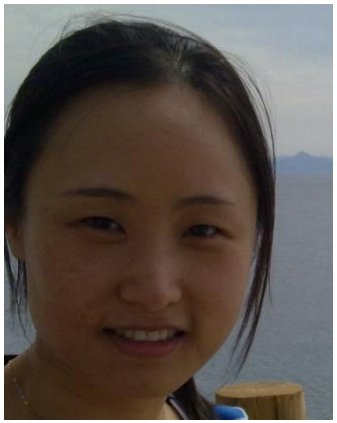

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Governing marine protected areas: social-ecological resilience through institutional diversity

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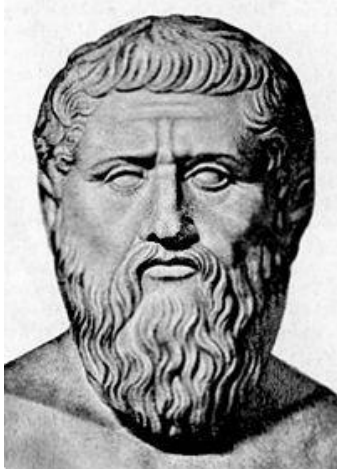
Governance = *steer* of people and the society they constitute in order to achieve strategic collective objectives



Plato, 360 BC

Resilience = capacity for stability in the face of potentially perturbing forces, *eg* climate change, population growth, globalisation

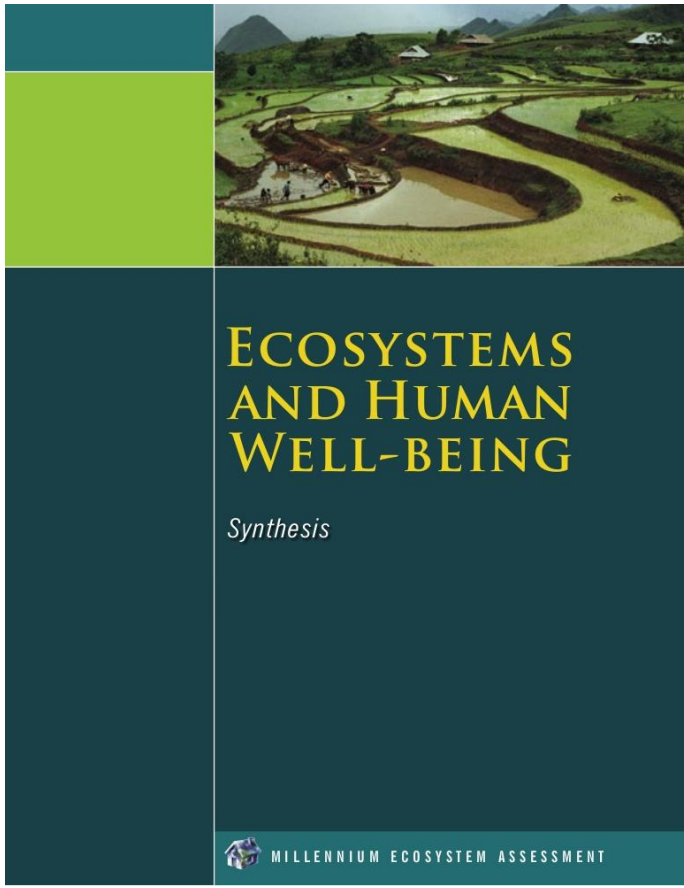
Where should the '*steer*' towards resilient social and ecological systems come from?

State control – government and law

Market forces – capitalism and economies

Public interests – people and civil society

Growing scientific and societal concerns about the degraded state of marine ecosystems



"most services derived from marine and coastal ecosystems are being **degraded** and used unsustainably and therefore are **deteriorating faster** than other ecosystems…

arresting the further degradation of coastal and marine ecosystem resources …is an **urgent imperative**"
(*UNEP Millennium Ecosystem Assessment 2006*)

No-take marine protected areas (MPAs) are seen by many as being crucial to address such concerns

April 2014 ~ 7,318 MPAs [UNEP–WCMC World Database on Protected Areas in Nature]

representing coverage of **3% of the total area of global seas**, (CBD target = 10%)

or **6.6% of seas under national jurisdiction (< 200 nm)**

Represents a quadrupling of total MPA coverage in the last 10 years, but very patchy and 53% of coverage comes from 10 vast remote MPAs

Still lags behind the 12.5% coverage of terrestrial protected areas, target for which now 17% coverage

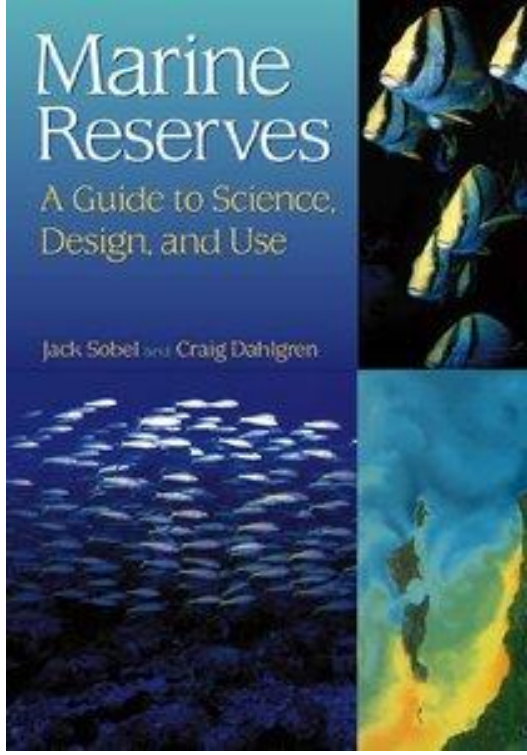
Effectiveness of existing MPAs?

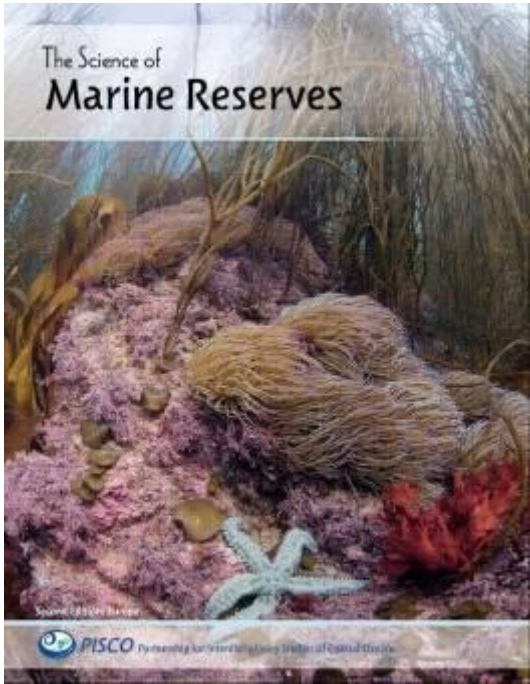
Marine protected areas (MPAs) are an ideal vehicle for exploring the effectiveness of different governance approaches in promoting social-ecological resilience

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



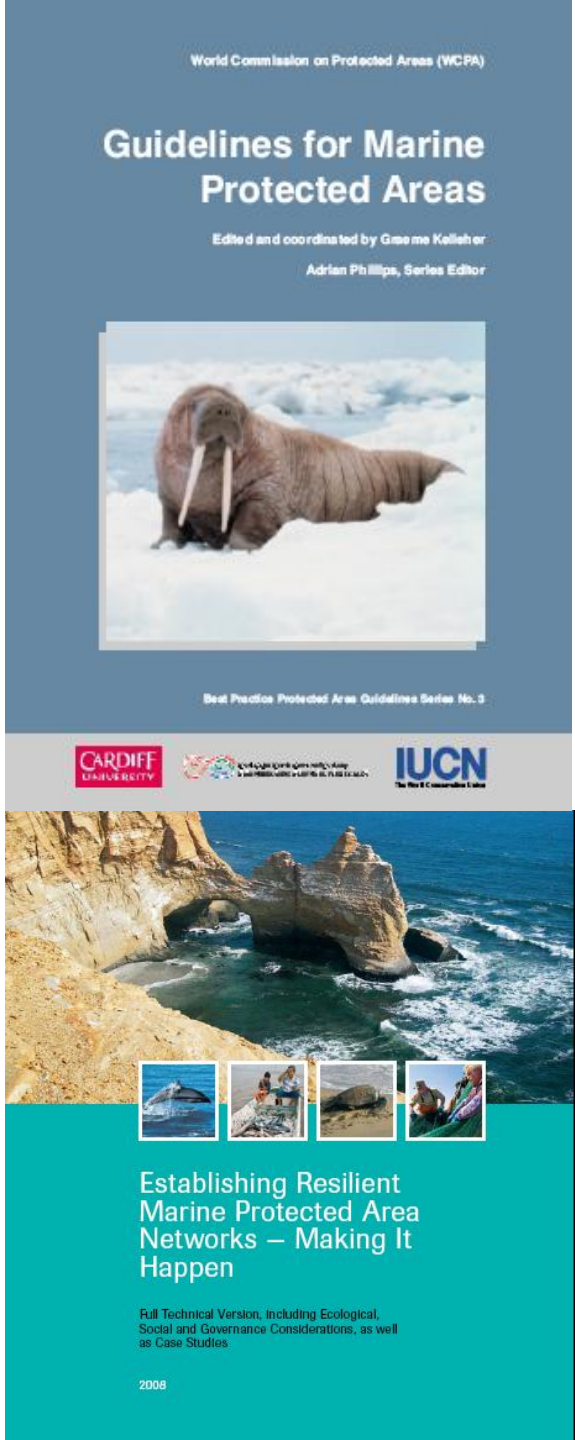


Co-management is the recommended approach

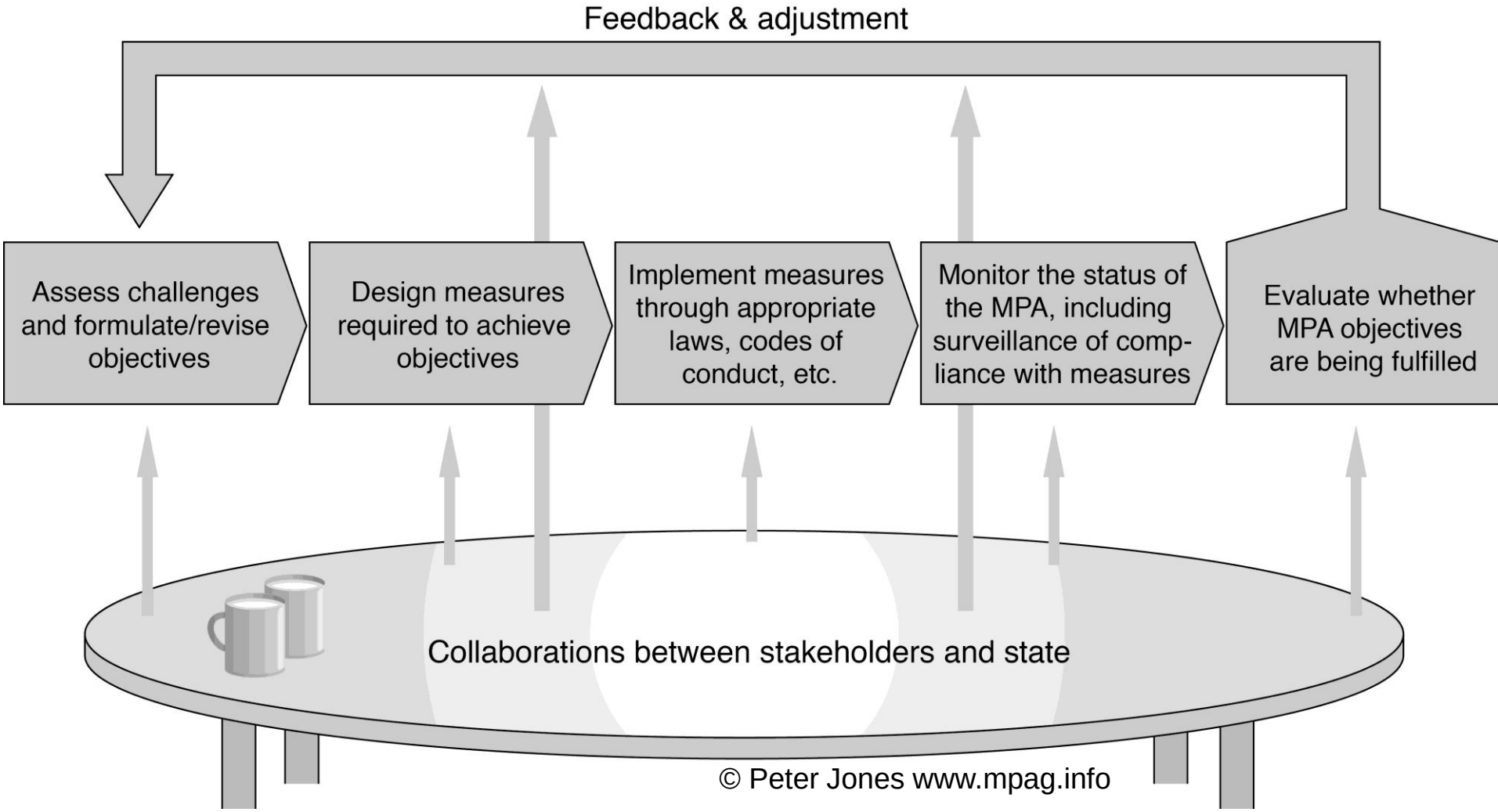
IUCN MPA Guidance
Combine top-down & bottom-up approaches

"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



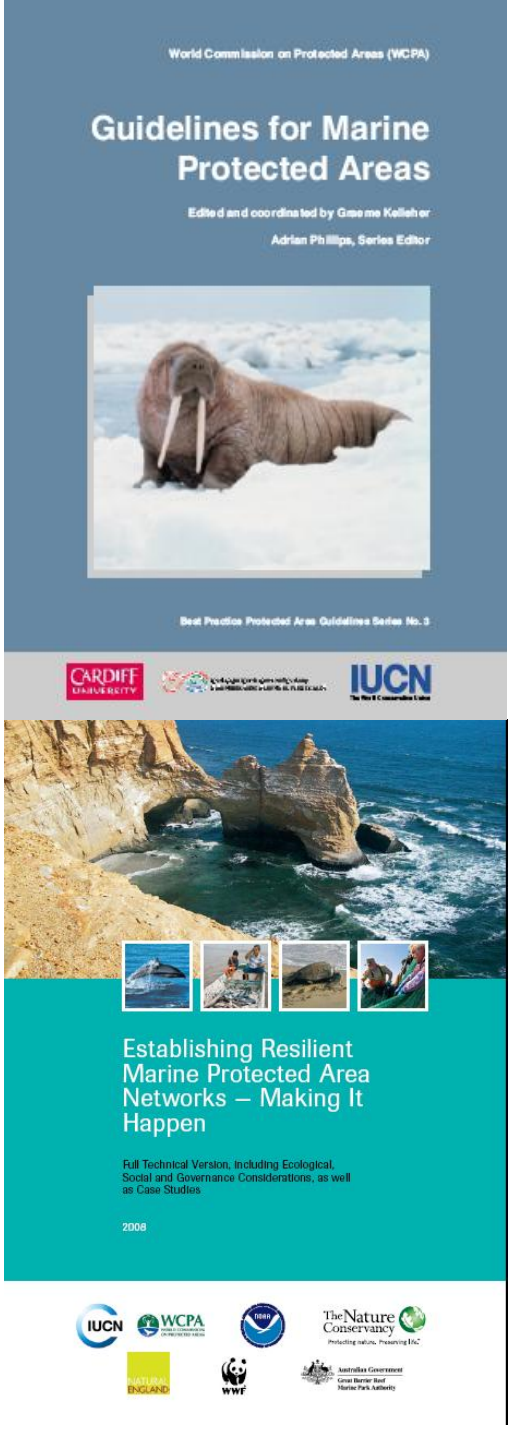
Adaptive co-management considered by many to be way forward

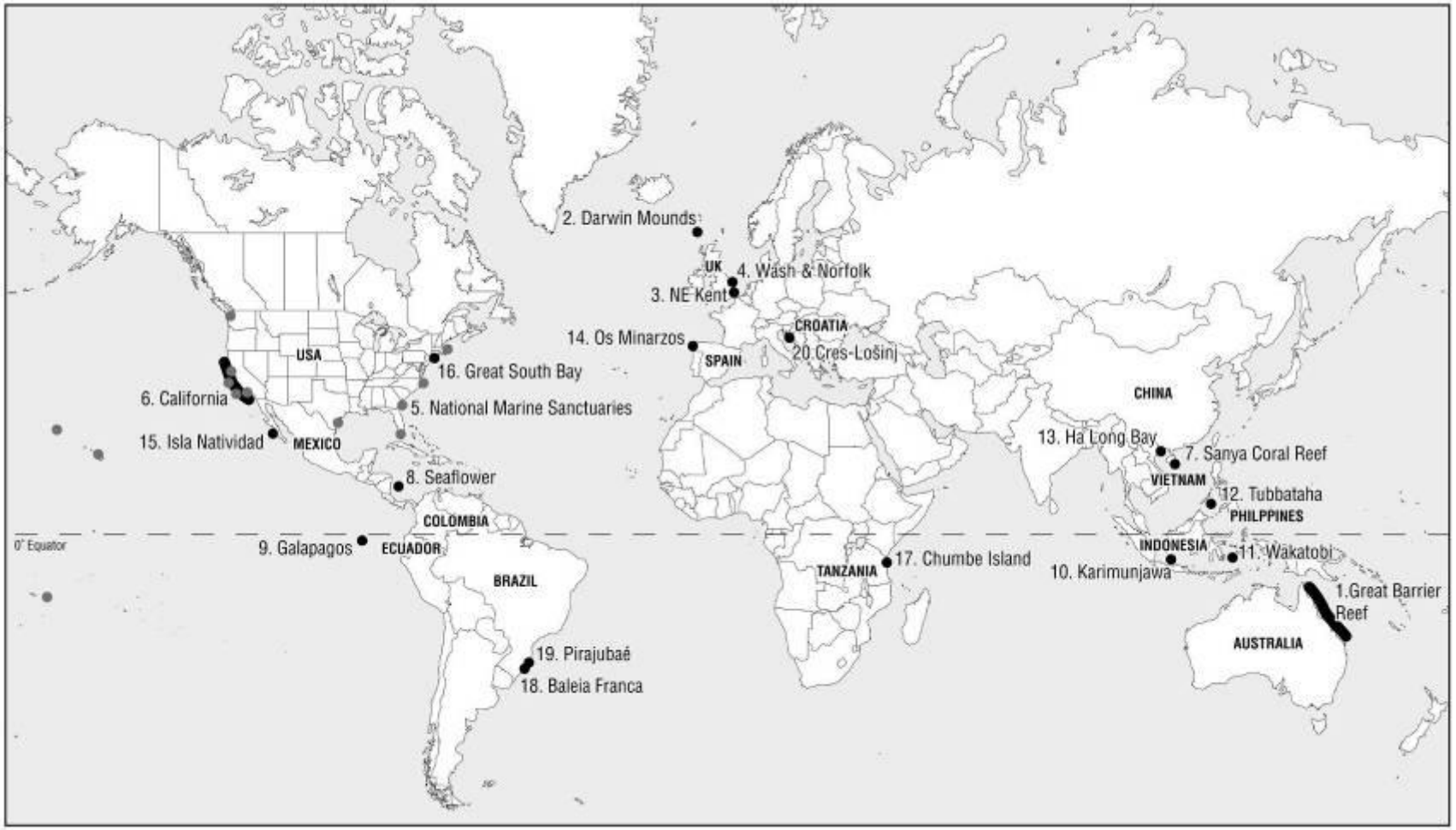


Too simplistic and linear to provide guidance on the complex interactions between stakeholders and the state in governance processes, including the diversity of different priorities & values

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





1: Great Barrier Reef Marine Park 2: Darwin Mounds Marine Special Area for Conservation
3: North East Kent European Marine Site 4: Wash & North Norfolk Coast European Marine Site
5: National Marine Sanctuaries (a network of MPAs with locations shown in grey colour)
6: California MPAs under the MLPA 7: Sanya Coral Reef National Marine Nature Reserve
8: Seaflower MPA 9: Galápagos Marine Reserve 10: Karimunjawa Marine National Park
11: Wakatobi National Park 12: Tubbataha Reefs Natural Park 13: Ha Long Bay World Heritage Site
14: Os Minarzos Marine Reserve 15: Isla Natividad MPA 16: Great South Bay Marine Conservation Area
17: Chumbe Island Coral Park 18: Baleia Franca Environmental Protection Area
19: Pirajubaé Marine Extractive Reserve. 20: Cres-Lošinj Special Zoological Reserve

MPAG workshop
12-16 Oct 2009
Mali-Lošinj
Croatia

UNEP

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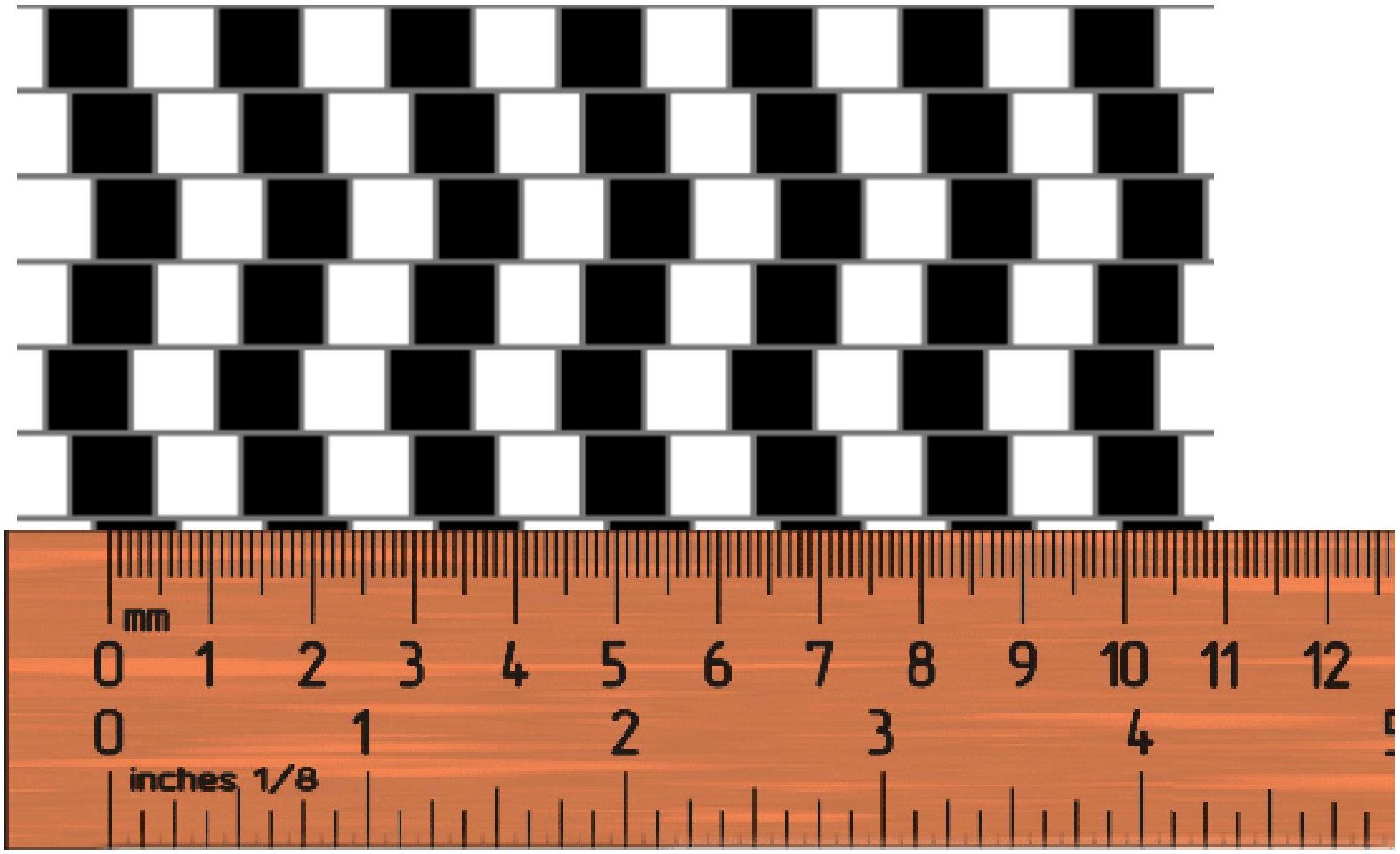
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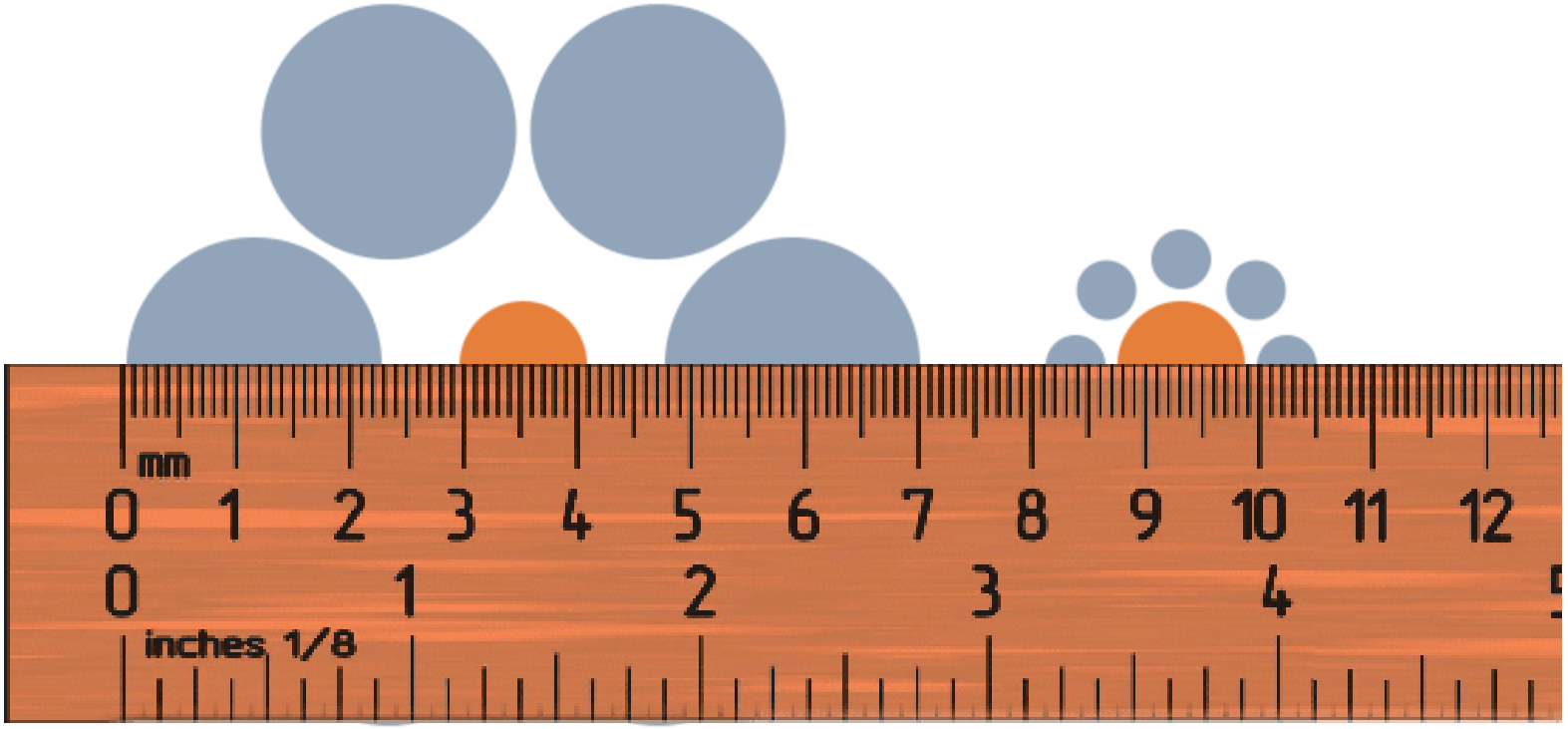
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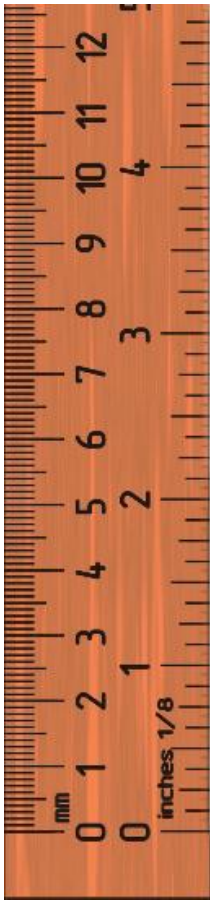
MPAG analytical framework [document]

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

Economic
Interpretative
Knowledge
Legal
Participative



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

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

Case studies assigned to one of five 'governance approach' categories

Approach I - **government-led** (6 case studies)

Great Barrier Reef (Australia); Darwin Mounds, NE Kent; Wash/Norfolk Coast; (UK); National Marine Sanctuaries; California MPAs (US)

Approach II - **decentralised governance** (7 case studies)

Sanya (China); Seaflower (Columbia), Galapagos (Ecuador); Karimunjawa; Wakatobi (Indonesia); Tubbataha (Philippines); Ha Long Bay (Vietnam)

Case studies assigned to one of five 'governance approach' categories

Approach III - **community-led** (2 case studies)
Os Minarzos (Spain); Isla Natividad (Mexico)

Approach IV - **private-led** (2 case studies)
Great South Bay (US); Chumbe (Tanzania)

Approach V – **ineffective** (3 case studies)
Baleia Franca; Pirujabaé (Brazil); Cres-Lošinj (Croatia)

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

Interpretative incentives: promoting awareness of the conservation features of the MPA, the related objectives for conserving them, the policies for achieving these objectives and support for related measures (3)

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

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

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

Economic, interpretative, knowledge and participative incentives, including the important roles of **local leaders** and **NGOs**, can complement the roles of the state,

but these are **not a substitute** for the roles of the state, as **legal incentives are critically important** to reinforce the governance framework.

Political will, particularly at higher government levels, is **vital** to provide for the roles of the state and promote effectiveness

Tubbataha Ranger Station (Alan White)

Without community stewardship or ‘ownership’ of an MPA, incentives aimed at generating support from local resource users are less likely to be successful

One important means of promoting community stewardship is to **provide for protection from incoming users, including through the allocation of legally enforced community property rights**, in combination with other incentives


Seaflower stakeholders (Coralina)


Tubbataha stakeholders (WWF)

The potential for trade-offs between effectiveness and equity in MPA governance raises many challenges

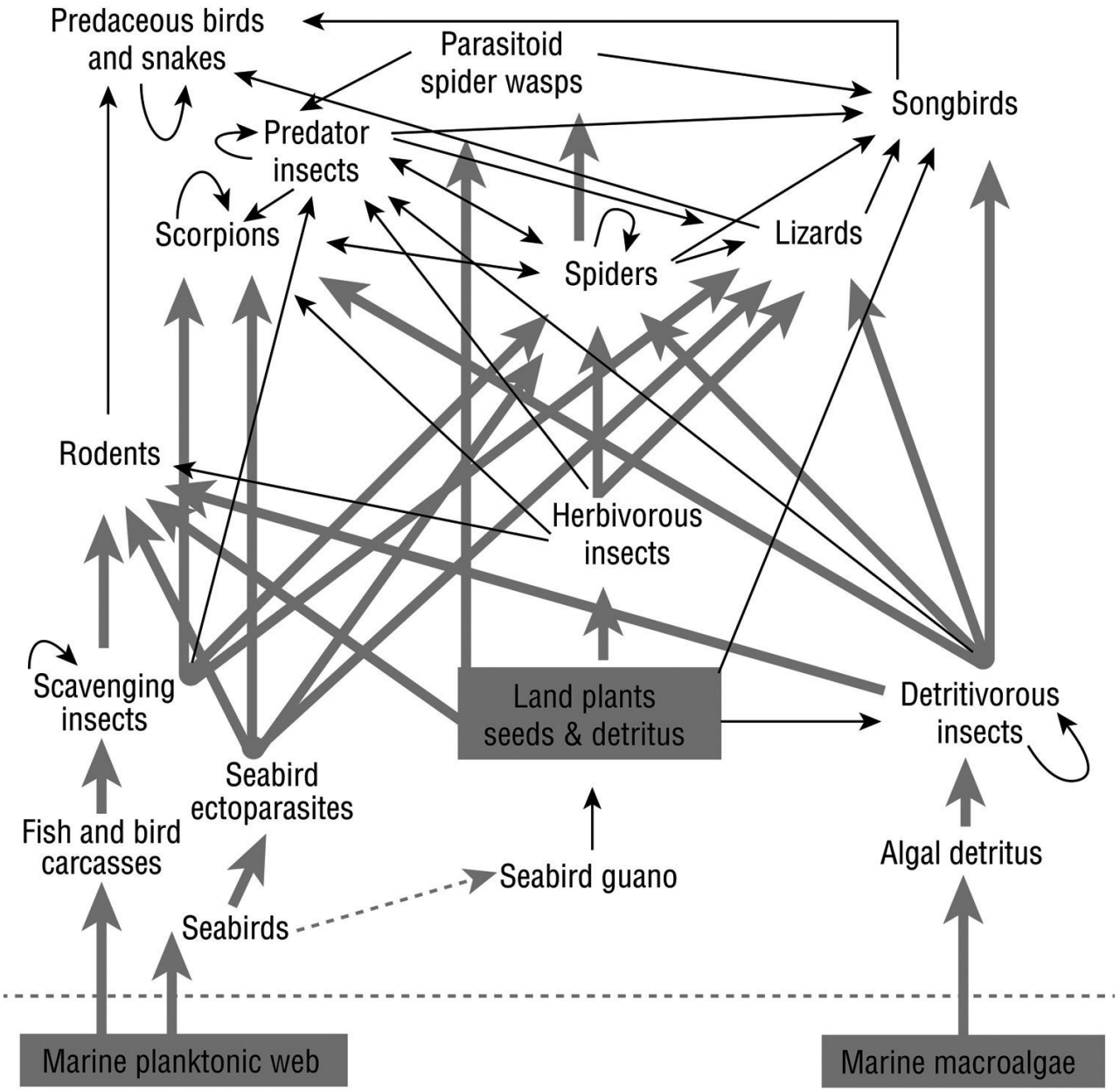
a **balance** must be struck **between providing for a reasonable standard of living** for local communities, through controlled access to the resources in an MPA, alternative livelihoods, etc, and **ensuring that biodiversity conservation & sustainable use objectives are achieved**

Karimunjawa MPA (Wildlife Conservation Society)


Mike Markovina/Marine Photobank

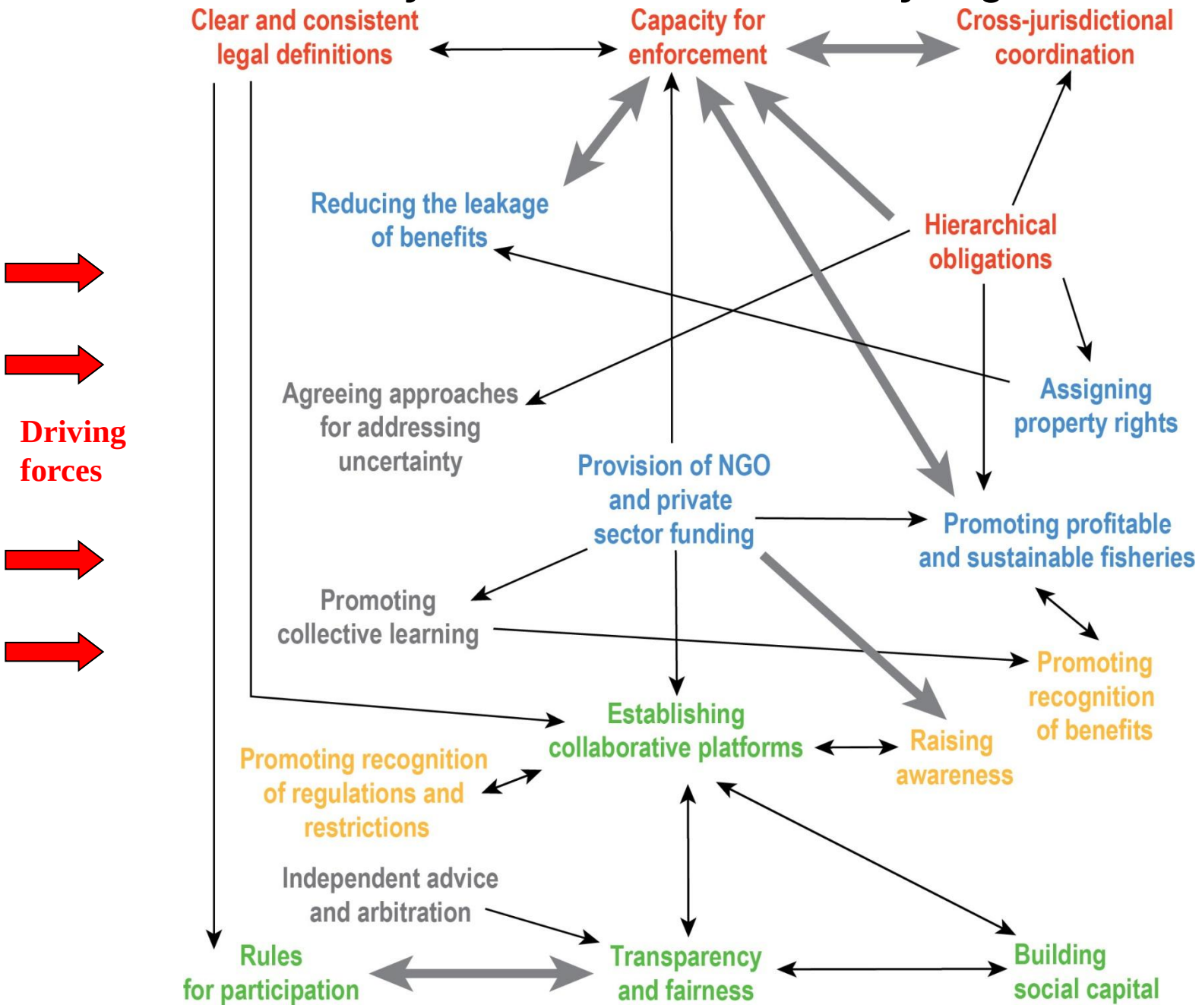

James Cervino

What key attribute confers stability in ecosystems?



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

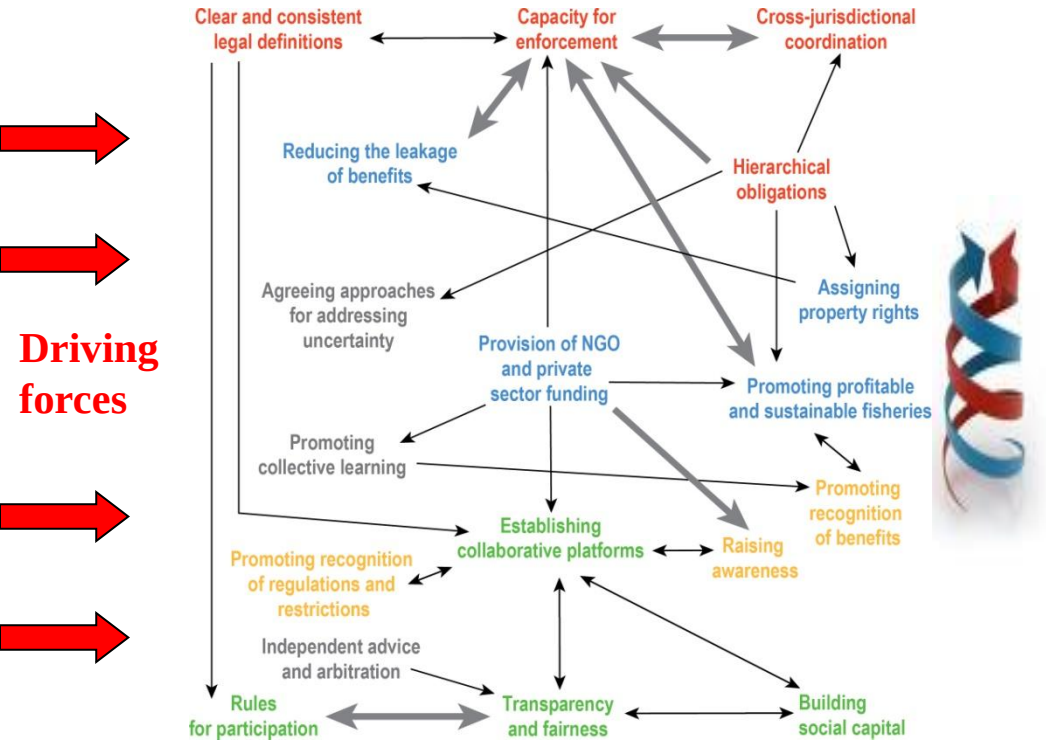
What key attribute confers stability in governance systems?

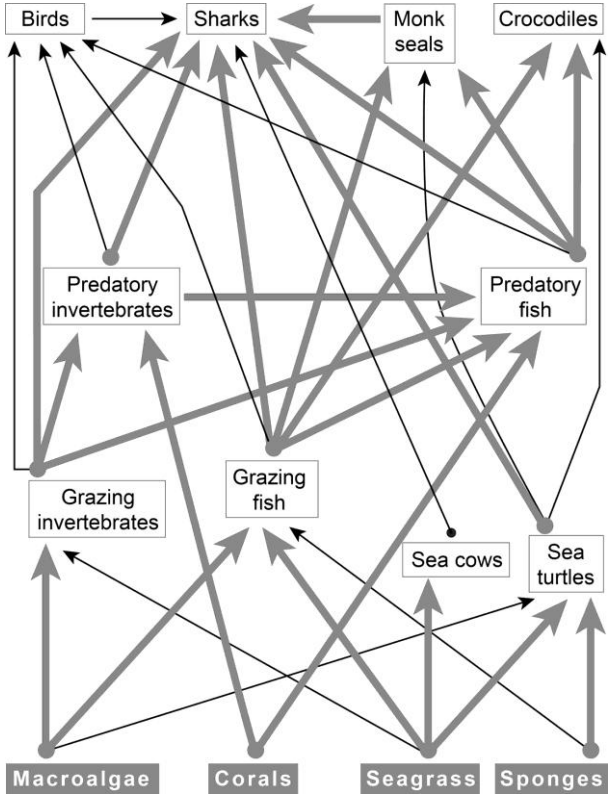


Incentive diversity → more resilient governance framework → increased effectiveness of MPA → increased biodiversity → more resilient ecosystem → increased ecosystem services: fish catches, tourism, coastal defence, etc → more resilient social system →

increased resilience of social-ecological system

Driving forces





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)

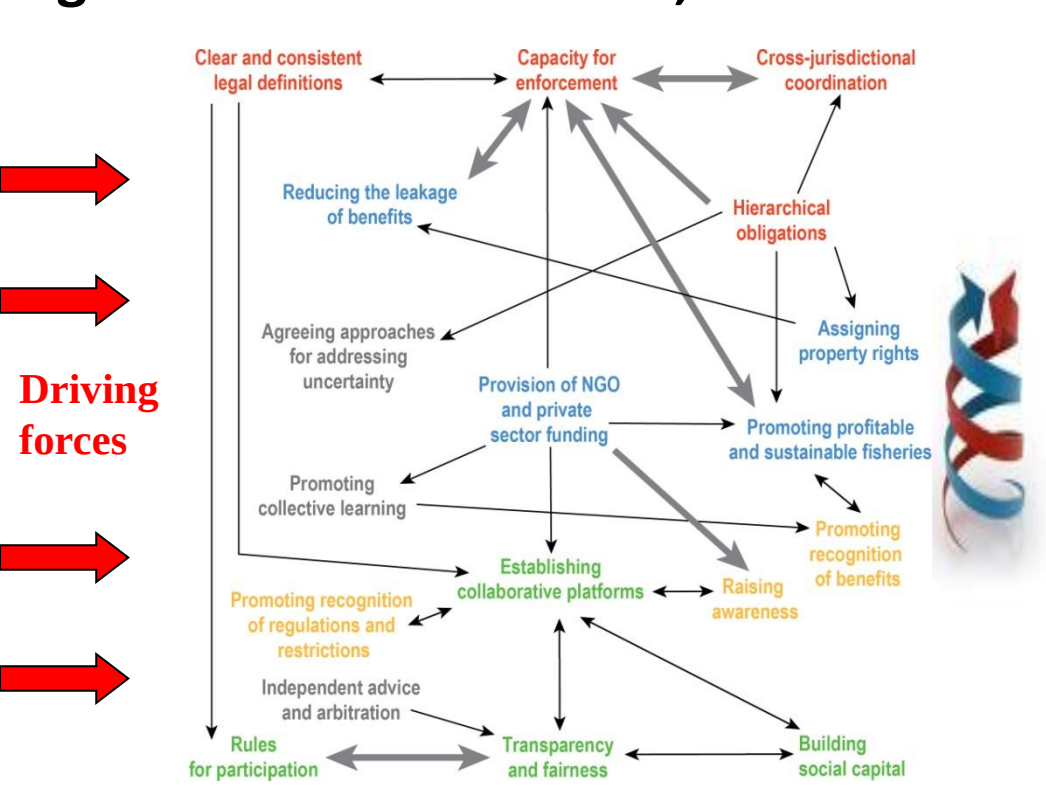
Coral reefs in no-take MPA less impacted by coral bleaching and recovered sooner: considered most resilient in Western Indian Ocean

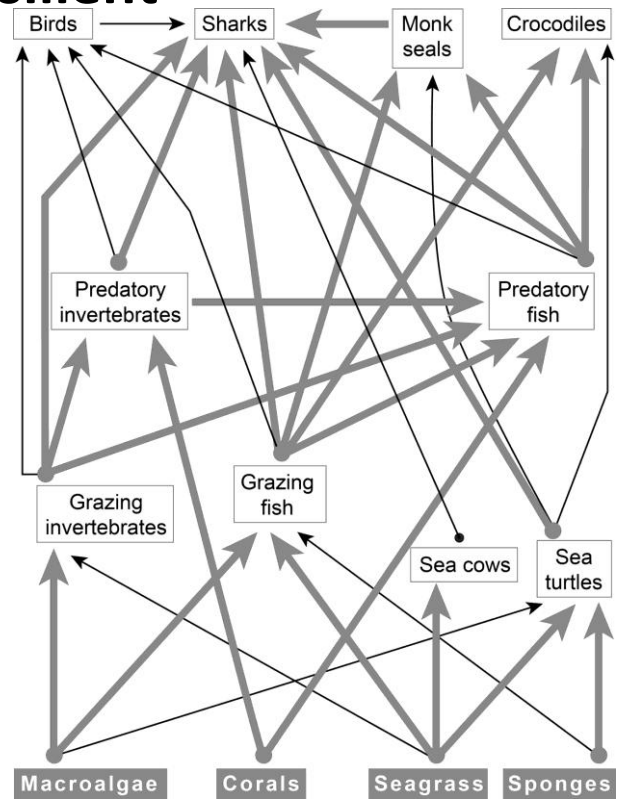
In the face of strong driving forces, the combined use of a diversity of inter-connected incentives makes MPA governance frameworks more resilient.

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**

Driving forces





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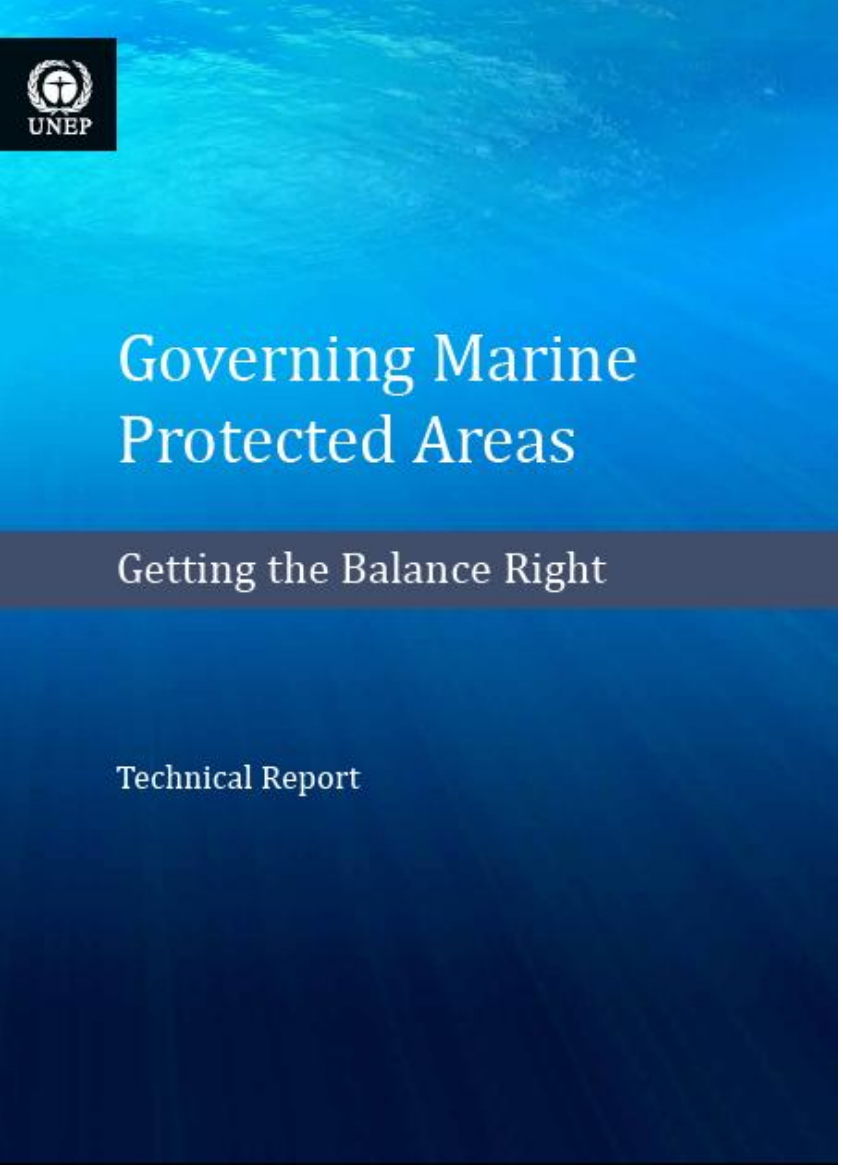

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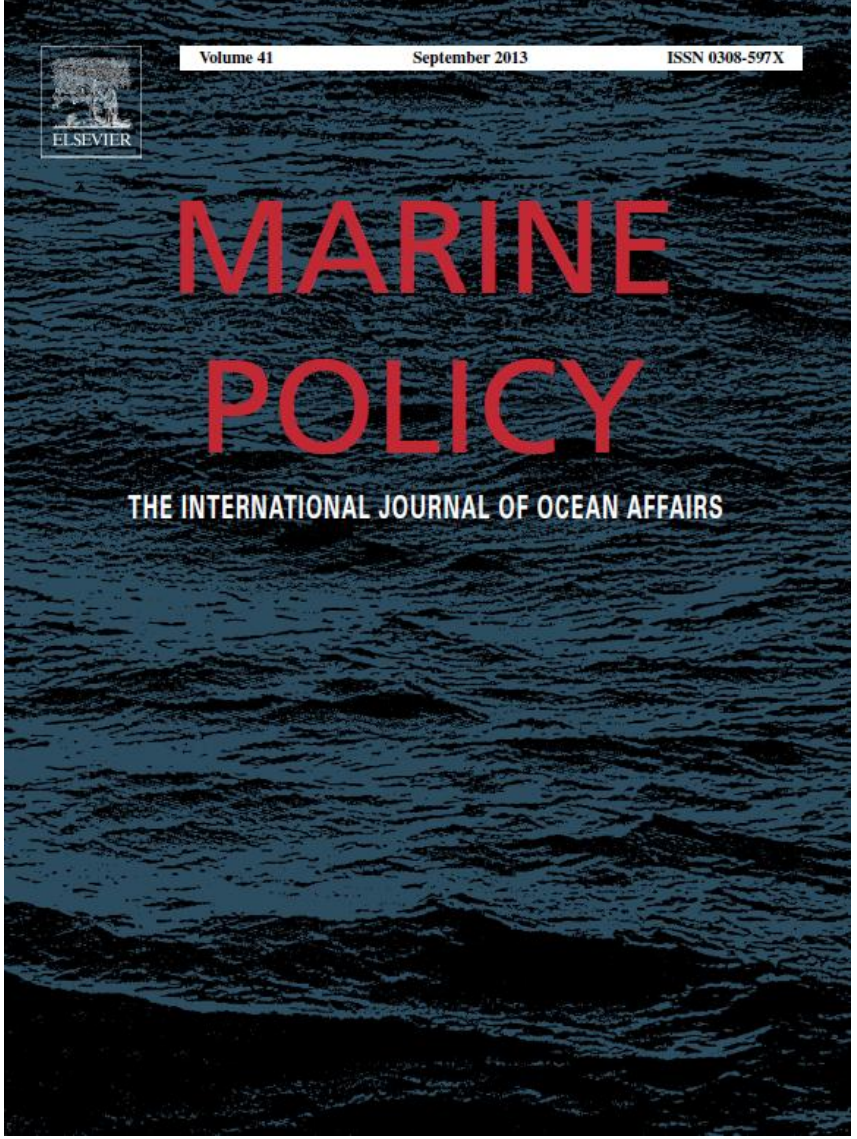

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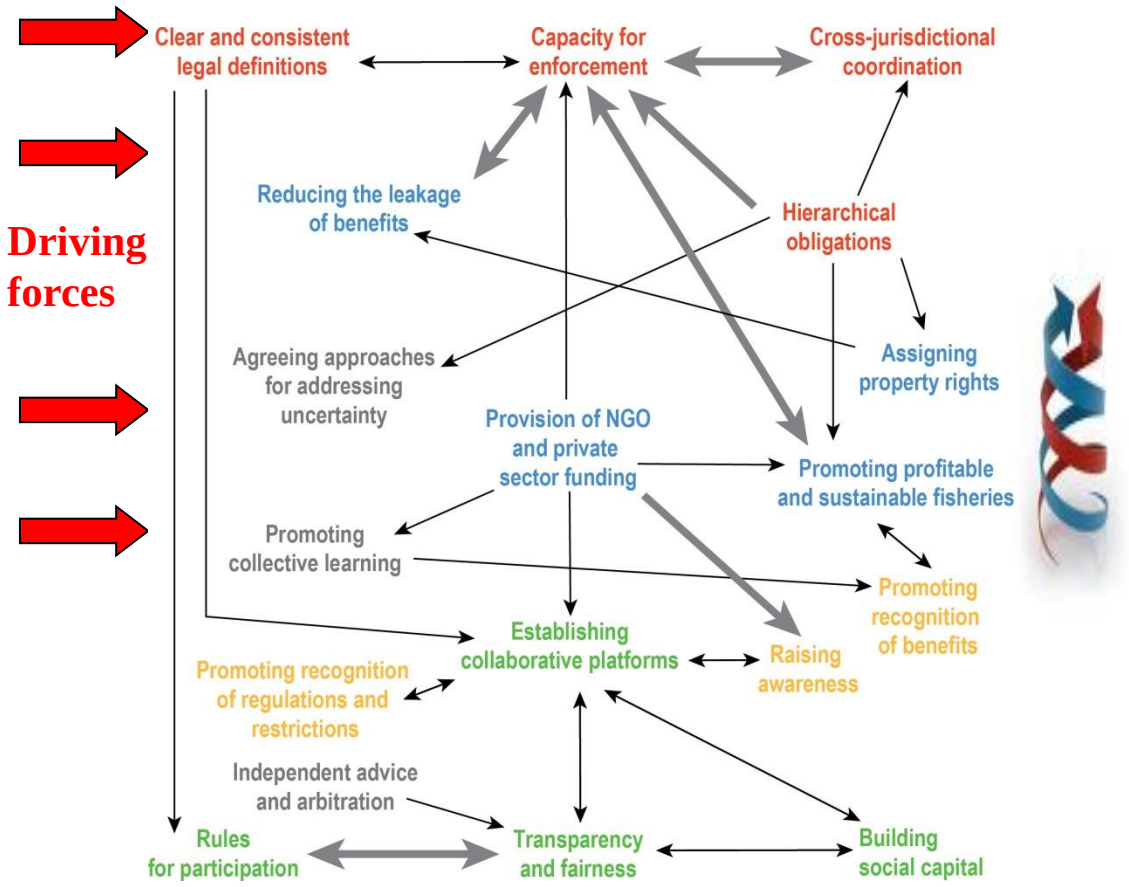
Systematic way of '**deconstructing**' MPA governance into different categories of incentives and governance approaches

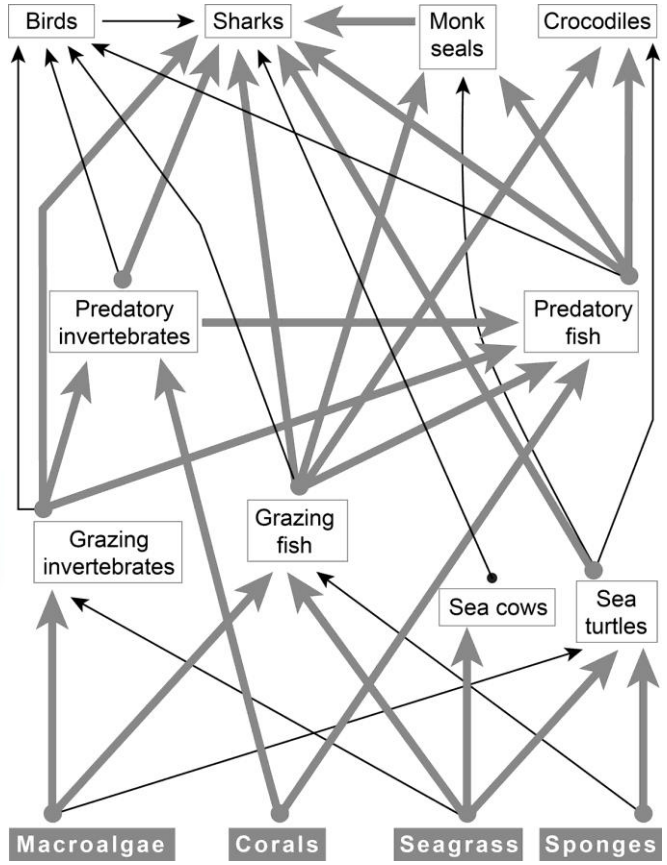
MPAG analysis framework can be applied on a **meta-analysis** basis to a larger sample of MPA case studies

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

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





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