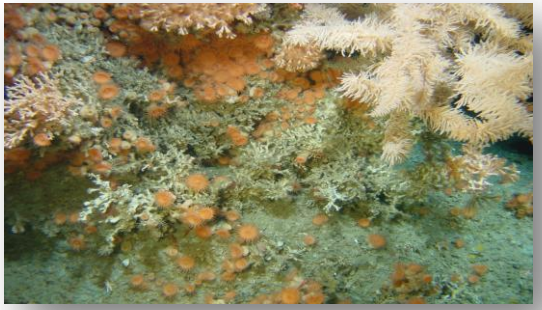
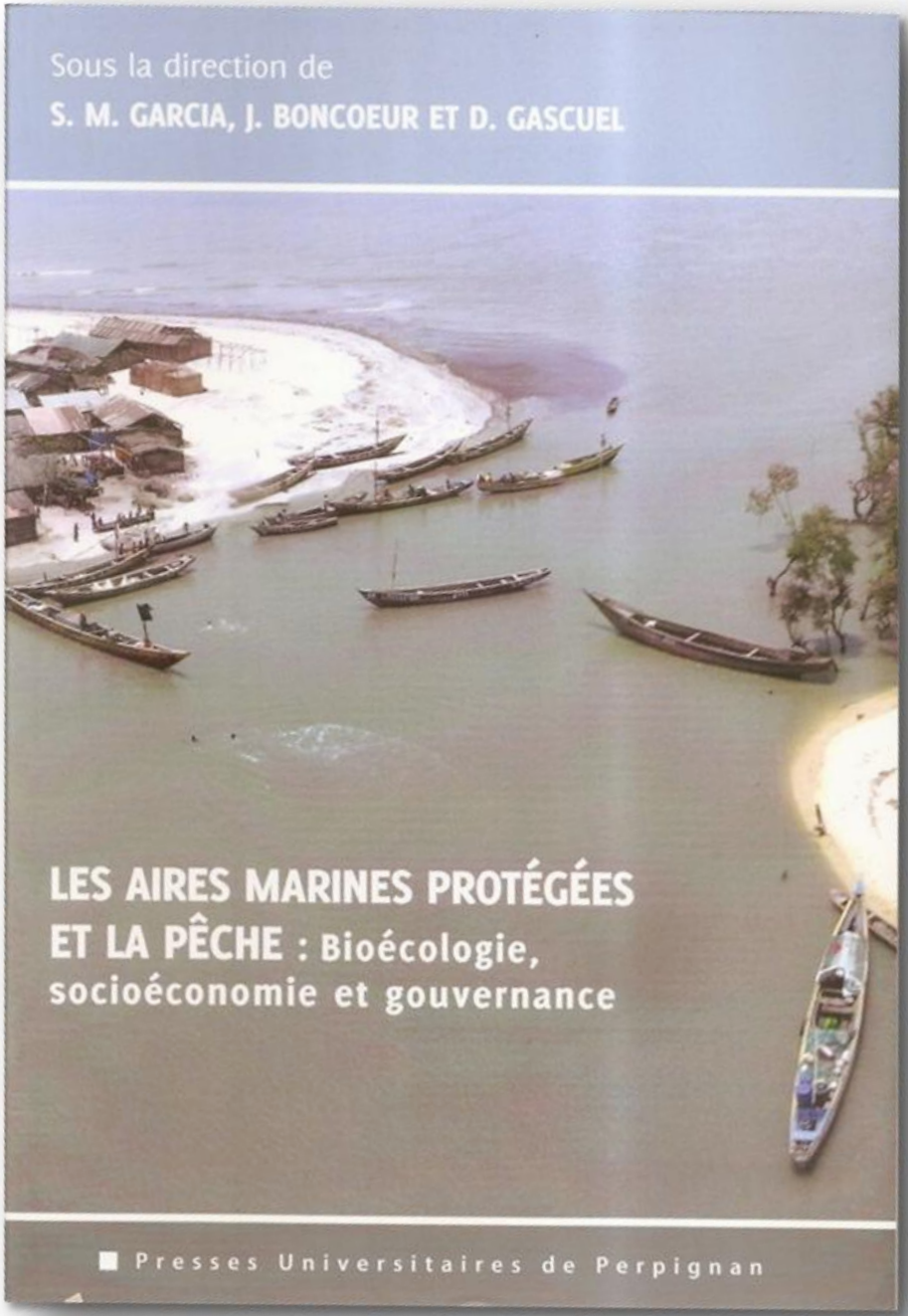


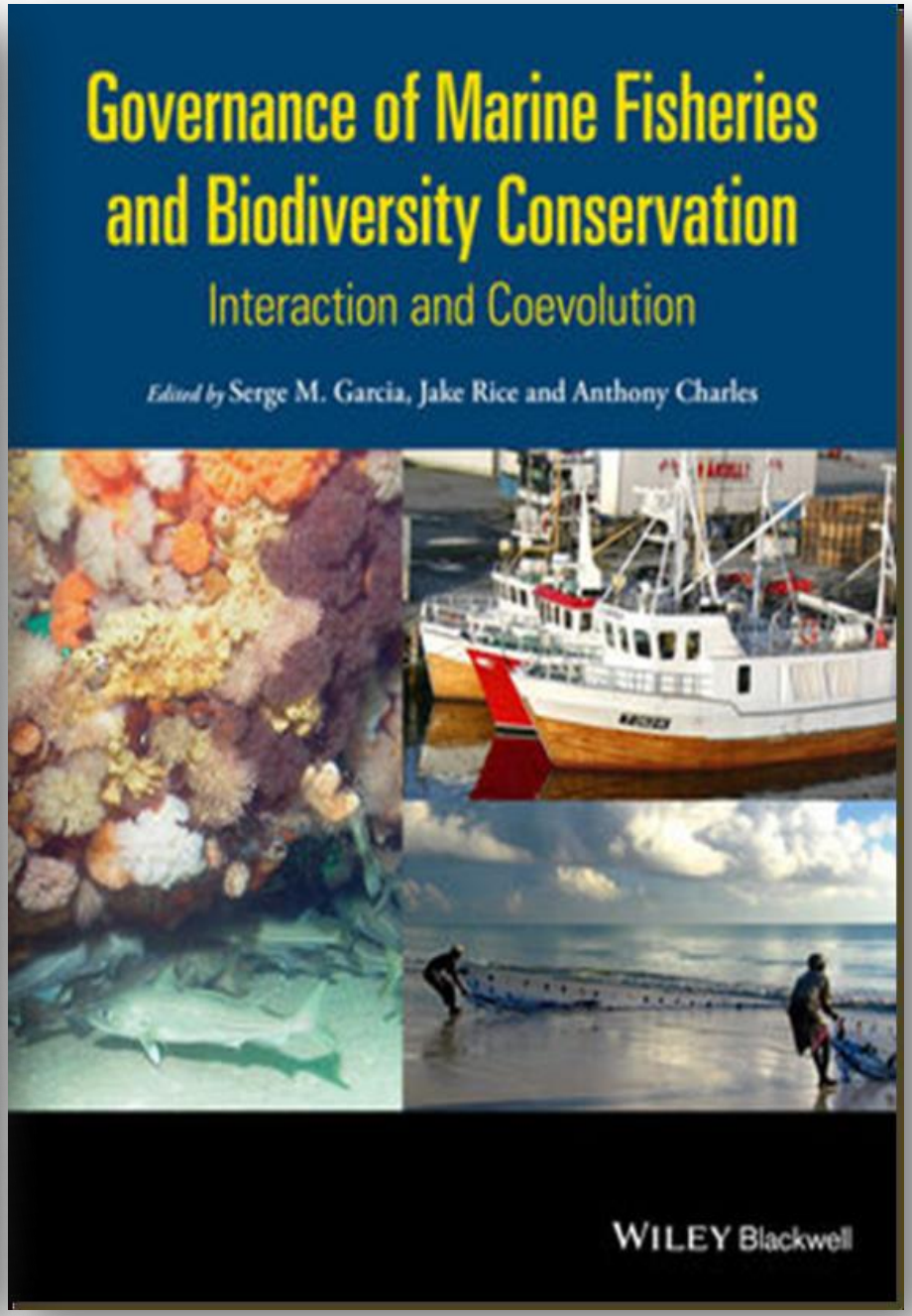
MPAs and fishery management

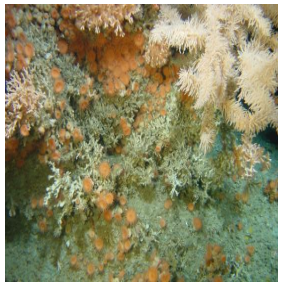
Biology, socioecology and governance

S.M. Garcia
IUCN-CEM Fisheries Expert Group

Conference on Marine Protected Areas and fisheries management. European Parliament Intergroup, 12 October 2015


Sous la direction de
S. M. GARCIA, J. BONCOEUR ET D. GASCUEL
LES AIRES MARINES PROTÉGÉES ET LA PÊCHE : Bioécologie, socioéconomie et gouvernance
Presses Universitaires de Perpignan

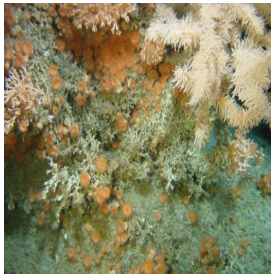

Governance of Marine Fisheries and Biodiversity Conservation
Interaction and Coevolution
Edited by Serge M. Garcia, Jake Rice and Anthony Charles
WILEY Blackwell



They vary according to ecosystems, species, MPA type and size, local conditions and governance.

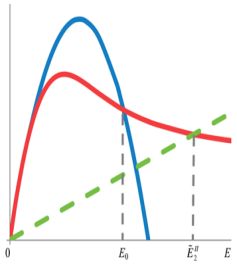
- **Positive effects inside the MPA** on fish population, communities and habitats, are usually verified if not accurately predictable
- **Spill-over effects** depend on species and local conditions, are localized (line effect) and visible only when the system is heavily overfished outside the MPA.
- **Larval enhancement** depends on MPA localization, may be expected but is hard to prove empirically.
- **Better stability** and resilience may be expected
- **Protection** of habitats and vulnerable species
- **May decrease fishing pressure** if located on key fishing areas

Greenville & MacAulay, 2006; Garcia, Boncoeur & Gascuel, 2013



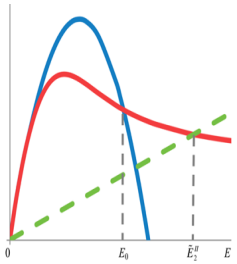
- Fisheries-oriented MPAs should cover **large areas** or be organized as **functional networks** (easier)
- High priority to the protection of **spawning and nursery grounds**
- A **long term** and uninterrupted protection is required
- Fishery-MPAs should be integrated in broader **management plans**
- Efficient **monitoring, enforcement** and **participation** are essential

Greenville & MacAulay, 2006; Garcia, Boncoeur & Gascuel, 2013



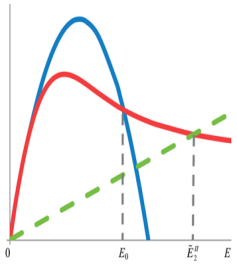
- **Economic and social data** are still limited
- **Area of socio-economic impact** can be very large and impacts very diverse
- **Opportunity costs** are often conveniently “forgotten” **in impact analyses**
- **Losses in catch/value are rarely recovered** even though CPUE may increase outside: **Compensation?**

Garcia, Boncoeur & Gascuel, 2013



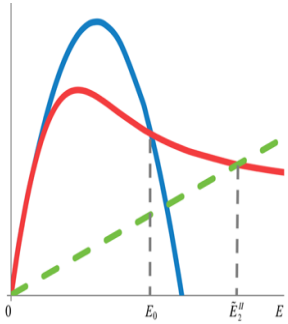
- **If full control of fishing mortality**: Conventional management performs better than MPAs (higher yield)
- **If no control of fishing mortality** outside the NTZ:
  - The NTZ increase stocks resilience to fishing
  - The NTZ cannot restore durably the profitability of the fishery even if it increases abundance
  - The NTZ may however by the second-best solution

Garcia, Boncoeur & Gascuel, 2013



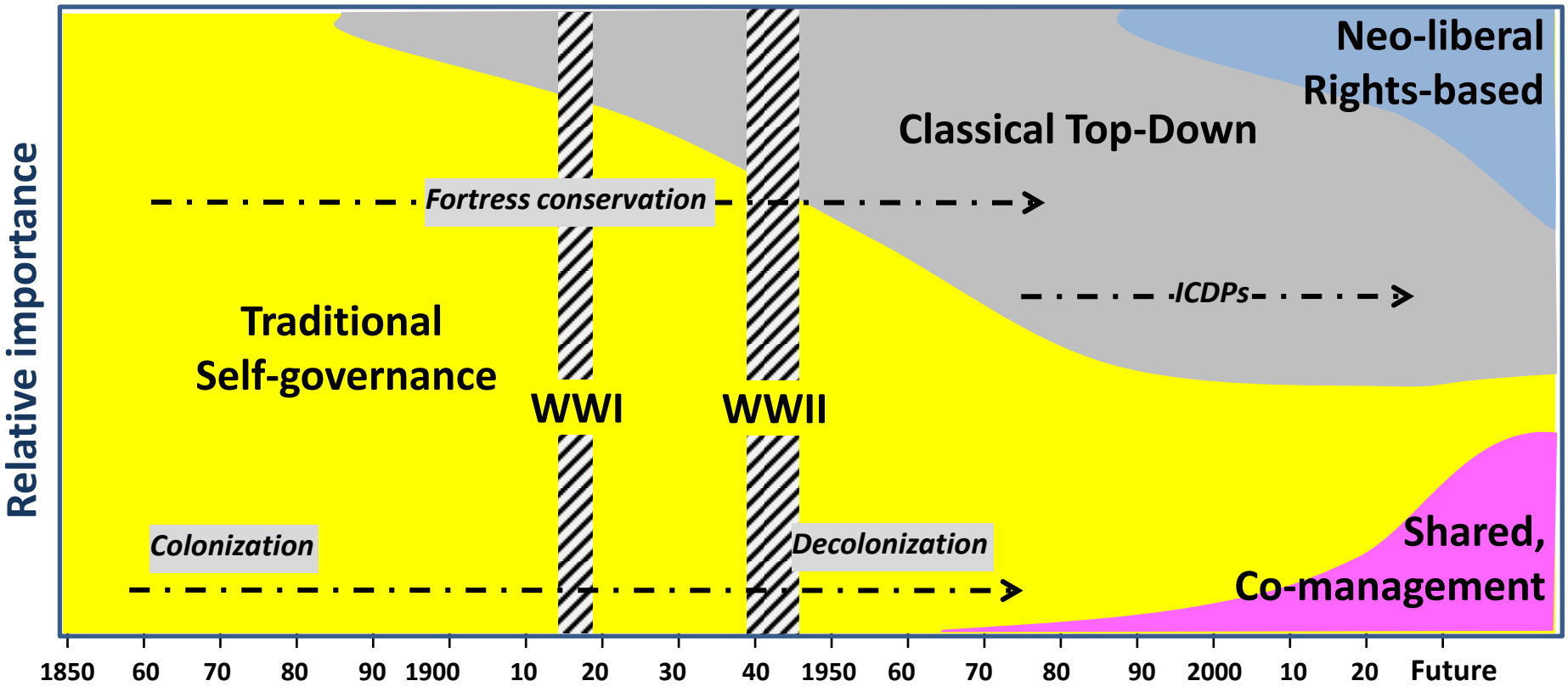
- **MPA are public investments** in marine conservation
- **Two central issues** when investing :
  - ***Efficiency*** *: What is the amount of net surplus generated by the MPA for the society ?*
  - ***Equity*** *: How are costs and benefits distributed among fishers? Within society? Compensation measures ?*
- **Difficulties**:
  - *Unequal distribution of benefits and costs, in time, space, and between stakeholders.*
  - *The advocated benefits are "global" and delayed but their costs are immediate and local*

Garcia, Boncoeur & Gascuel, 2013



- **MPAs effectiveness as a fishery management tool** depends on the level of control of fishing mortality in and outside the MPA. **Do not overestimate their role.**
- **Do not under-estimate opportunity costs**, the potential reallocation of fishing effort, and fisher's reactions and adaptation to closures
- **Consider compensation measures:** avoid perverse ones (increasing F) and favour virtuous ones (e.g. fishing rights).
- **Ex-ante assessment & monitoring** are essential

Garcia, Boncoeur & Gascuel, 2013



Garcia, Rice and Charles, 2014

- **FISHERY GOVERNANCE**: aim at economically viable fisheries while minimizing impacts on the ecosystem
- **MPAs**: aim at protecting the ecosystem while minimizing impacts on economic and human development
- **COMMON APPROACHES:**
  - *Good governance principles to boost performance*
  - *Ecosystem and Precautionary approaches*
  - *Use rights; market-based instruments*

The main objective of MPAs is a constraint for fisheries
The main objective of fisheries is a pressure for MPAs

- There are objective limits to compromise due to different perceptions of risk and how to allocate it between nature and fishers
- There is growing pressure to increase coverage of MPAs and NTZs even though their effectiveness is discussed
- Tensions are growing regarding the social impact of the market-based approach on both fisheries and conservation.

A - FACTORS OF CONVERGENCE

- Increasing signs of degradation despite some success
- Increasing attention to social & economic issues
- Good governance; Adaptive management; Participation
- User rights
- Cross-sectoral space-based integration

B - FACTORS OF TENSION

Fisheries-related

- Deep sea fishing
- Destructive fishing
- Bycatch and discards
- Overfishing
- IUU

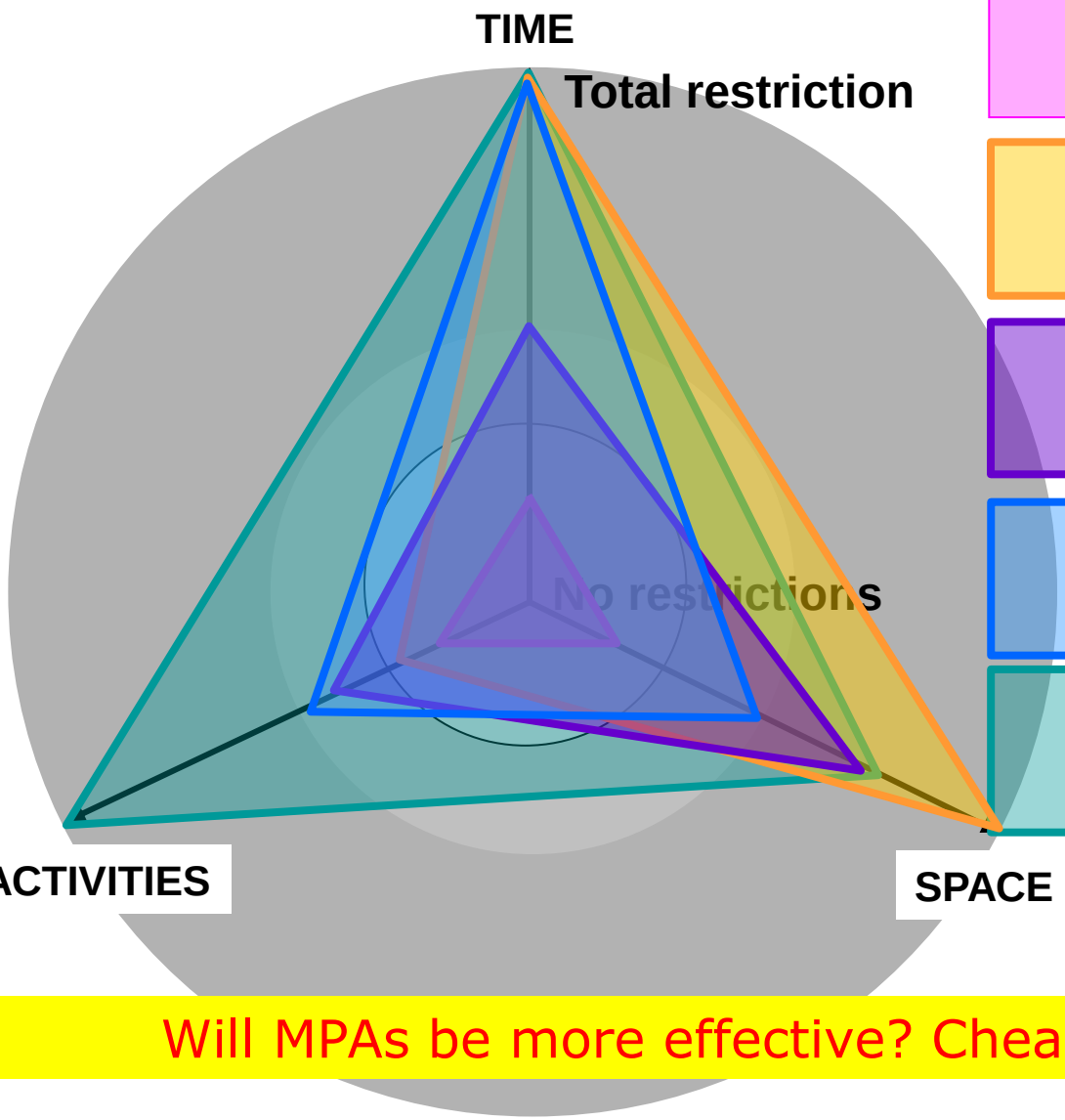
MPAs-related

- Increasing targets (10→30%?)
- Larger MPAs & networks
- UNCLOS Implement. Agreement
- EBSAs, seen as potential MPAs

e-.g. From 2012 IUCN WCC. Jeju. Korea. 2012

- **Conservation of target resources** : maintain reproductive capacity; limit fishing pressure; optimize fishing patterns
- **Control of fishing capacity**: Regulation of access. Revenues or employment? What equitable distribution? Illegal fishing.
- **Competition for space with other sectors**
- **Reduction of collateral impact**: on the

Protected areas may be useful when dealing with those concerns more easily and/or cheaply than existing measures



Real-time closures

Bans, Moratoria

Seasonal closures

Zoning (e.g. SSFs)

NTZs, Reserves

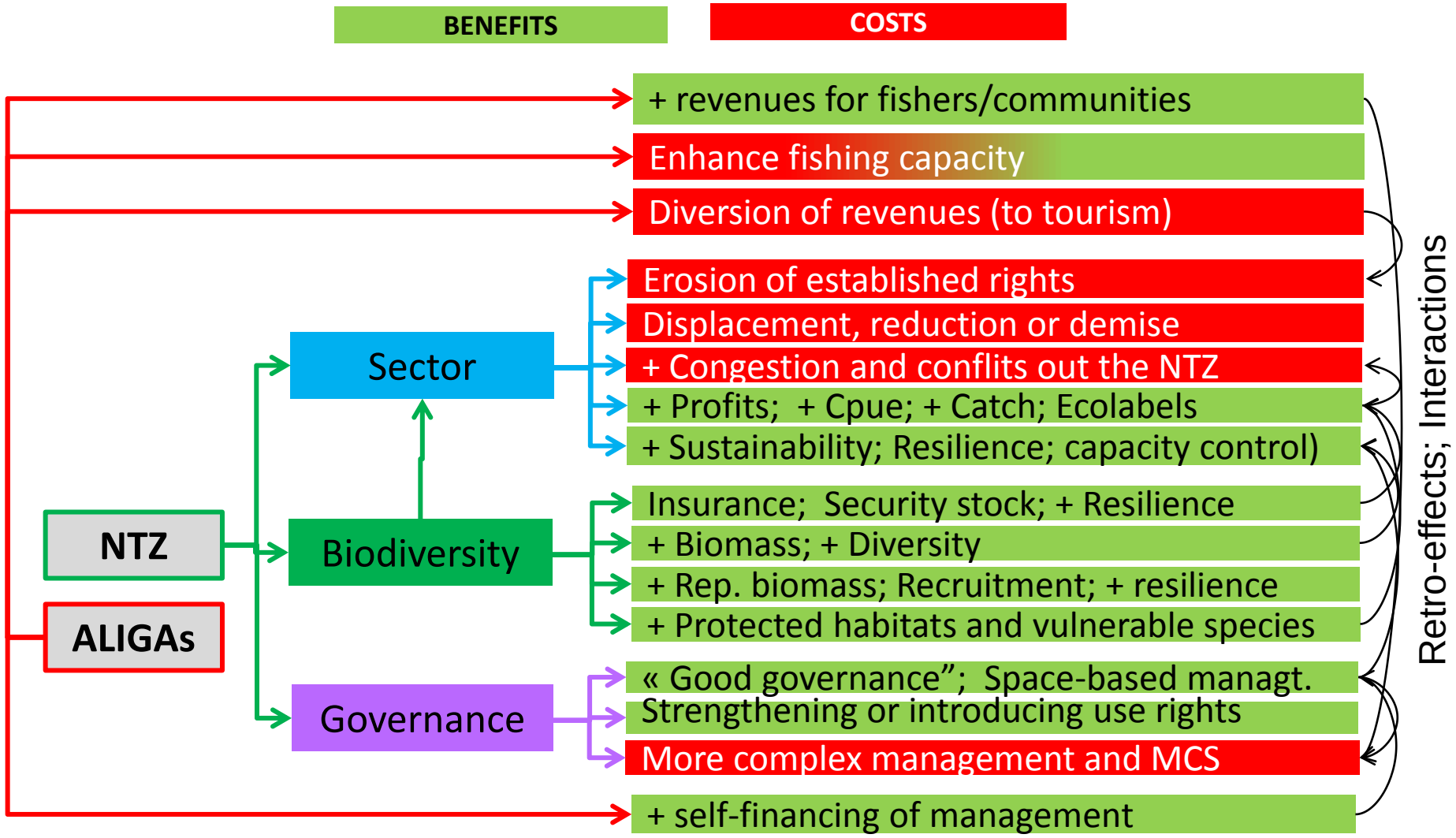
Will MPAs be more effective? Cheaper? More equitable?

Garcia, Boncoeur & Gascuel, 2013

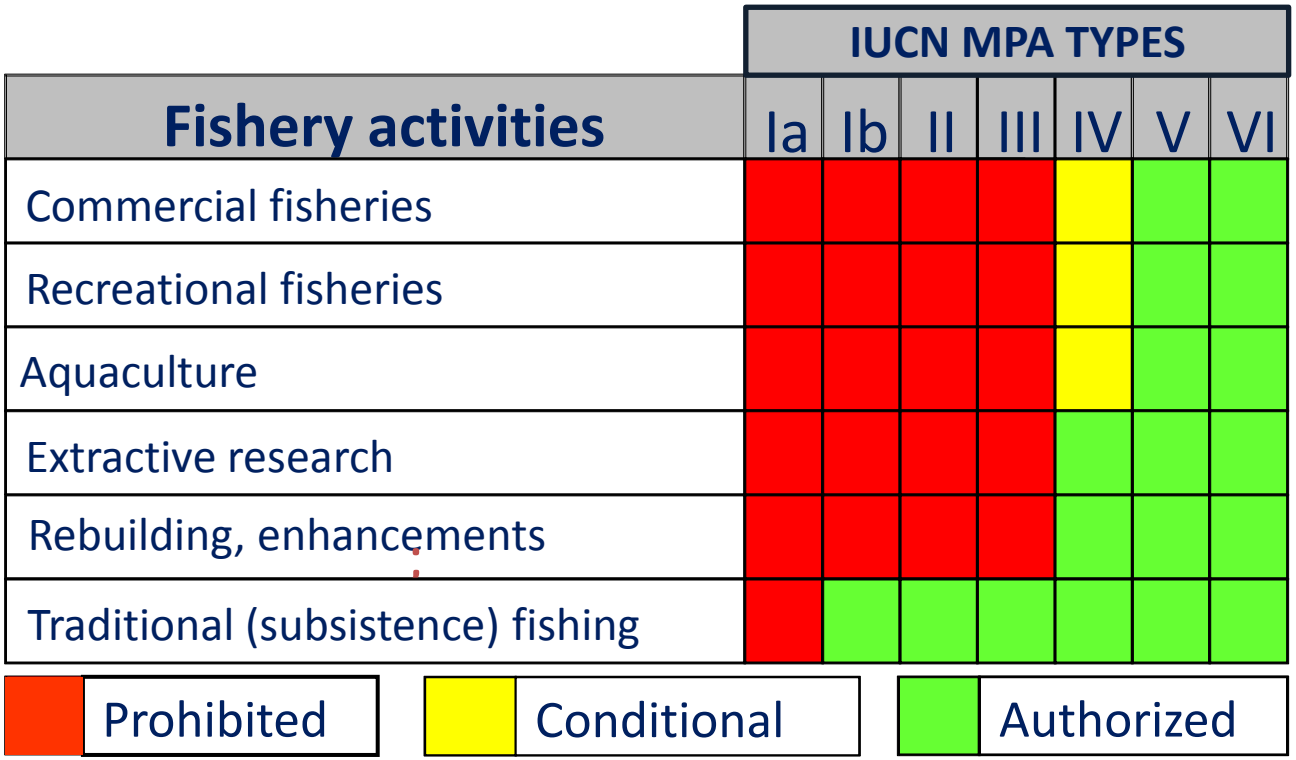
- What type of fishery will be “accepted” in a multi-use MPA (MU-MPA)?
- What happens when a fishery is included in a MU-MPA or a NTZ is introduced in a fishery?
- What happens if 10 or 30% of the EEZ is put under NTZs?
- Who will manage/decide about the fishery in that MPA?
- What coordination/integration with the Min. of Environment?
- How will we decide on local trade-offs?
- What about integrating fisheries in ICAM or MSP instead of MU-MPAs?

Responses depend on: type of stock, ecosystem, jurisdiction and socio-economic context

García, Boncoeur & Gascuel, 2015



Benefits depend on ecology and effort control.
Costs depend on people's dependency on fisheries

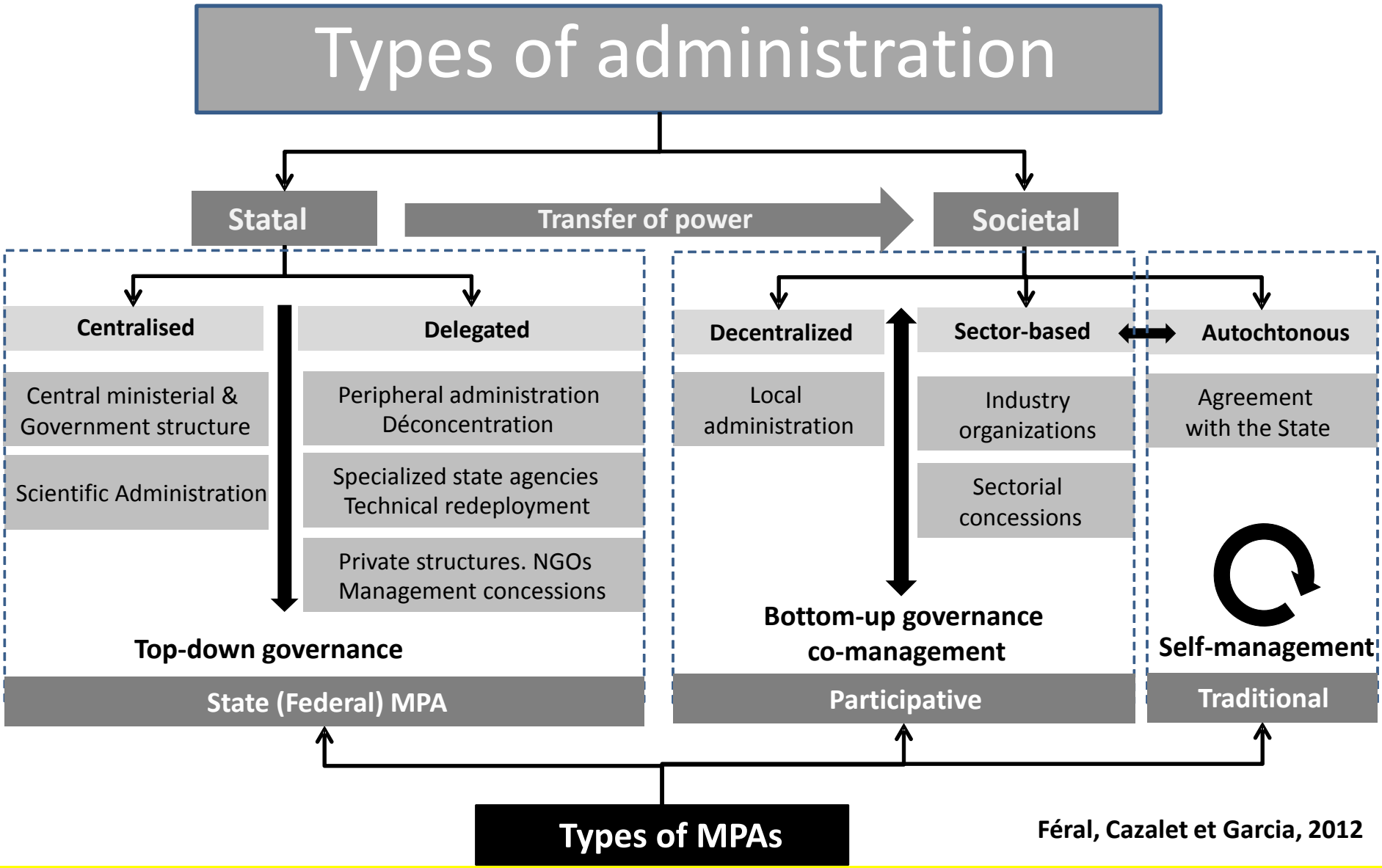


Garcia, Boncoeur & Gascual, 2013

The primordial objective of an IUCN MPA is conservation
The tolerance for commercial fishing is limited

Tolerance increases with horizontal zoning and in multi-use MPAs.
Vertical zoning is unavoidable in deep oceans

Types of administration



Féral, Cazalet et Garcia, 2012

Whether statal or societal, centralized, decentralized or community-based, the types and principles of administration advocated for MPAs and fisheries are similar or compatible. They may differ, however, in a given area