

Fishermen engagement: a key attribute to improve management of SSF in Mediterranean MPAs

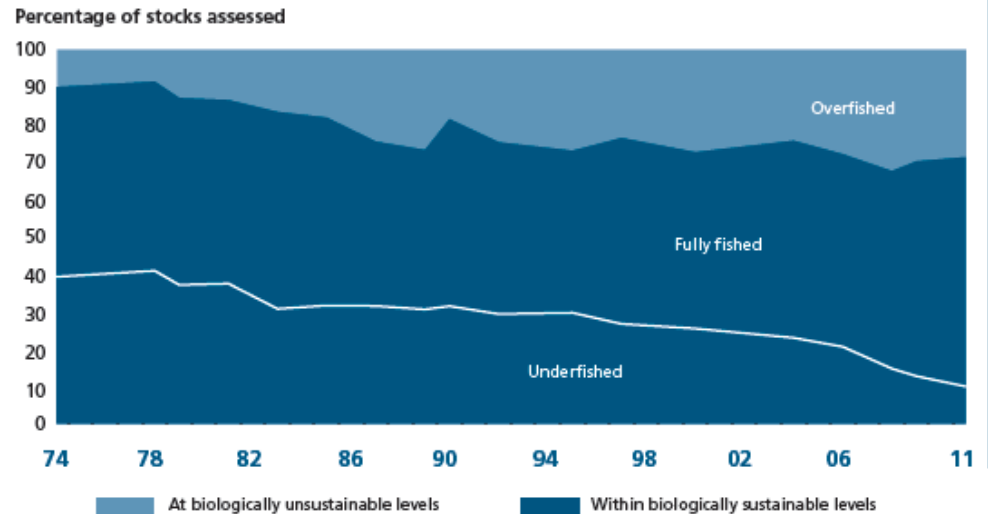


Di Franco A, Di Carlo G, Francour P, Gutiérrez N.L, Jeudy de Grissac A, Milazzo M, Otero M, Piante C, Sainz-Trapaga S, Santarossa L, Koutsoubas D, Dimitriadis C, Thiriet P, Tudela S, Guidetti P

The general context

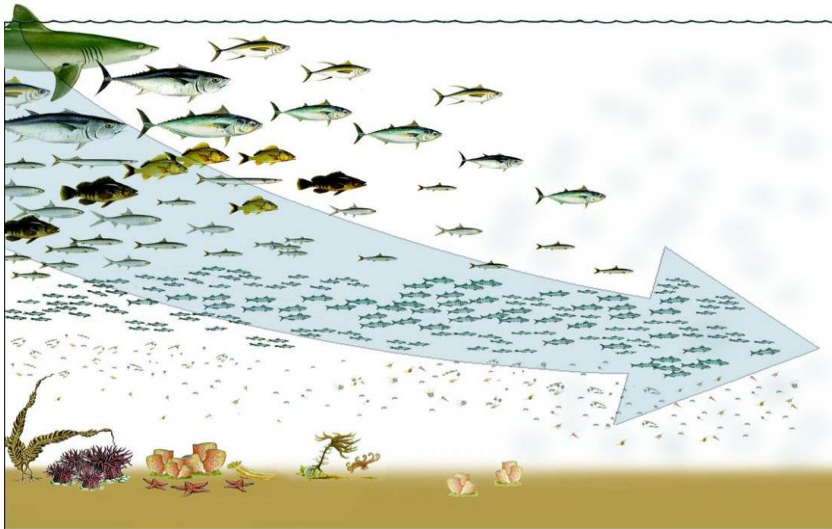
A third of fish stocks are ailing or depleted, with the proportion of overfished stocks that tripled in the last 40 years

Global trends in the state of world marine fish stocks, 1974–2011

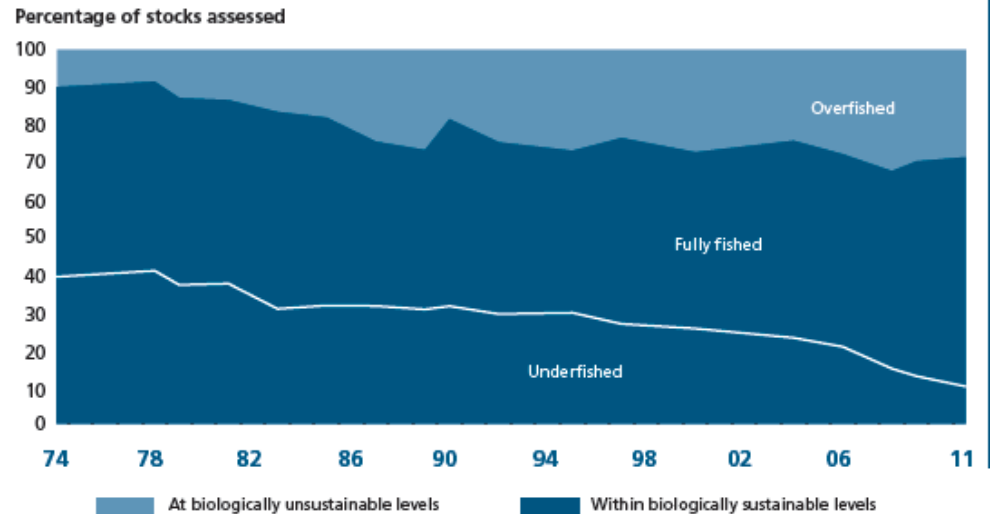


The general context

A third of fish stocks are ailing or depleted, with the proportion of overfished stocks that tripled in the last 40 years



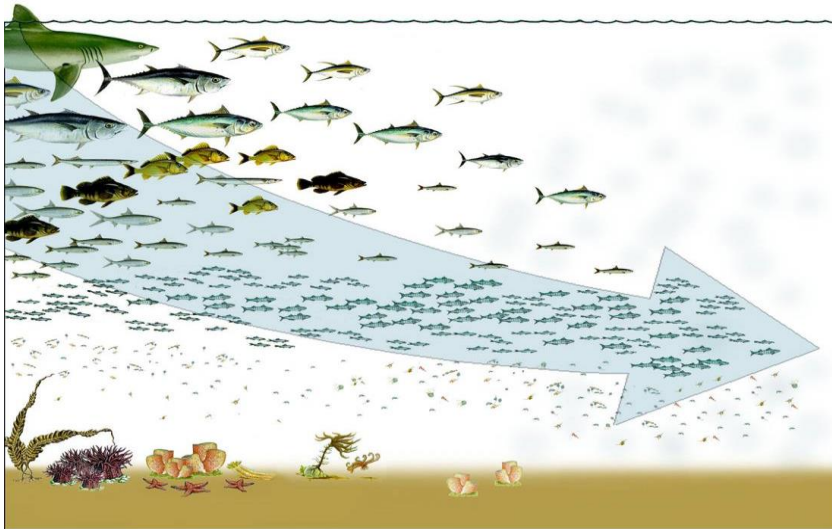
Global trends in the state of world marine fish stocks, 1974–2011



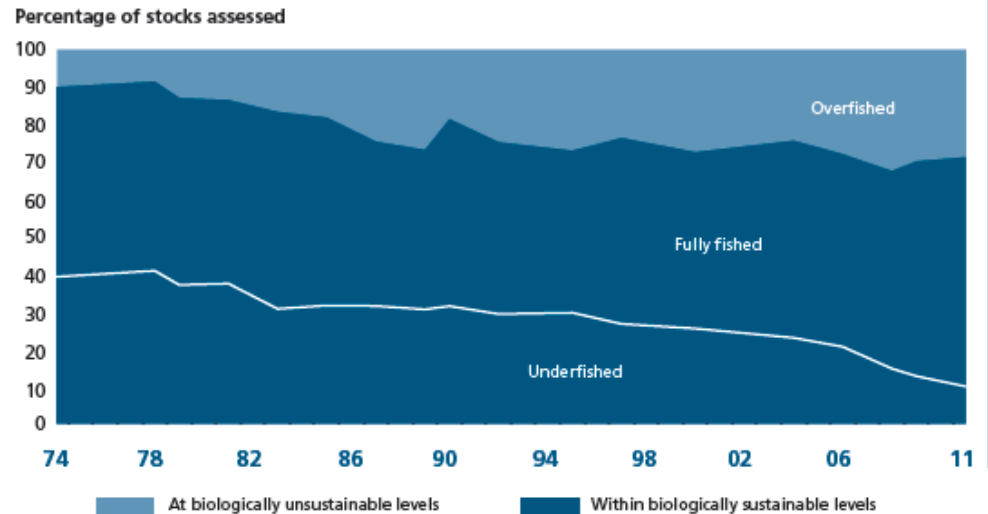
Fishing down marine food web

The general context

A third of fish stocks are ailing or depleted, with the proportion of overfished stocks that tripled in the last 40 years



Global trends in the state of world marine fish stocks, 1974–2011

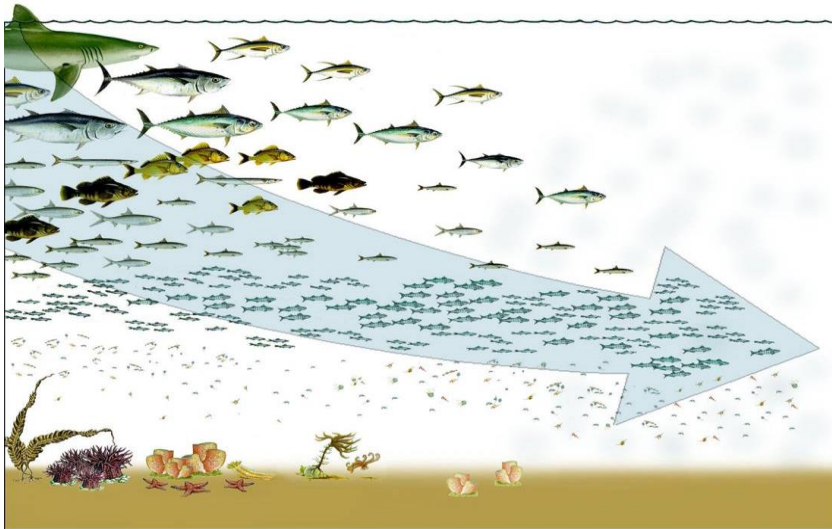


Fishing down marine food web

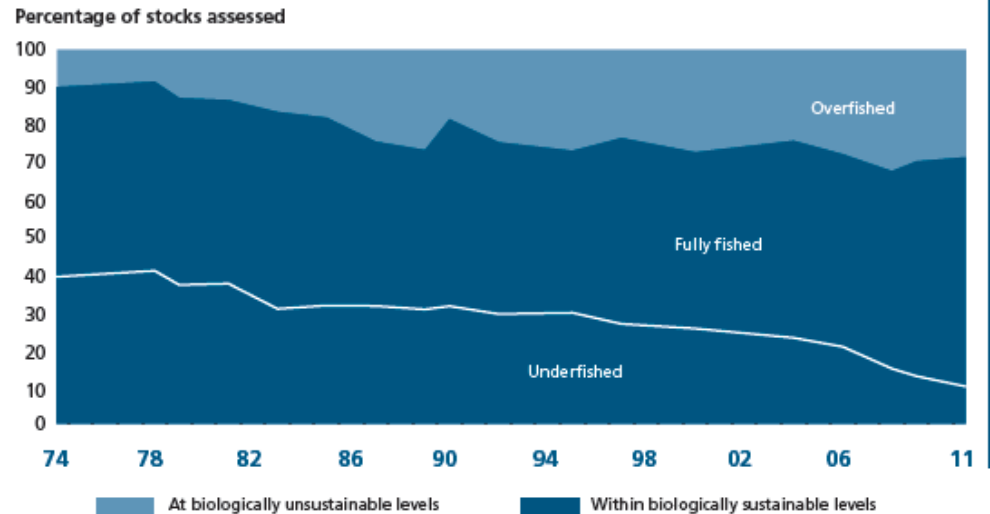
+ economic underperformance of fisheries

The general context

A third of fish stocks are ailing or depleted, with the proportion of overfished stocks that tripled in the last 40 years



Global trends in the state of world marine fish stocks, 1974–2011



Fishing down marine food web

- + economic underperformance of fisheries**
- + society eager to sustainably consume seafood**

Artisanal fishing and marine protected areas

Artisanal fishing (a.k.a. small scale fishing) is an historical activity deeply rooted in the Mediterranean Sea. It involves a considerable number of fishermen and vessels



Fisheries potentially sustainable but in crisis (i.e. stock depletion)

Marine protected areas (MPAs) represent a valuable tool for both fishery management and marine conservation

Artisanal fishing + MPAs = unique opportunity to develop new models of governance of fishing activities, more efficient and sustainable than the “traditional” ones

MPAs facing stock depletion

WELL MANAGED MARINE PROTECTED AREAS SUPPORT FISHERIES

IN EUROPEAN WATERS

evidence shows that well-managed MPAs benefit fish and invertebrates.

+13%
SIZE

+19%
DIVERSITY

+121%
DENSITY

+251%
BIOMASS

EXAMPLE: TORRE GUACETO PROTECTED AREA, ITALY

15x

The MPA not only exports adults and juveniles; large-sized spawners produce **15 times** more eggs and larvae within the MPA than outside.

100 km

Sea breams move up to 100 km into fishing grounds.

EXAMPLE: COLUMBRETES ISLANDS PROTECTED AREA, SPAIN

20x

The spawning potential of lobsters within the MPA has increased by up to **20 times** compared to exploited areas.

4 km

Individuals move up to 4 km into fishing grounds.

ADULTS, LARVAE AND EGGS SPILL OVER INTO FISHING GROUNDS

Larger individuals inside MPAs produce significantly more eggs and larvae. Some larvae and eggs then drift to fished areas outside the MPA, up to hundreds of kilometers depending on the species.

2x

Catches double where the MPA is co-managed with fishermen

10%

Lobsters from MPAs are larger, generating a **10%** net income for fishermen

KEY PRINCIPLES FOR MPAs TO WORK:



Well designed



Enforcement & compliance



Part of an Integrated Management Plan



Sustainably financed



Local community engagement and staff capacity

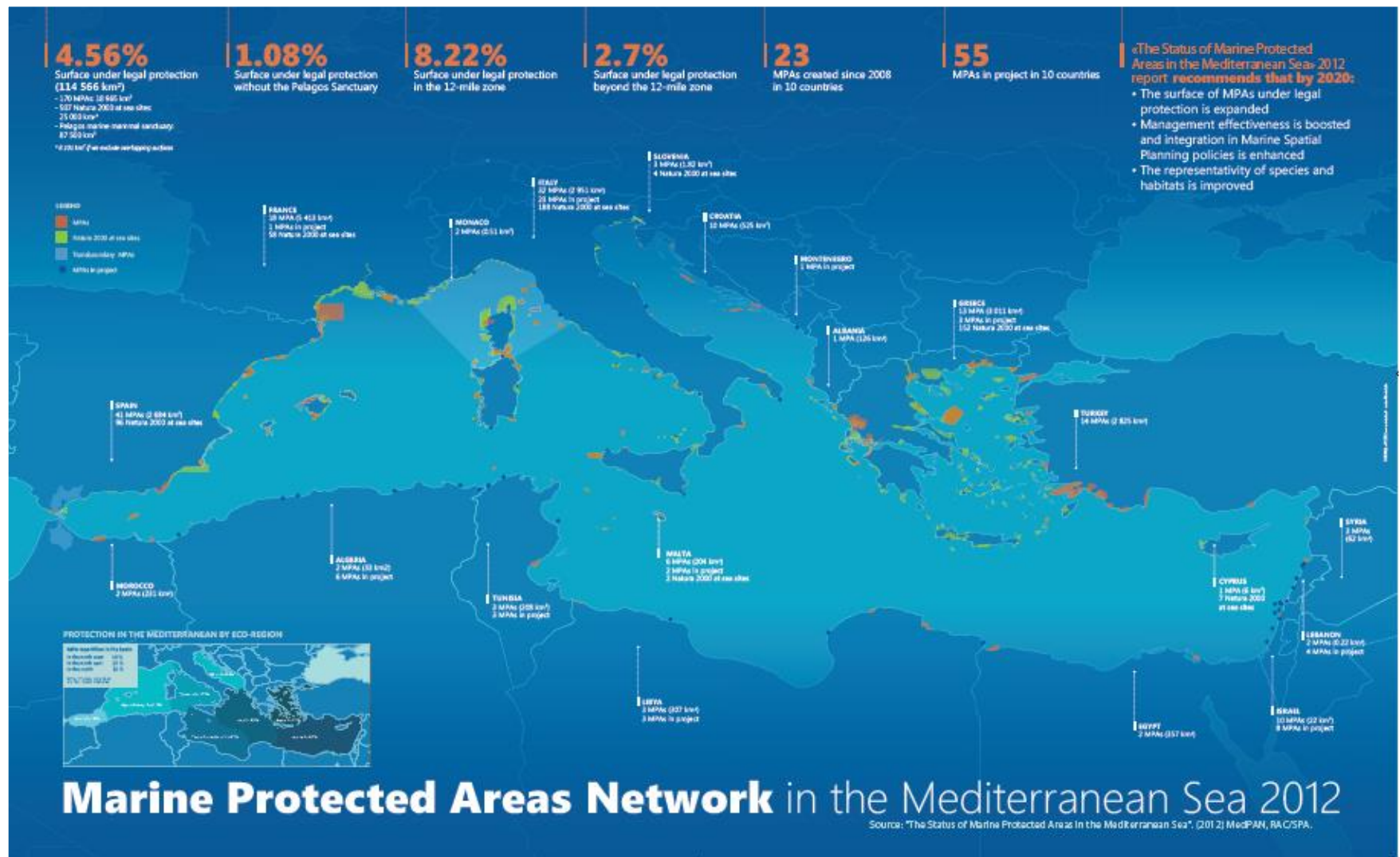
WWF works globally to support Marine Protected Areas and ensure they contribute to securing food and livelihoods for people while conserving critical habitat and species. In some European MPAs, for example, collaboration with fishermen have allowed them to increase the quantity and quality of fishing yields and revenue.

www.panda.org/mpa



Design by Catalysts

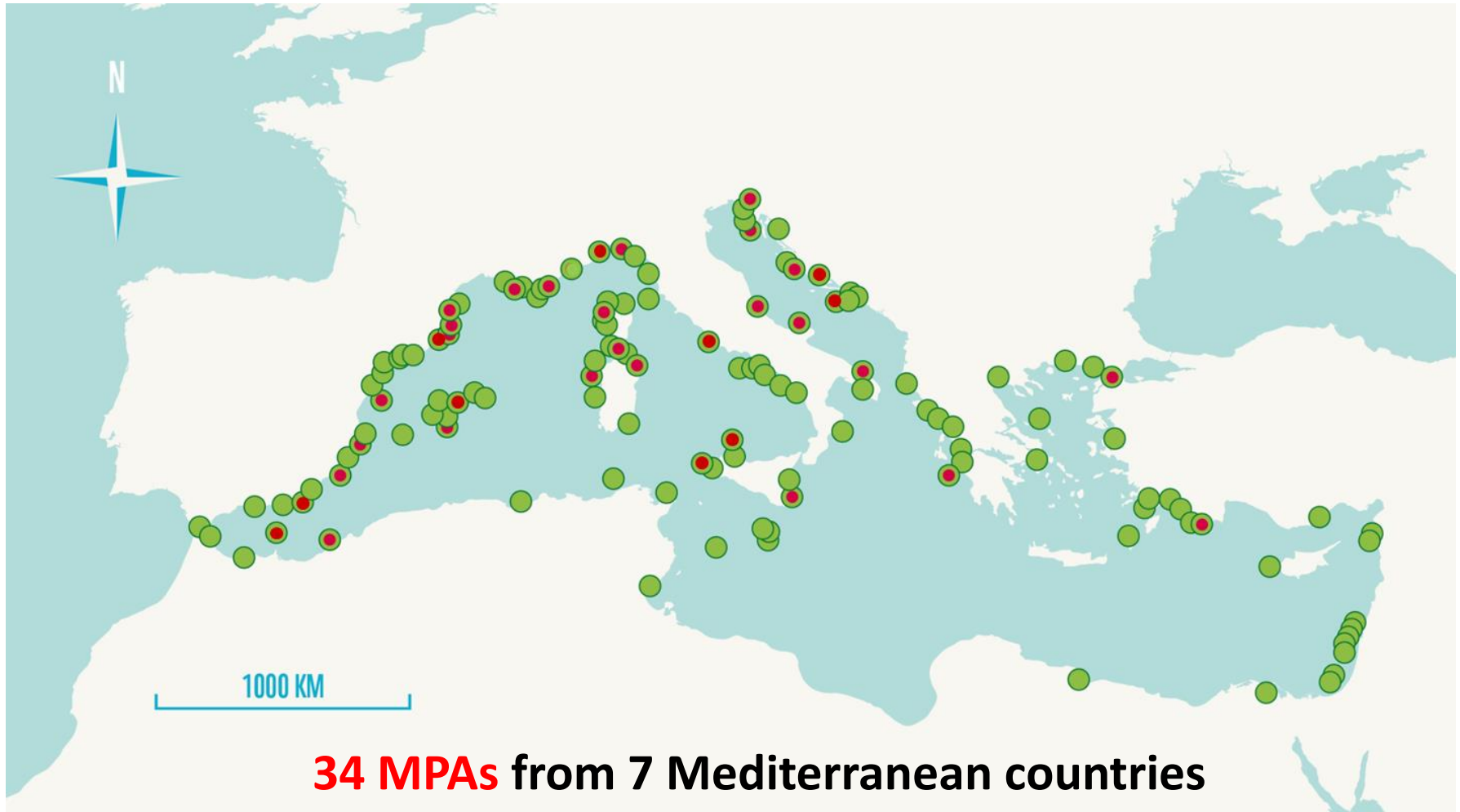
MPAs in the Mediterranean Sea



There is a **substantial lack of information** about the circumstances under which small scale fisheries within MPAs can be successfully managed

Aims of the study

- to provide an **outline of the current situation of small scale fisheries in the Mediterranean MPAs**
- to point out the **potential factors influencing the success of small scale fisheries management in Mediterranean MPAs**



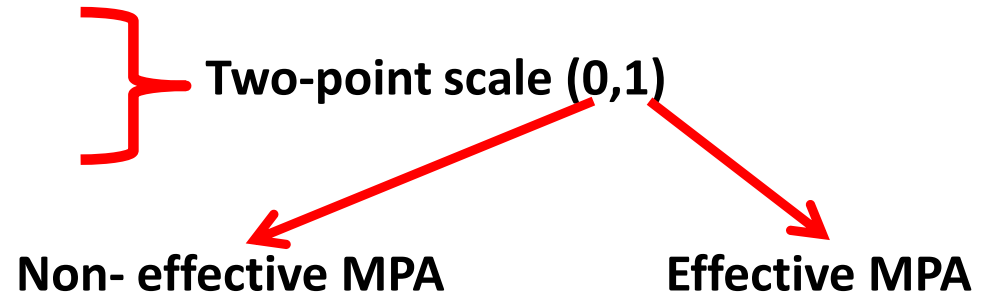
Successful management - rationale

We targeted as an **ideal management practice** as the one **driving to**:

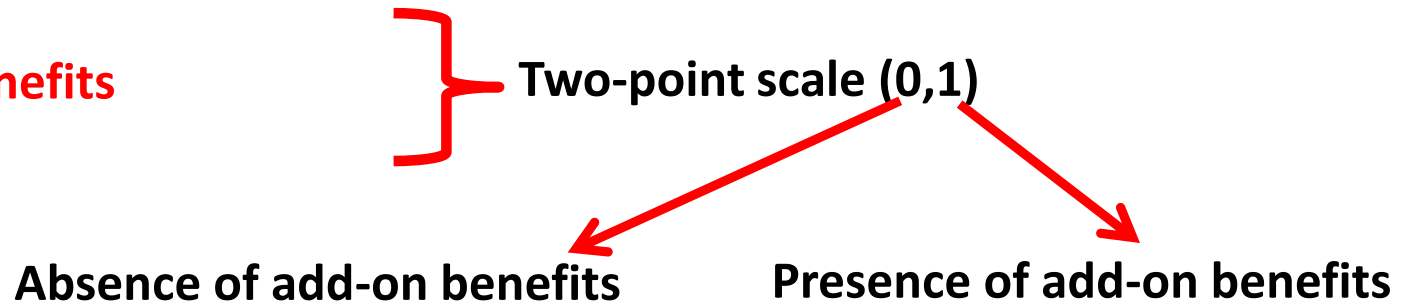
- a) **healthy fish assemblages** within an MPA,
- b) **benefits to fishermen** (e.g. in terms of increased incomes)
- c) an **overall acceptance of the management practice** by fishermen.

- **MPA ecological effectiveness**

- **Increase in CPUE**



- **Add-on social benefits**

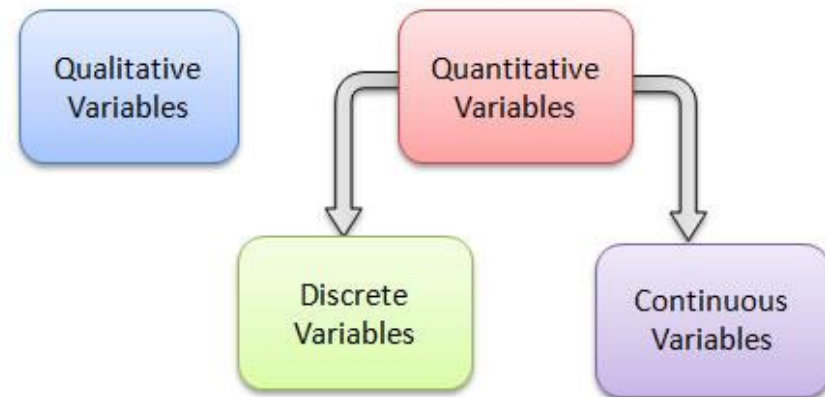


Overall Management Success (OMS) score: sum of 3 outcomes – ranging from 0 (no success) to 3 (max. success)

Attributes

Continuous variables (examples):

- Implementation year of the MPA
- Total area of the MPA
- Area of the no-take zone of the MPA
- Proportion no-take area/total area
- Number of vessels authorized to fish
- Ratio number of vessels/total area



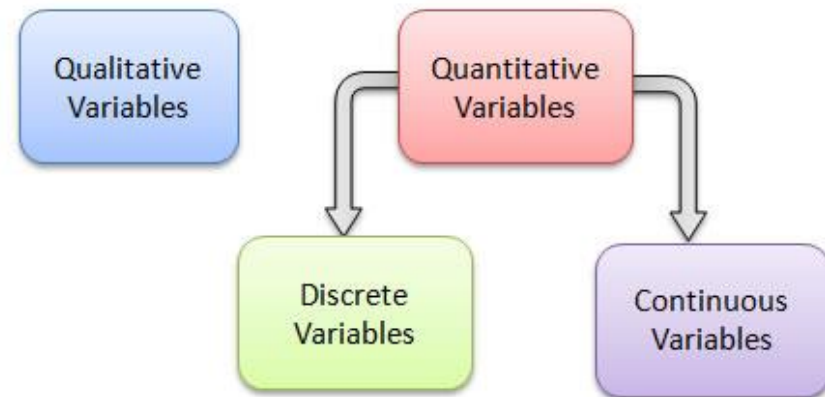
Nominal and ordinal variables (i.e. yes/no; discrete levels):

- Recreational fishing allowed or not
- Presence/absence of a management plan
- Fishermen engagement level in management

Attributes

Continuous variables (examples):

- Implementation year of the MPA
- Total area of the MPA
- Area of the no-take zone of the MPA
- Proportion no-take area/total area
- Number of vessels authorized to fish
- Ratio number of vessels/total area

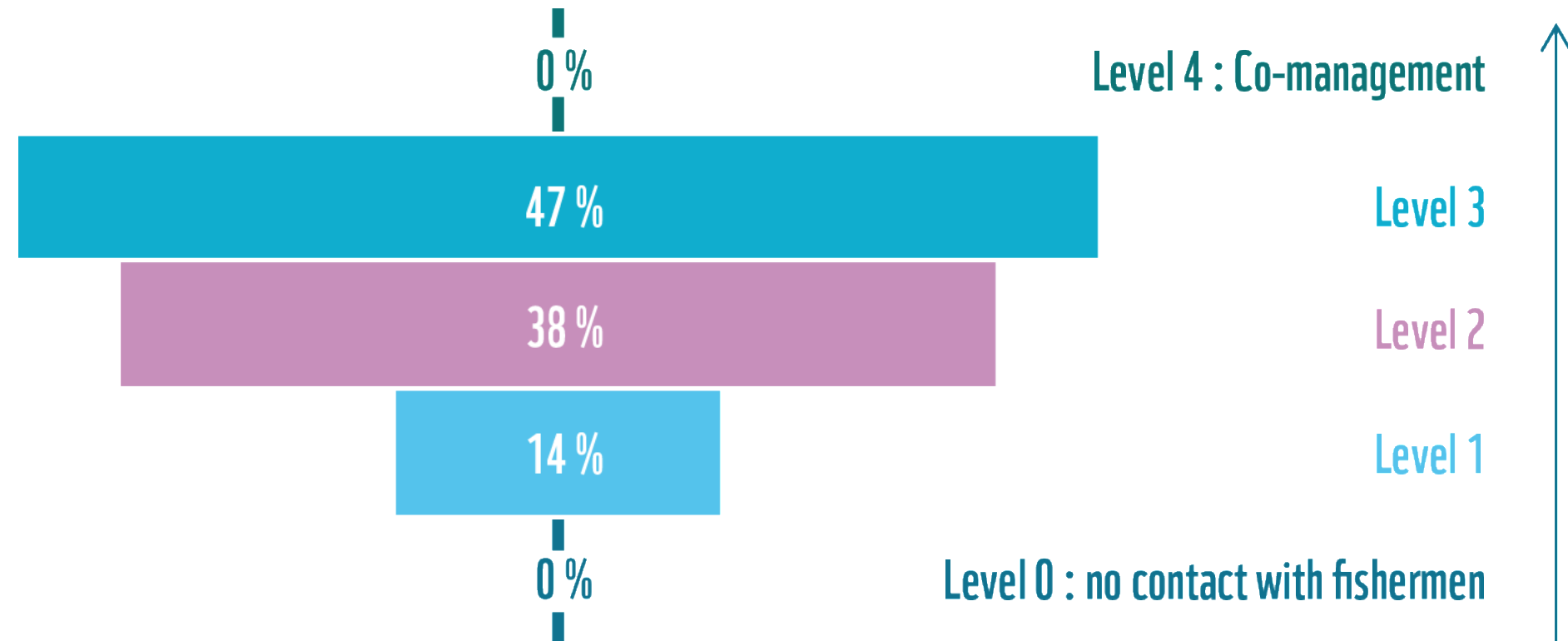


Nominal and ordinal variables (i.e. yes/no; discrete levels):

- Recreational fishing allowed or not
- Presence/absence of a management plan
- **Fishermen engagement level in management**

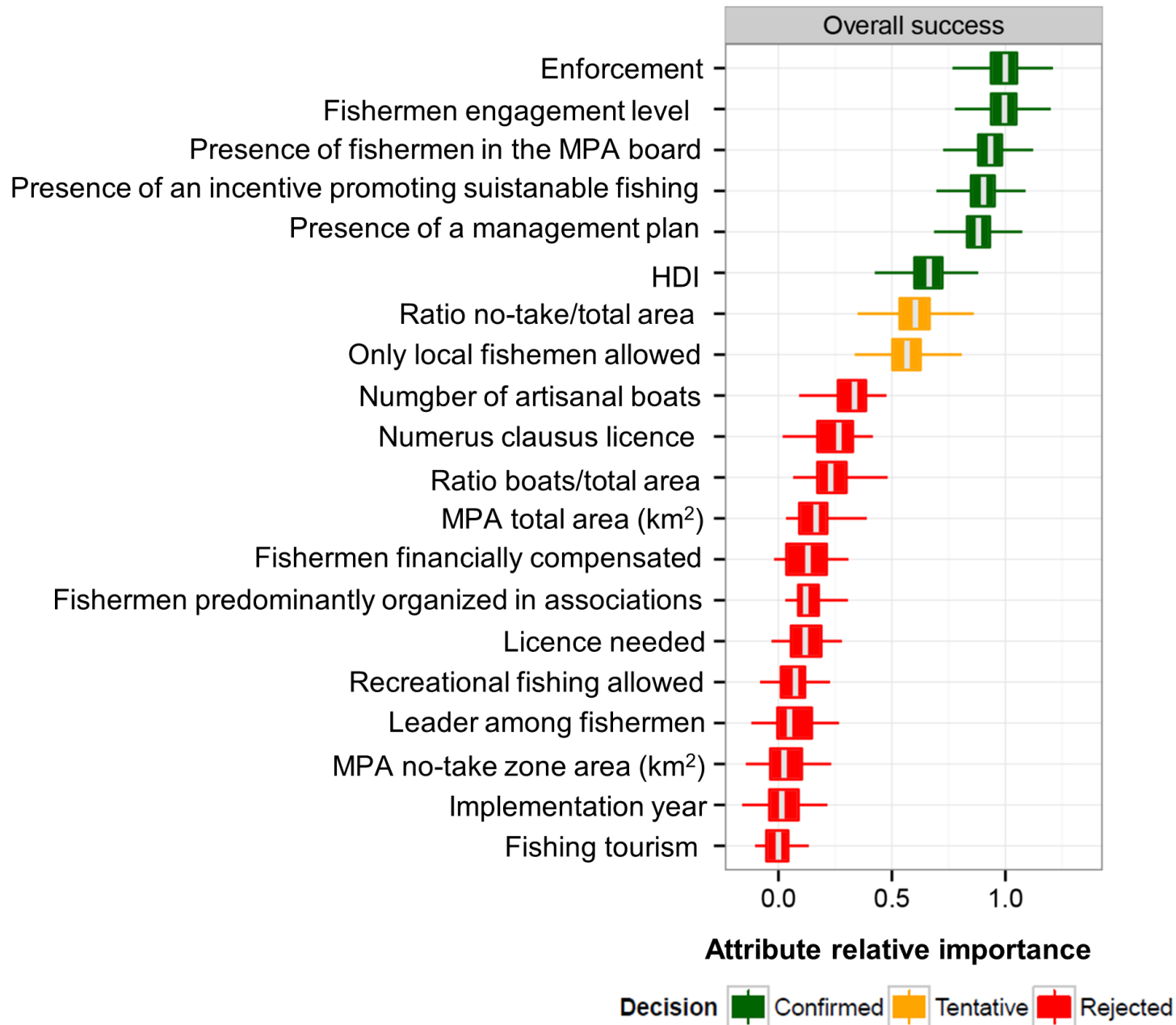


Fishermen engagement - outline of the situation

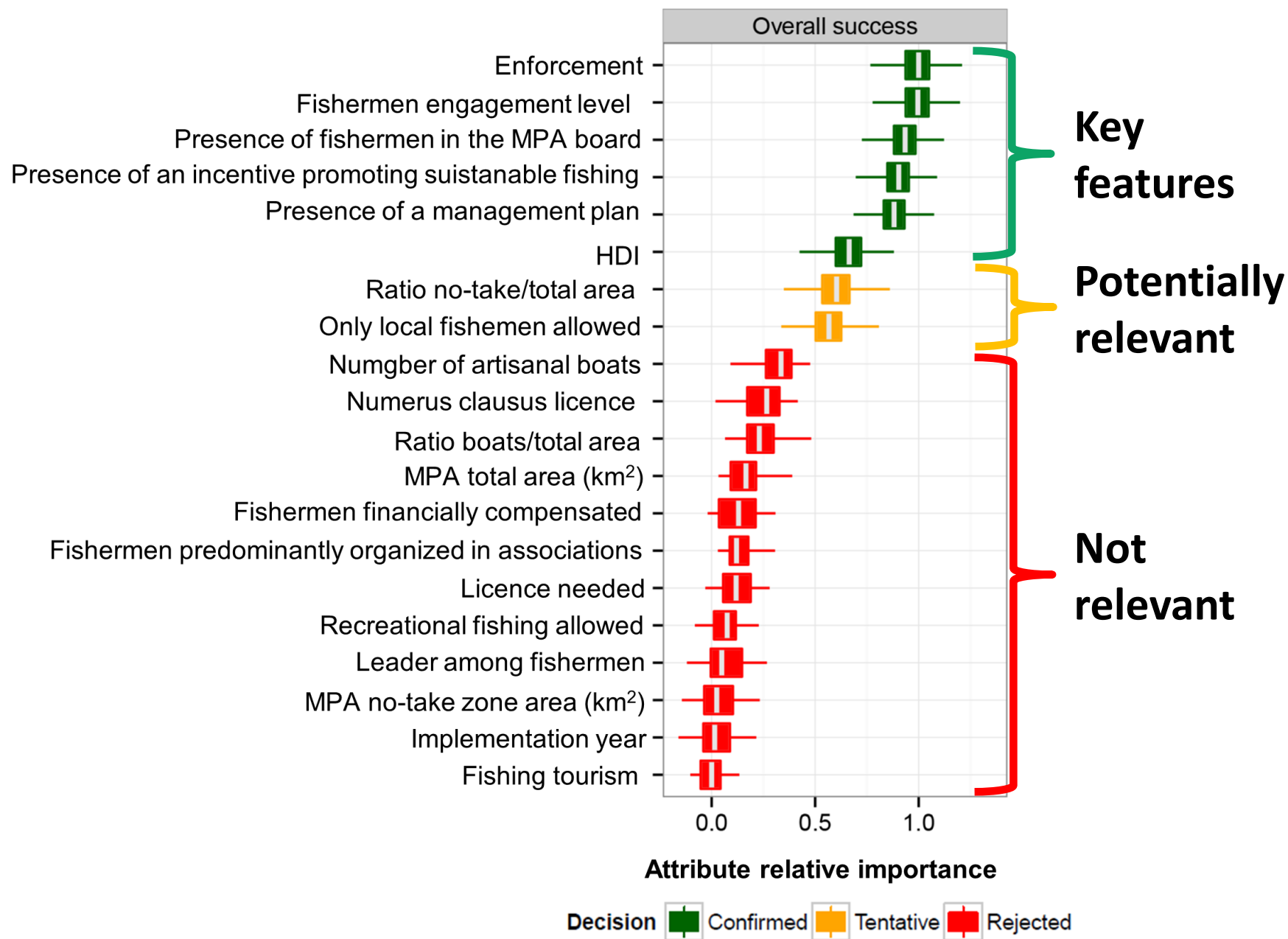


As far as we can see, there is no real co-management

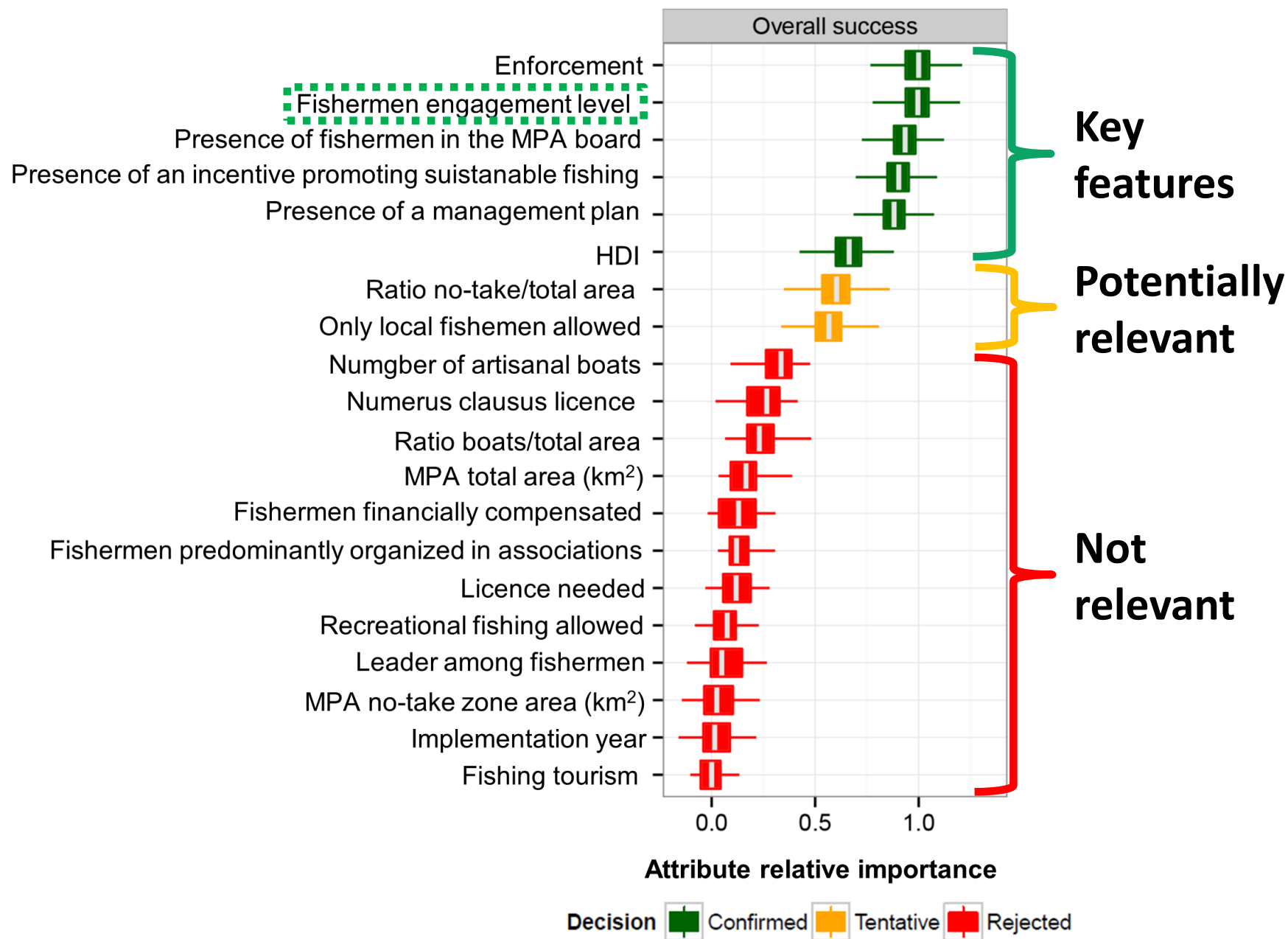
Key features - overall success



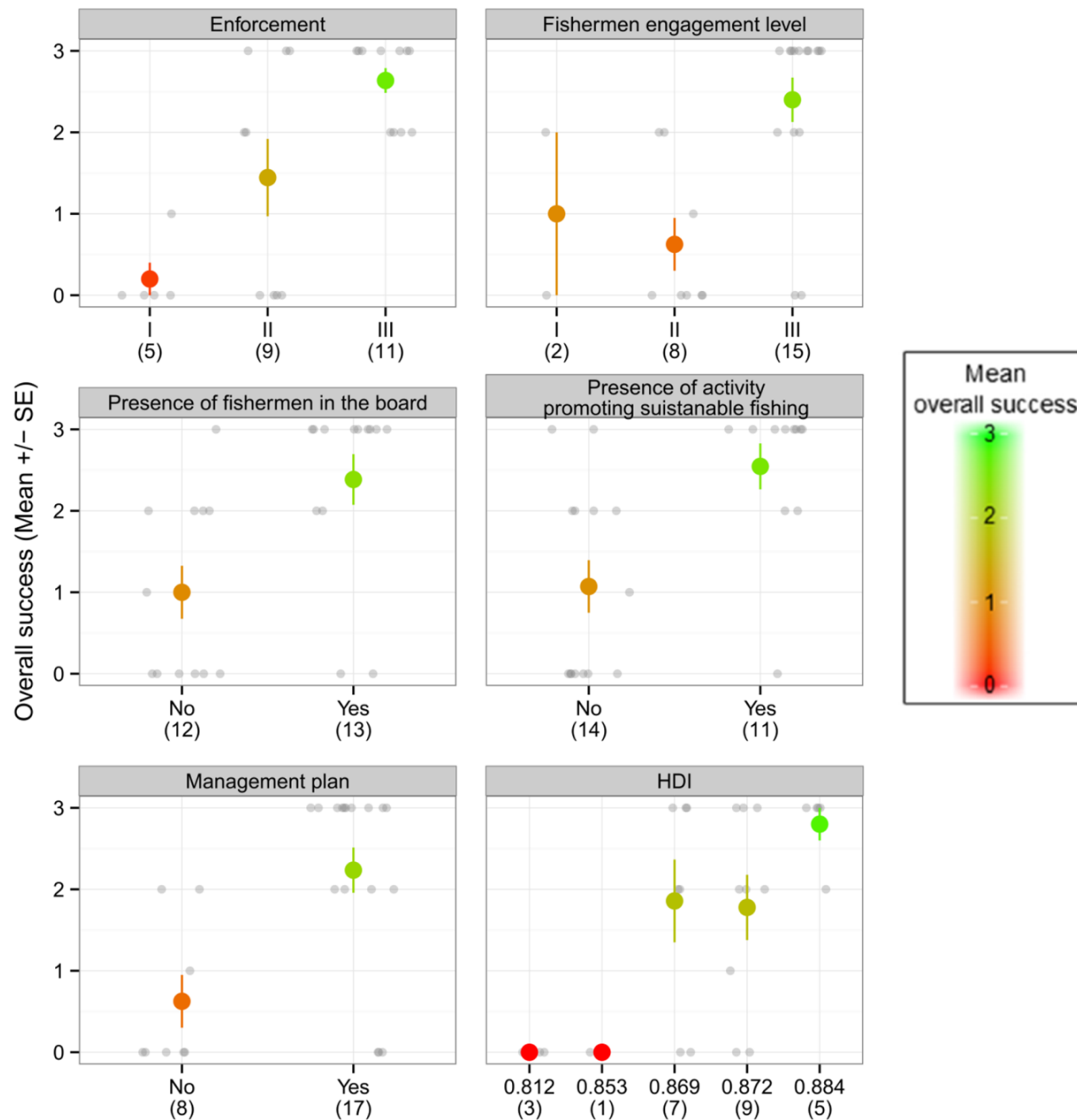
Key features - overall success



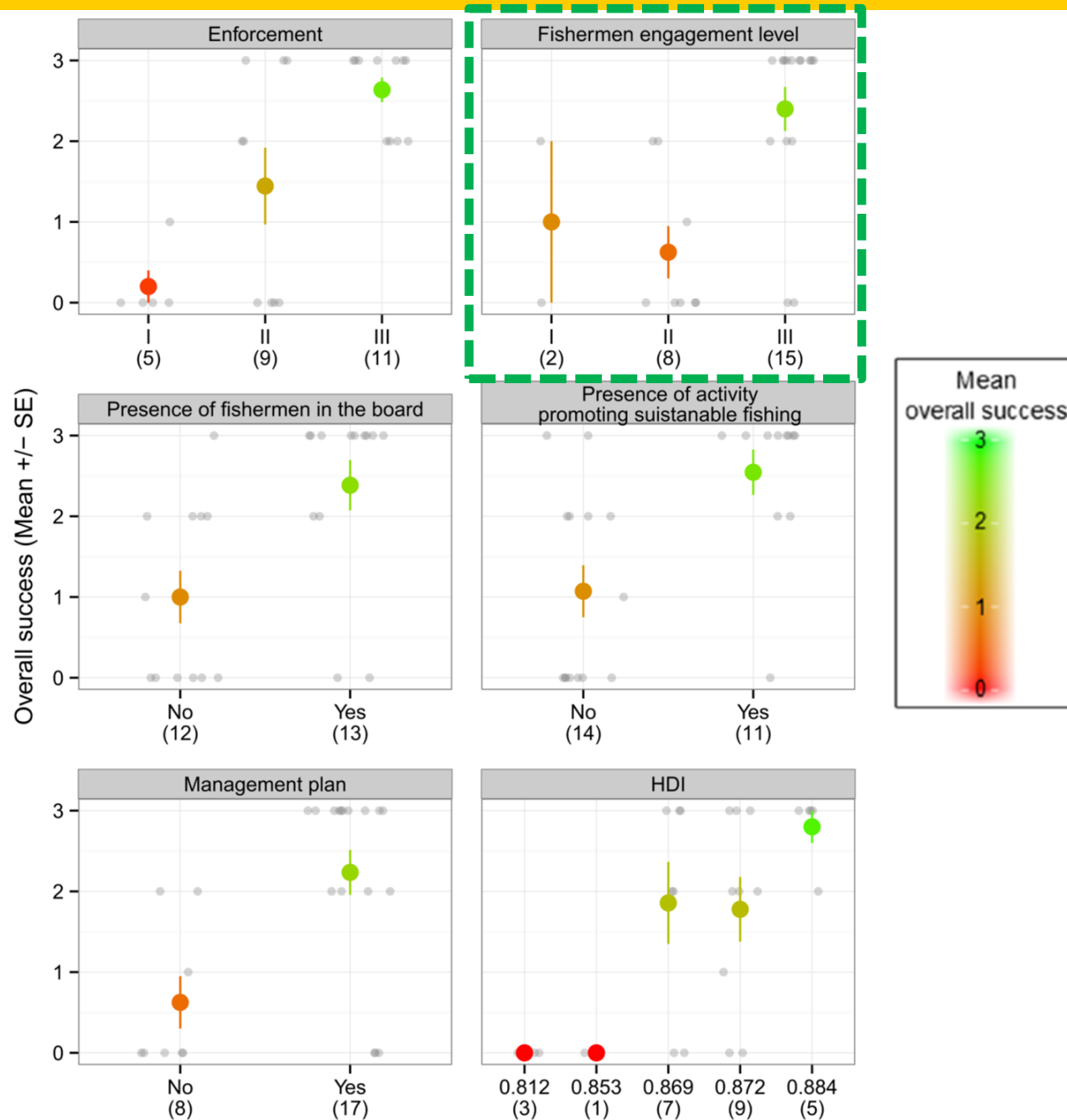
Key features - overall success



Key features - overall success

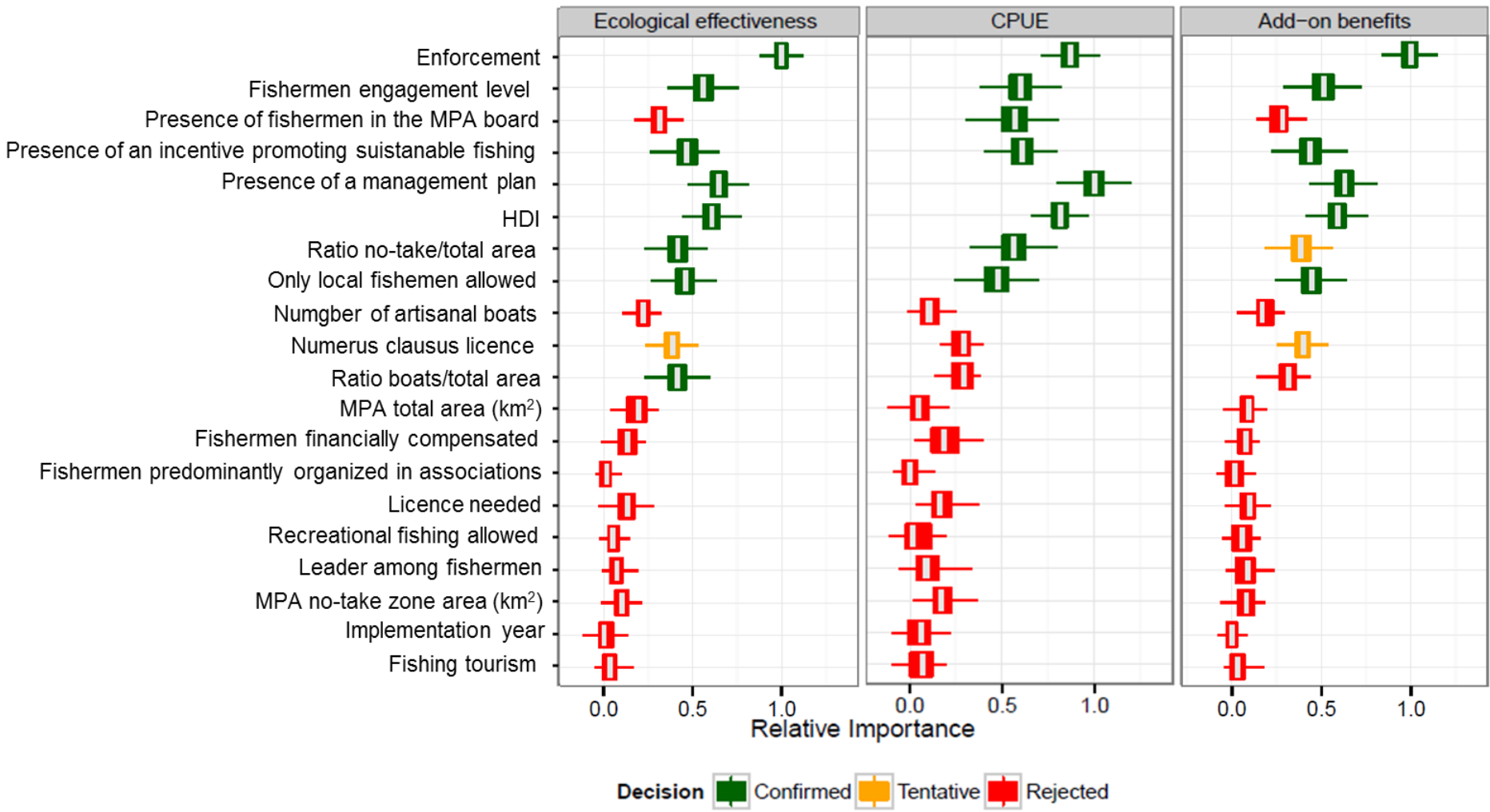


Key features - overall success



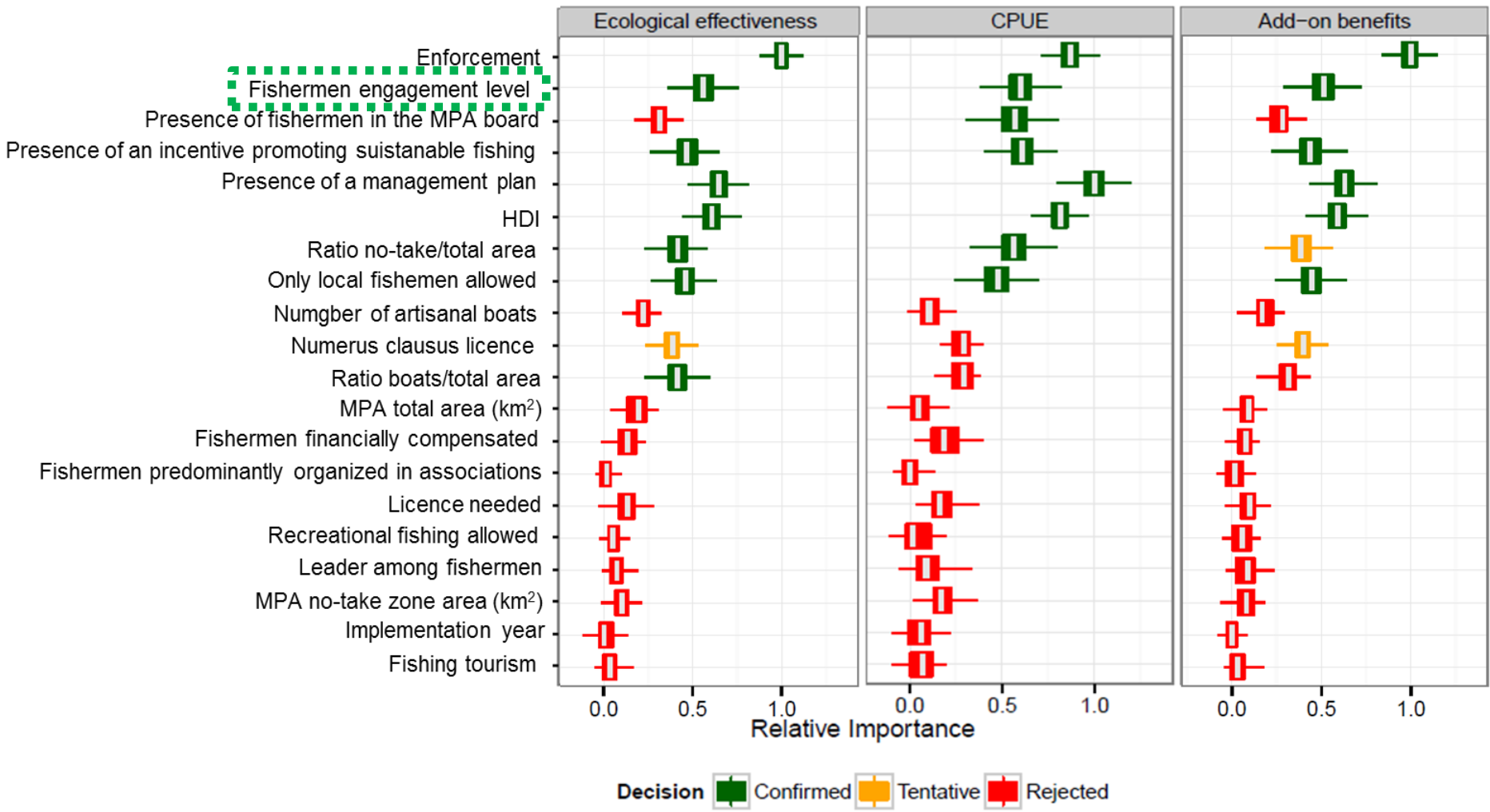
Key features - for each outcome

Breakdown to the three outcomes



Key features - for each outcome

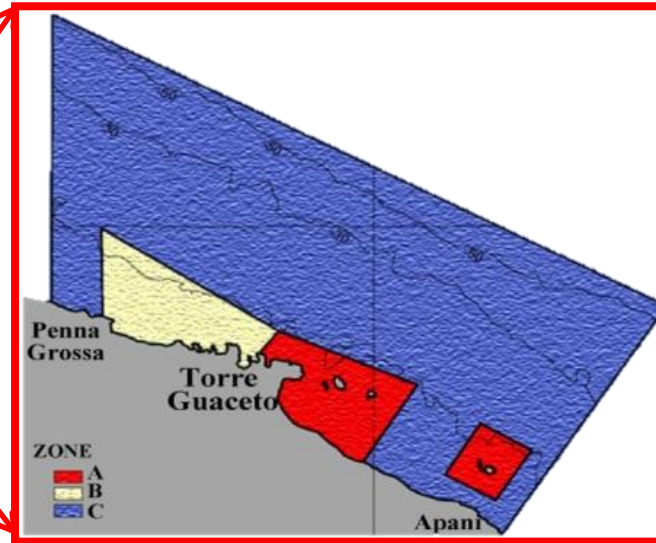
Breakdown to the three outcomes



Fishermen engagement - an example



Torre Guaceto Marine Reserve, Italy



Torre Guaceto MPA

Established in 1991, enforced in 2001.

The total fishing ban triggered a conflict between fishers vs the management body and coast guard (fines imposed; boats, nets and licenses confiscated).

Fishermen felt to be the moral owners of that territory that have been stolen
→ the MPA was the 'enemy'.



Fishermen engagement – an example

In 2005 a negotiation started and an agreement undersigned (the best possible compromise to be accepted by fishermen).



Adaptive management and fishermen engagement

- +428% increase in fish biomass within the no-take zone
- +126% increase in fishermen revenues when fishing in the buffer zone
- no infractions by local fishermen

NATURE|Vol 464|1 April 2010

**Fishermen contribute
to protection of
marine reserves**

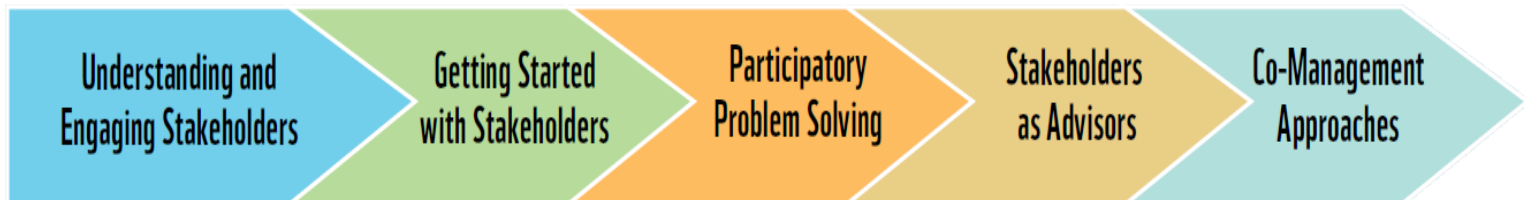
Joachim Claudet, Paolo Guidetti

Conclusion

The **key-features** identified **require significant economic and social commitment** to be implemented but they can allow managers and policy-makers to satisfy the growing public demand of responsible seafood consumption and support thriving of coastal communities



To build a foundation of mutual trust is crucial



Thank You

