

Multidisciplinary approach of an emblematic MPA

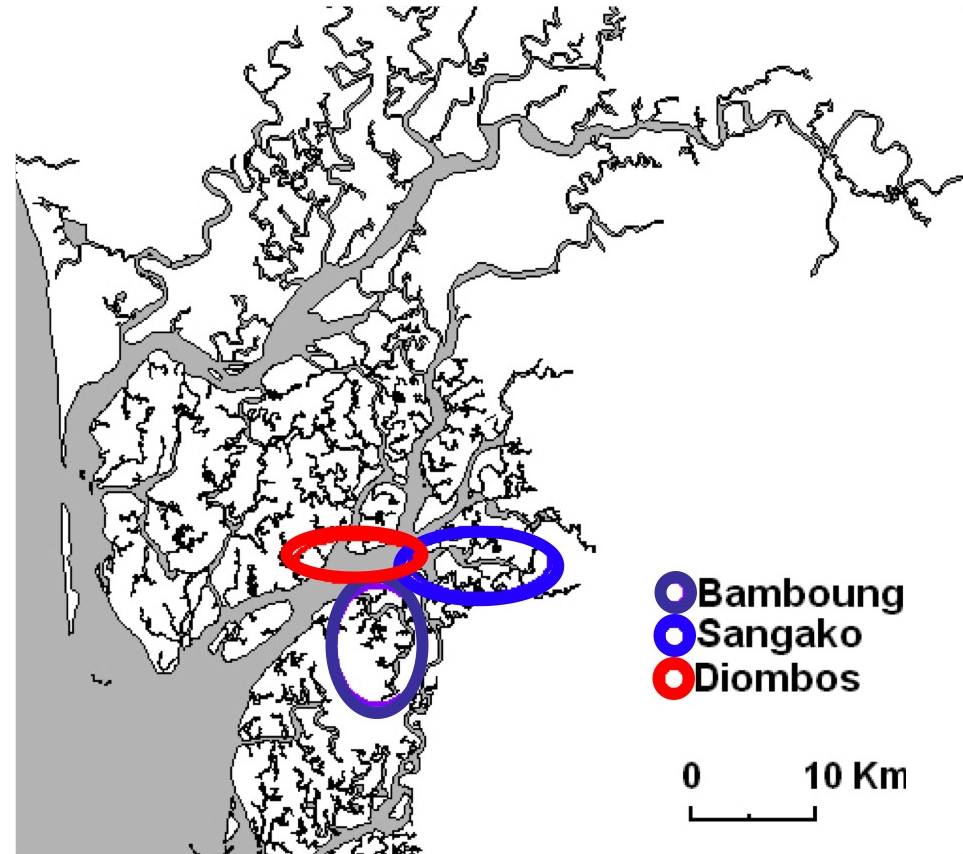
The Bamboing area in Senegal



Alban F., Behagles N., Boncoeur J., Brind'amour A., Colleter M., Diadhiou H., Ecoutin J.M., Gascuel D., Laë R., Lebourges A., Roncin N., Tito de Morais L., Weigel J.Y.

The community MPA of Bamboung

- Located in the Saloum estuary (arm of 7 km²)
- Peripheral zone : 14 villages (17000 inhabitants)
- Created in 2004 (FFEM funding)
- Awareness-raising activities for the sustainable management of the ecosystem
- Creation of an ecotourist camp in the MPA.
- Projected financial plan :

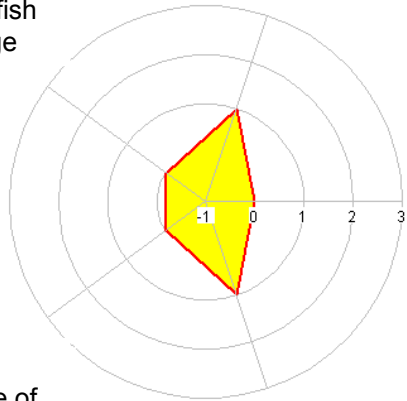


Biological efficiency

Inside the MPA : 2003 vs 2007

Mean length
fish assemblage

Abundance fish
assemblage



Abundance
targeted species

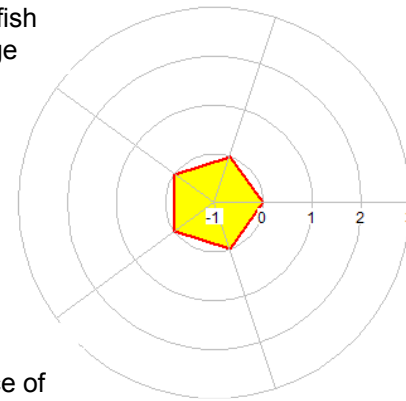
Mean
abundance of
fish populations

Mean length of fish
populations

Outside the MPA : close vs distant

Mean length
fish assemblage

Abundance fish
assemblage

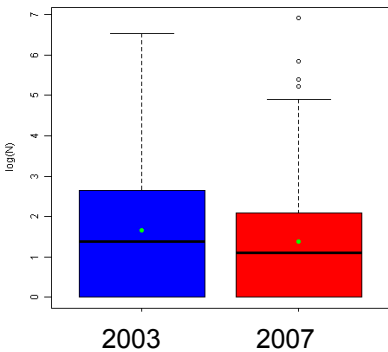


Abundance
targeted species

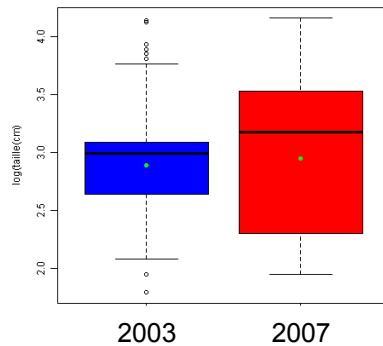
Mean
abundance of
fish populations

Mean length of fish
populations

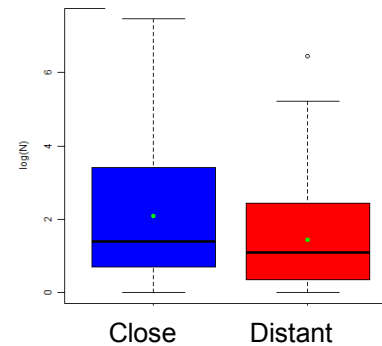
Total abundance



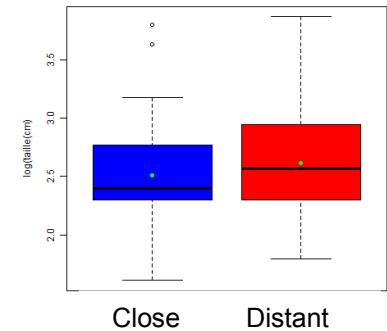
Mean length



Total abundance



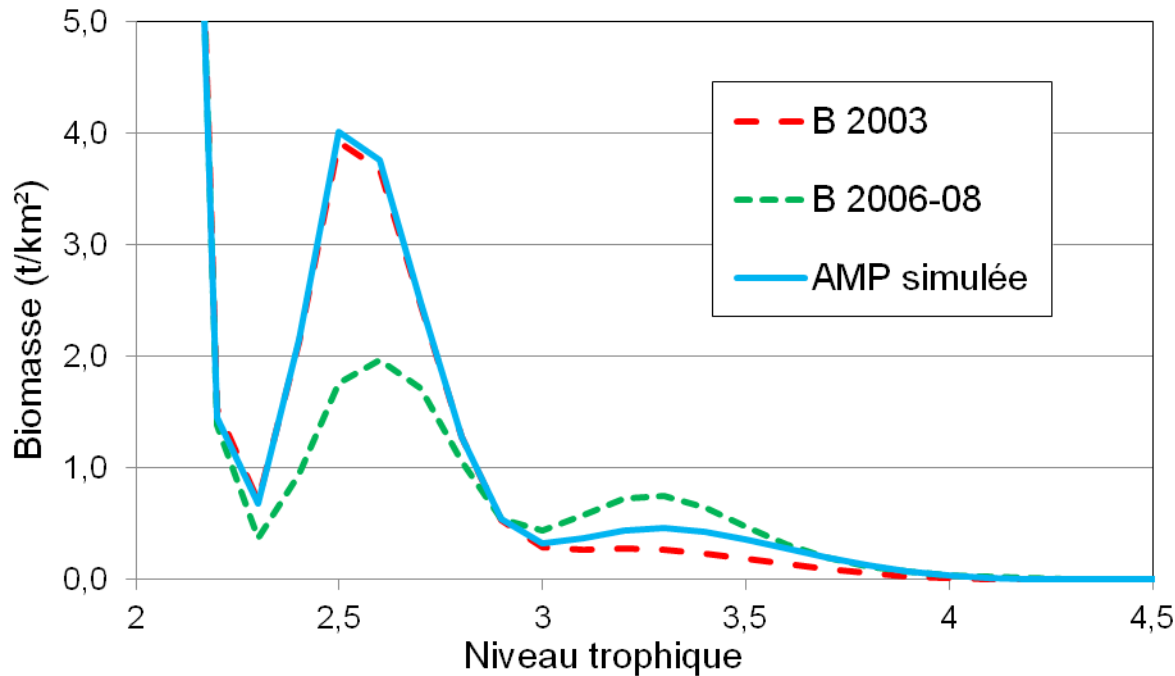
Mean length



Ecosystemic Model

The trophic models (Ecopath & EcoTroph) :

- Confirm in the MPA:
 - The increase in abundance of higher predators
 - The reduction of feeding species
- Show these changes ensue from :
 - A re-organisation of the trophic network
 - A refuge effect mainly for predators)
 - Environmental effects independent from the creation of the MPA



Trophic spectrum of Ecopath and EcoTroph models developed in the Bamboing MPA. (Colléter et al, 2012)

Socio-economical efficiency

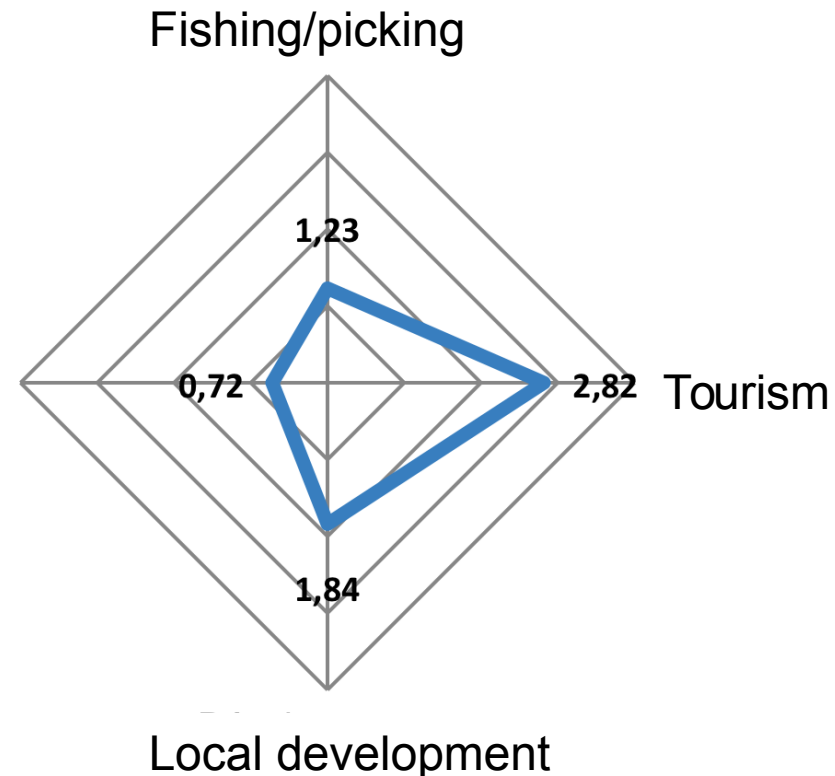
Results from the perception survey (2010)

Effect of the MPA	On fishing *	On picking*	On local development*	On tourism**
positive	18%	7%	29%	50%
neutral	20%	49%	13%	41%
négative	59%	39%	36%	9%
NSP	3%	5%	22%	0%
Total	100%	100%	100%	100%

* Village people ** Hotelkeepers

Estimation of the rate of financial autonomy : 18%

**Socio-economical indicators
(scale from 0 to 4)**



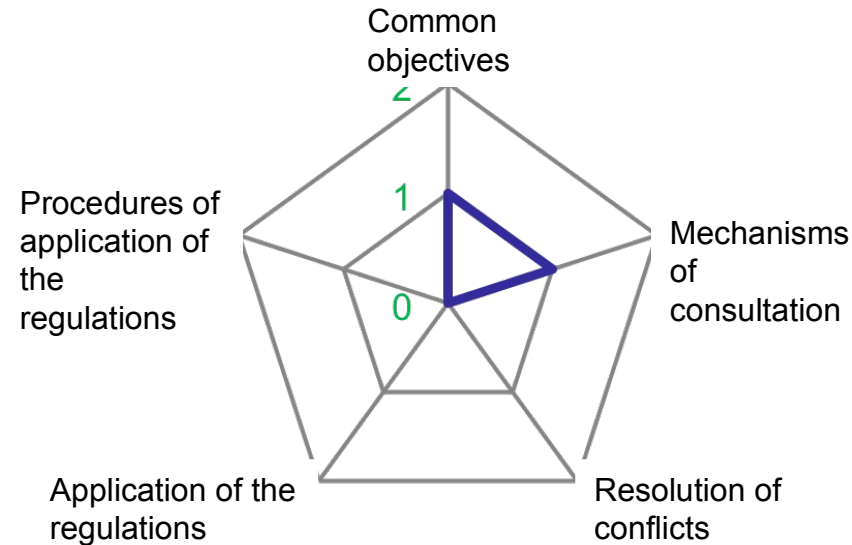
Governance efficiency

In 2003, the governance efficiency of the 14 villages countries was handicaped by a competition between different legitimacies (lineage, village, local collectivities, state, international).

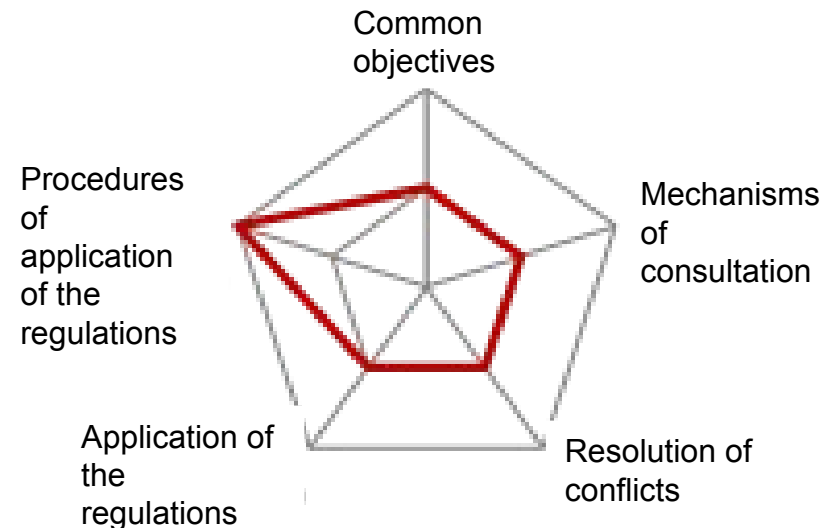
In 2009, better governance efficiency :

- Increase in importance of the rural council and the MPA management council.
- Emergence of nodal points (meetings of both councils)
- popularization of the global standards of the governance
- Improvement of the process of governance (shortening of the deadline for for decision-making).

Bamboung MPA governance situation in 2003



Bamboung MPA governance situation in 2009



Results synthesis

Effects of the MPA

Conservation	Modification of the fish assemblage with total abundances equivalent or decreasing but a protection of predators of the ecosystem (functional biodiversity)
Fishing	Effect of the MPA sensible in the first km outside, due to a potential spill over phenomenon. Effect perceived as negative by a majority of fishermen (stronger sensibility to the fishing ban in the MPA than to its potential benefits).
Tourism	Effect perceived as positive by a majority of hotelkeepers (as a consequence of the MPA mediatization).
Local development	Reserved perceptions from local people (fishing effect + tourism + monetary payments to villages)
Financial autonomy	Seems very low → Threat on the durability of the MPA
Governance	Rather positive effect on the local governance (comparison 2003-2009)