

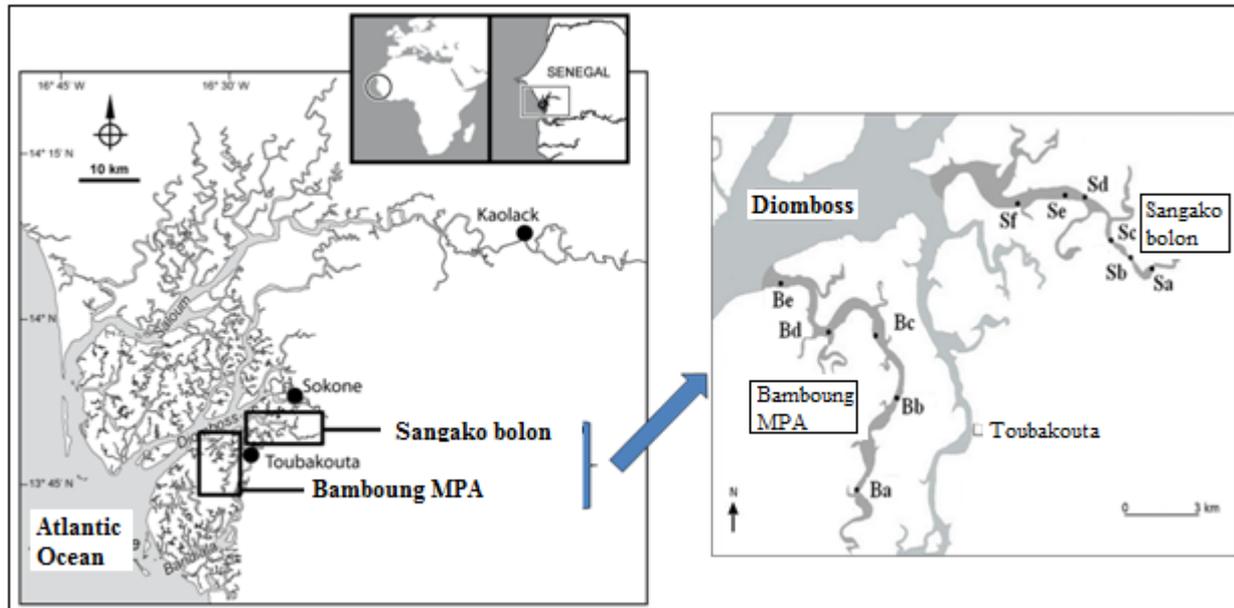
Effectiveness of Marine Protected Areas as a tool for restoring biodiversity: West African experience



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Methodology



	Bamboing MPA	Sangako bolon
Area (ha)	300	378
Length (km)	15	11
Depth (m)	0-15	0-14
Distance from sea (km)	17	22

Sampling period : **2008-2011**

Methods, techniques, protocols, and the nature of biological information used in this study are the same for the Bamboing (closed to fishing) and Sangako bolon (open to all forms of fishing activities).

The physical and chemical water variables and bio-ecological indicators were compared between the two areas. The bio-ecological indicators are compared to the scale of assemblage and communities (ecological and trophic guilds).

Results of the comparative analysis 1/2

Both areas are close and their waters are similar. External environmental conditions (rainfall, wind, sunshine, tide, ocean current, humidity, ...) are also similar and probably are not the cause of any differences between the two fish assemblage of each areas.

➤ At the fish assemblage scale

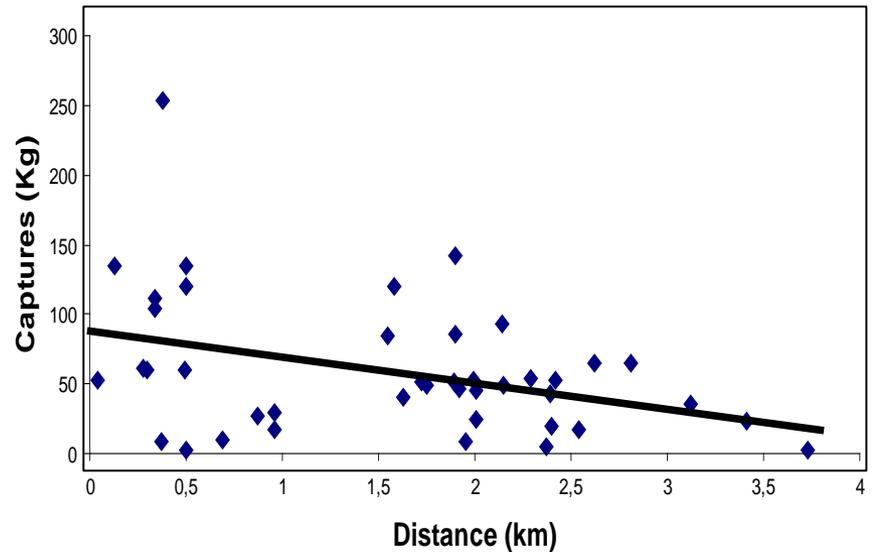
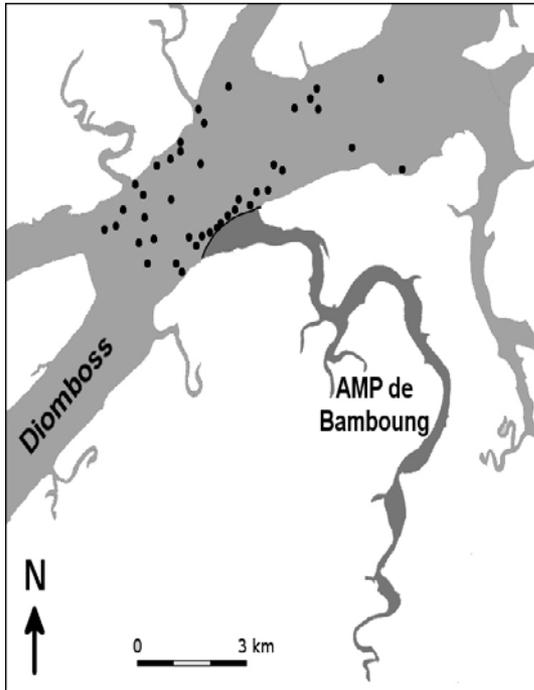
- 54 species belonging to 28 families were identified in the MPA against 47 belonging to 23 families in the area where all fishing activities are allowed while the richness per shot fishing is higher in the area open to fishing;
- abundance (2.2 times), biomass (2.3 times), mean trophic level (1.3 times), the average size and the maximum size are greater in the MPA than in the area open to fishing;
- analysis of size spectra shows individuals under 22 cm were more abundant in the area open to fishing and individuals over 22 cm more abundant within the MPA.

Results of the comparative analysis 2/2

➤ At the community level

- analysis of ecological guilds showed that species with estuarine affinities were more numerous in the area open to fishing while the fish assemblage of the MPA is characterized by species with marine affinities.
- analysis of trophic guilds showed an important herbivore component in the area open to fishing activities and a larger predatory component in the MPA.

Benefits to fisheries



Despite its small size, there were **positive effects outside the MPA** to about 2.5 km from the edge of the no-take zone. These effects were related to the narrowness (500 m) of the opening mouth of the MPA and the relative confinement of the first free fishing area nearby (2 km in large and less than 12m in depth). Fish exported from the MPA is spatially constrained and therefore easily accessible for fishermen.

Conclusion

The bio-ecological indicators compared between the two areas are higher in MPA.

Five years after the fishing ban in the Bamboung bolon, the fish assemblage of the MPA was already characterized by predatory marine species affinity with high trophic level rarely seen in the Sine Saloum estuary.

The results of the comparison between the Bamboung MPA (no-fishing) and Sangako bolon open to fishing have demonstrated the role of the MPA as a tool to **increase nearby fisheries**.

This study has highlighted the attraction of a Marine Protected Area in tropical estuarine zone and consequently the role of **MPAs as a tool for restoring biodiversity**.

THANK YOU

