

Seine net in Martinique, a fishing skill in progress: current practices and environmental impact assessment

Red de cerco en Martinica, una práctica en evolución: prácticas actuales y evaluación del impacto medioambiental

La senne en Martinique, une pratique en évolution: définitions des pratiques actuelles et évaluation de l'impact environnemental

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EXTENDED ABSTRACT

INTRODUCTION

Seine fishing was traditionally practiced throughout Martinique, on both the Atlantic and Caribbean coasts, and regulated by a customary system, the “tré” or seine haul, accompanied in each community by a specific professional seiner agreement. The practice has evolved and is now plural. In recent decades, beach seining has declined. This decline is particularly marked on the Caribbean coast, where the activity was and remains the most developed. Following the chlor-decone-related restrictions (2012), this observation is also valid on the Atlantic coast. The first objective of our study is to update theoretical knowledge on the practice of seine fishing in Martinique (description of fishing gear, schedules and preferred areas). The second objective of our study is to evaluate the impact of seine gear on the seabed. In order to assess the impact of the practice on coastal ecosystems (specific composition of targeted and by-catches, assessment of biomass and catch sizes, and study of the behavior of the gear in action).

In total 24 fishermen operating with seine net has been interviewed. The results of those surveys gave us two main information. Firstably there are three types of gears commonly used as shown in the figure below :

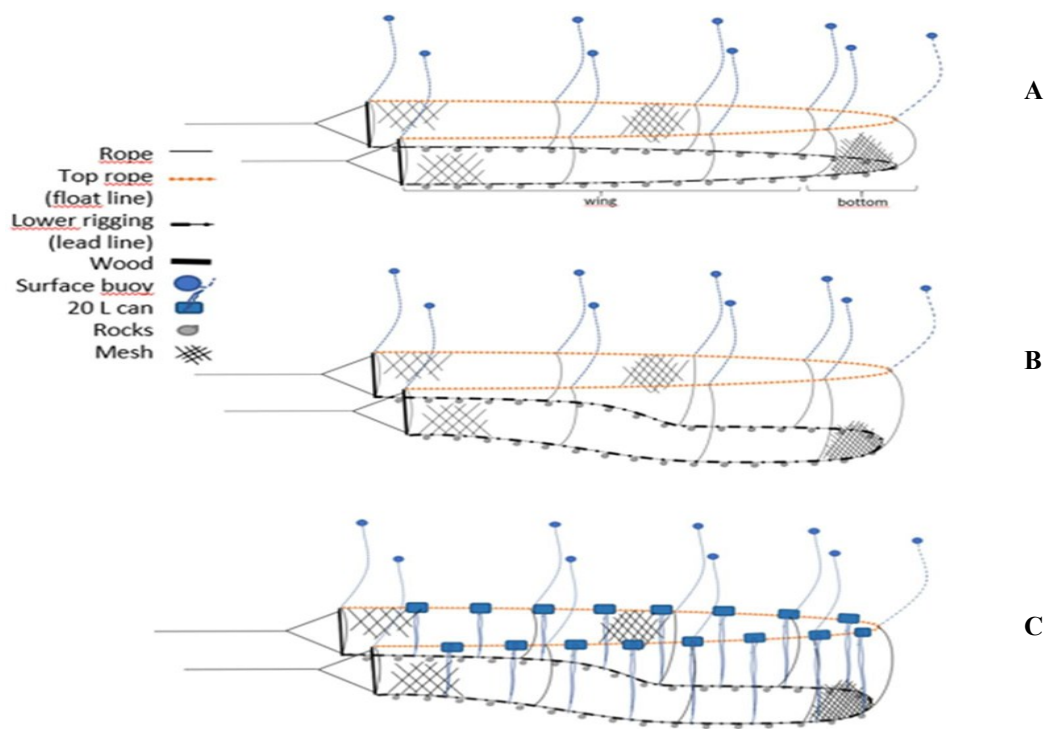
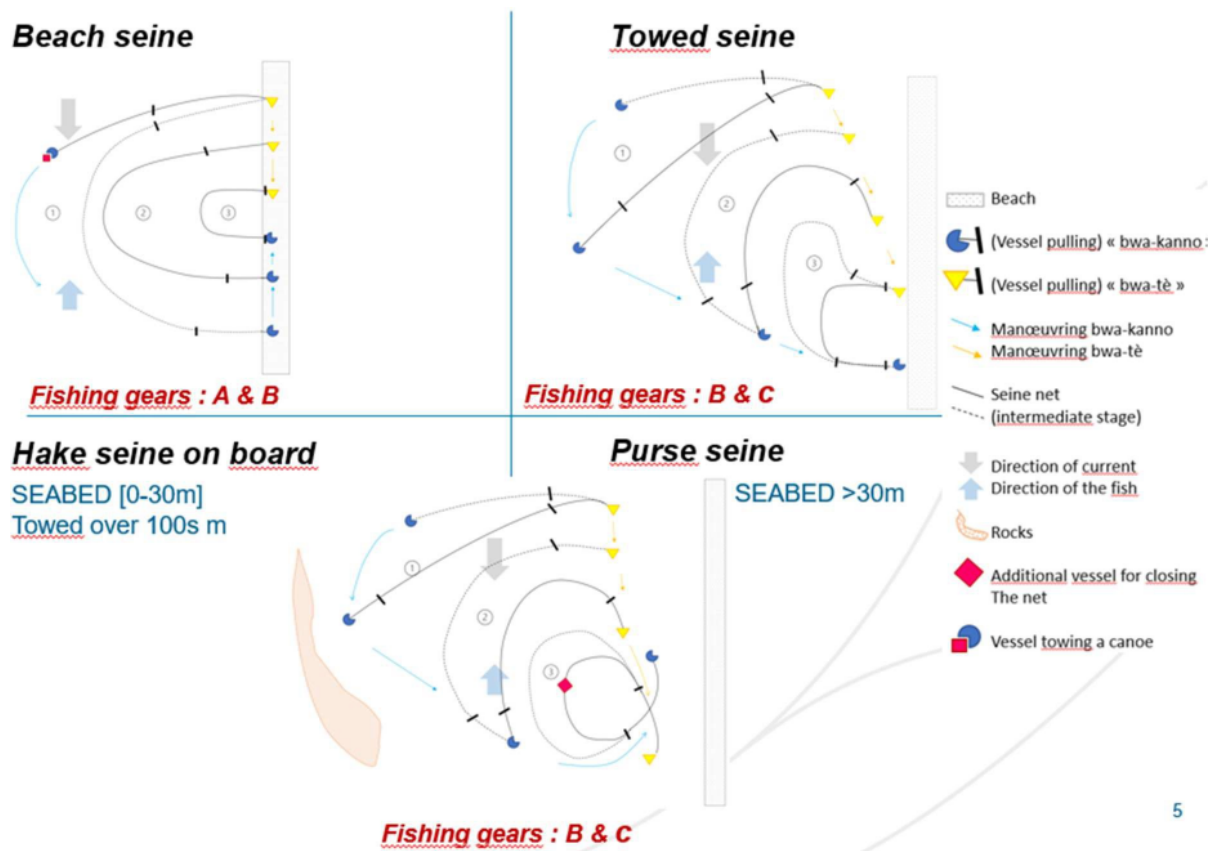


Figure 1. Different type of seine nets



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Figure 2. Four seine net practices

In order we have A. the round scad net or « senne a makryo » in french creole, B. the lookdown seine net or « senne a koulirou » and C. the lookdown seine net with drums. The first one has a lower height and length, targets *Decapterus* spp, it evolves deeper in the water than the other seine nets. The lookdown seine net is the most common, it targets mainly *Selar crumenophthalmus* and evolves closed to the surface. The last one is used only in one community of Martinique named “Le Marin”. The drums help to adjust the height of the net in order to avoid the reef and rock on the seabed. Snorkelers and divers can assist the net deployment.

The principle remains the same for the four practises, the seine net is deployed in the same direction of the current and against the fish direction, gradually the net will encircle the fish. As we can see on figure 2, the net can be towed over greater or lesser distances, the fish is taken out of the water either on the beach or on the vessel. Each of these practices has a different impact on the biotope and biocenosis of the seine deployment zones as shown on the following figure:

This figure shows that the “purse seine” and the “beach seine” have no impact on reefs, the most vulnerable

seabed. In addition, they have a small surface of deployment, particularly the purse seine. Unfortunately, this technique has been described by fishermen but never seen in practice during our study.

In order to evaluate the environmental impact of this fishery nine seines shots were sampled using gear B. (senne a koulirou) in two fishing sites deployed as two techniques: beach seine and towed seine. The parameters collected were:

- data on the trip
- total biomass of the species targeted
- name, size and weight of all species captured (by-catch included)

As a complement sub-marine videos were taken to observe the net in action, the seabed state before and after the fishing action.

Main findings of our study are: the evolution of “beach” seining towards towed seining raises the question of trawling in coastal waters. Towed seines interact directly with the entire habitat continuum. Catch diversity is high,

with extensive size classes. Seine catches are varied and not confined to targeted pelagic species. Regular catches of juveniles, mainly from Lutjanidae and Haemulidae family, raise questions about the sustainability of the practice. In parallel with the regulations, the customary organization in place enables spatio-temporal management of the activity, which is known and respected but not applied everywhere, and which is tending to disappear.

CONCLUSIONS

This study shows that the current regulation needs to be adapted for a sustainable seine fishing in Martinique. Complementary management measures should be proposed by fishermen to improve the current practices in an environmental point of view.

KEYWORDS: Seine, Martinique environmental impact assessment

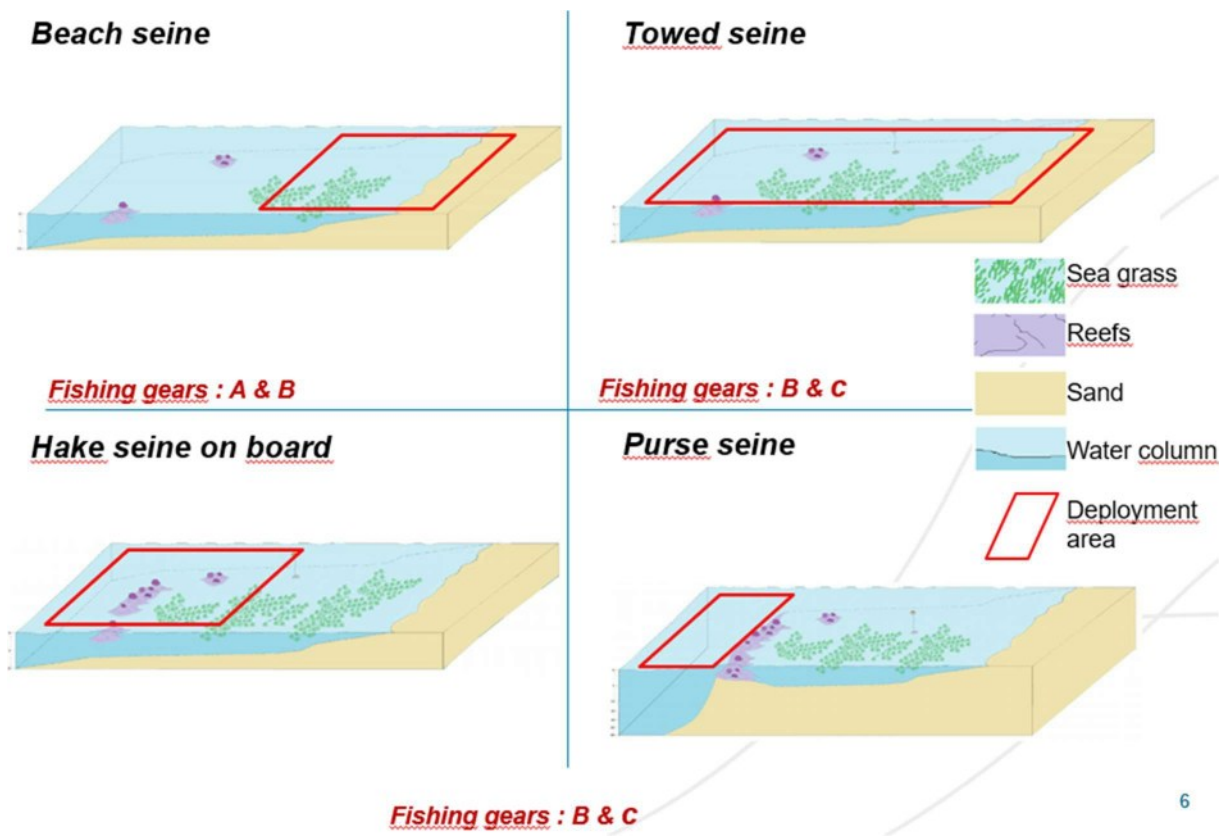


Figure 3. Surface of net deployment