



Fisheries catch misreporting and its implications: The case of Senegal



Dyhia Belhabib^{a,*}, Viviane Koutob^b, Aliou Sall^c, Vicky W.Y. Lam^d, Daniel Pauly^a

^a Sea Around Us Project, Fisheries Centre, The University of British Columbia, AERL Building, 2202 Main Mall, Vancouver, BC, Canada V6T 1Z4

^b USAID/COMFISH, Cité Djily Mbaye/Yoff, Dakar, Senegal

^c Pêche CREDETIP, Immeuble FAHD, 14ème Etage, Dakar, Senegal

^d Fisheries Economics Research Unit, Fisheries Centre, The University of British Columbia, AERL Building, 2202 Main Mall, Vancouver, BC, Canada V6T 1Z4

ARTICLE INFO

Article history:

Received 12 September 2013

Received in revised form 2 December 2013

Accepted 4 December 2013

Keywords:

Artisanal
Fisheries
IUU
Migrations

ABSTRACT

The marine resources in Senegal are still relatively abundant, and Senegalese fisheries generate a high economic value for local communities. These fisheries are characterized by a large number of distant-water fleets alternating between legal and illegal operations, depending on circumstances, and a rapid increase of artisanal fishing effort. The extent of the impact of artisanal fisheries on fisheries resources and the Senegalese economy is as poorly known as is the level of illegal unreported and unregulated (IUU) industrial fishing. The former relies on official surveys and voluntary reports by fishers, while the existence of the latter was largely denied in the past. Large and frequent 'migrations' (i.e., incursions into the waters of neighbouring countries) by Senegalese artisanal fishers, under-estimation of fishing effort and increasing conflicts over fisheries suggest that officially reported catch data do not reflect reality. A thorough literature review, experts and industry consultations were used to reconstruct Senegalese fisheries catch data. Official national data were compared to the data supplied to FAO and adjusted from 1950 to 2010. Reported and missing sub-sectors, including artisanal catches within and outside Senegalese waters, non-commercial sub-sectors, and industrial catches by the legal and illegal fleets, were conservatively re-assessed. The impacts of the intensive illegal fishing activities on artisanal fisheries and the economy were investigated. The results showed substantial under-reporting, ranging from 4 times higher than the official data in the past to about 1.6 times recently. Artisanal fisheries, according to official data, were responsible for 50% of total extractions, as opposed to 80% 20 years ago. However, while catches by migrant fishers increased dramatically, artisanal catches from Senegalese waters decreased despite an increasing effort, suggesting over-capacity. IUU catches, which were worth around \$ 300 million US annually, whether transhipped or otherwise spirited out of Senegalese waters, or discarded, represent a huge loss to Senegal. Also, the foreign fleet, illegally exploiting Senegalese fisheries resources, impact strongly on the migrations of Senegalese artisanal fishers, who in turn increase their migrations as an adaptation strategy to meet their need for fish in the face of rapid resource depletion.

© 2013 Elsevier B.V. All rights reserved.

1. Introduction

Rapidly developing artisanal fisheries and increasing industrial fishing activities usually lead to conflicts over fisheries resources, a common feature of contemporary fisheries (Bakhayokho and Kebe, 1989; Ruttan et al., 2000; Pauly, 2006). This competition can result in the artisanal sub-sector growing in capacity, extending its fishing grounds or ceasing to exist. As the last option rarely occurs in Africa, adapting to the former two mechanisms results in overcapacity and the extension of the operating range of the artisanal sub-sector.

This contribution examines the resource competition between industrial and artisanal fisheries through the example of Senegal, which has a number of foreign fleets, i.e., fishing legally and illegally, along with the most developed artisanal fleet of Africa. The latter operates within and outside the Senegalese Exclusive Economic Zone (EEZ). This paper will first draw a picture of Senegalese fisheries by (1) presenting realistic catches by sub-sector and taxonomic groups, and comparing them to official statistics, (2) assessing the extent of the competition between industrial and artisanal fisheries, and (3) presenting the response mechanisms adopted by artisanal fisheries under increasing competition over declining resources.

Senegal is located at the edge of two of the most productive fishing zones in the world, the Canary Current Large Marine Ecosystem and the Gulf of Guinea Large Marine Ecosystem, between 14°40' N and 17°25' W (Fig. 1). This, along with a strong seasonal

* Corresponding author. Tel.: +1 778 709 4815.

E-mail addresses: d.belhabib@fisheries.ubc.ca, dyhia.belhabib@gmail.com (D. Belhabib).

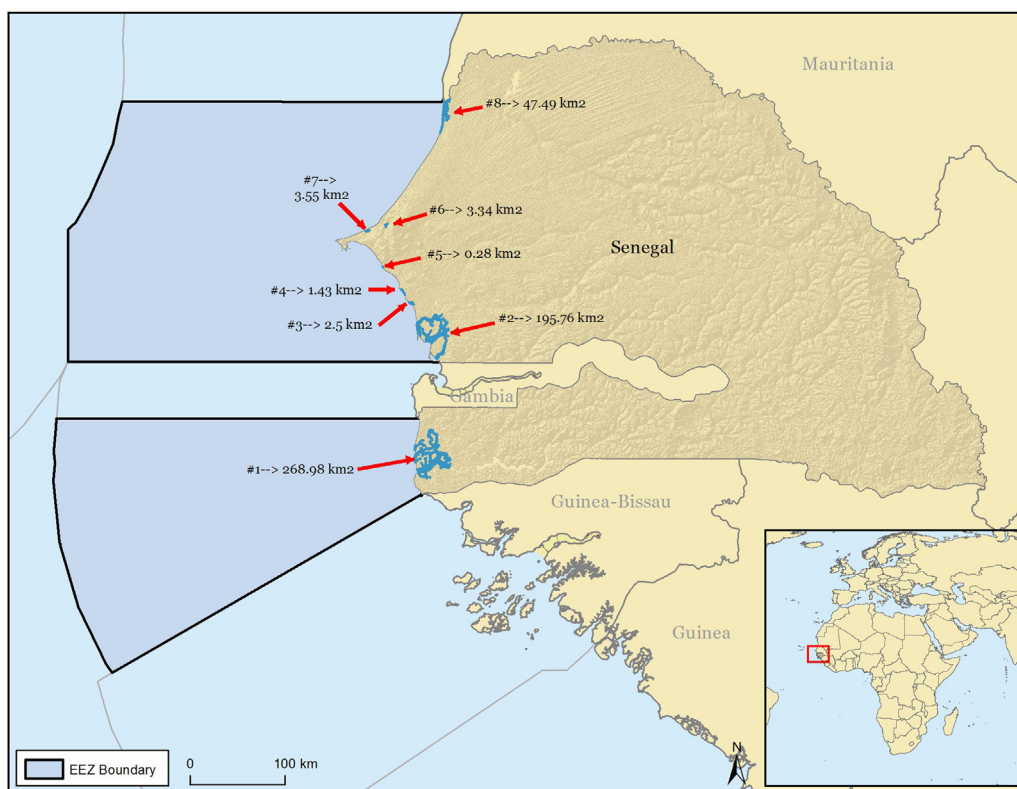


Fig. 1. Senegal and its exclusive economic zone, also showing (red arrow) some of the lagoons where subsistence fishing occurs. (For interpretation of the references to color in this figure legend, the reader is referred to the web version of the article.)

upwelling and a relatively wide continental shelf of 23,800 km², has made Senegal one of the countries with the largest fisheries in West Africa, and consequently in the world (Goffinet, 1992; Ganapathiraju and Pitcher, 2006).

Senegal's history was marked by major shifts. Initially a part of the Empire of Ghana, the *Jolof* Empire, proper to Senegal, was established in the 13th century. Three centuries later, the transatlantic slave trade, initiated early in the 16th century, had grown so much in the area that around one-third of the population was captured and deported to the Americas by competing European powers, mostly the Netherlands, Portugal and Great Britain (Thornton, 1998). This lasted until the area was handed over to France, which, after 1677, used what is now called the Ile de Gorée as a staging point for its slave trade. After almost three centuries of occupation, France granted independence to the 'Mali Federation' comprised of Senegal and the 'French Sudan' (actual Mali). This contract lasted only a few months, and both Mali and Senegal proclaimed their independence, with Senegal choosing its first president in September 1960. This historical path, and the interest of the colonial power in natural resource exploitation, made Senegal one of the few countries for which scientific data on primary resources were available. For example basic data on Senegalese fisheries were available through the 'Institut Français (now 'Fondamental') de l'Afrique Noire' (IFAN) for the 1950s (e.g., Doumenge, 1962; Pelissier, 1966), in sharp contrast to, e.g., never-colonized Liberia. Moreover, strong ethnic diversity of coastal communities and fishers' migrations from different parts of West Africa over centuries, which also lead to increasing coastal ethnic diversity, contributed to Senegal's long fishing tradition (Goffinet, 1992). Senegal, in 1979, was also the first African country to sign a fishing agreement with the European Union (EU), which aimed to establish a domestic industrial fleet and develop its artisanal fleet. Today, a considerable segment

of the Senegalese artisanal fleet is capable of long-distance operations.

Fisheries gained a key role in Senegal in rebalancing the economy after the decline of groundnut and phosphate exports since the 1970s (Ganapathiraju and Pitcher, 2006). The sector now uses approximately 20,000 *pirogues*, i.e., large wooden canoes (Fontana and Weber, 1982) and 100 large-scale industrial fishing vessels, employs over 600,000 people (about one-fifth of the working population of Senegal) and provides over 75% of animal protein intake of the local population (York and Gossard, 2004). With 36 kg year⁻¹, Senegal has the second highest per capita fish consumption in Africa (York and Gossard, 2004).

The motorization of the small-scale artisanal sub-sector, the uncontrolled issuance of fishing licenses, expanding market and fishing subsidies at first contributed to raising fish catches and trade (Lenselink, 2002). However, these factors now combine to intensify the decline of Senegalese fisheries (Dahou et al., 2001). Over-expansion in fisheries capacity resulted in the over-exploitation of many fish stocks in Senegal and drove some high-value species, such as groupers to commercial extinction (Thiao et al., 2012). Indeed, all demersal stocks have declined drastically, while the small-pelagic species, which now contribute to the bulk of the fish consumption of the local population, are overexploited (Laurans et al., 2004).

Official data in Senegal refer to two main sub-sectors, one being the small-scale artisanal fisheries, relying overwhelmingly on *pirogues*. The other sub-sector is industrial and consists of large-scale vessels, i.e., domestic and foreign trawlers targeting demersal fish and especially shrimp (in both shallow and deeper waters), and vessels targeting large pelagic fishes such as tuna and small-pelagic fishes such as sardinella (Samba, 1994).

The official statistics submitted by Senegal to FAO suggest a mean annual catch of about 400,000 t year⁻¹ for the period

Download English Version:

<https://daneshyari.com/en/article/6385934>

Download Persian Version:

<https://daneshyari.com/article/6385934>

[Daneshyari.com](https://daneshyari.com)