

# Gambian Sole Bycatch Study Progress Report

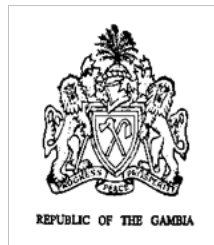
**DRAFT**

(Additional 6 months data to be added)



**Dec 2011**

**Gambia-Senegal Sustainable Fisheries Program  
(Ba Nafaa)**



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**Cover Photo:** Pictures of the sole fishery in The Gambia

**Photo Credit:** Christopher Parkins, URI Fisheries Center

## Acknowledgements

There is little doubt that involving stakeholders as partners in developing management plans will assist in the progress towards improved management of the fishery resources. Local fishermen contributed greatly to this study on bycatch and subsequent research. We wish to thank the fishermen of the Gambia who participated in this project. This information dramatically improved the data poor scenario and allowed very specific questions to be formulated and investigated.



## Introduction

Bycatch (or incidental catch) is commonly described as the unintended capture of species of fish. It will typically be retained for sale or use or discarded back to sea based on regulatory requirements or low value. By law, The Gambian fishermen are not permitted to discard, therefore all catch is landed regardless of its value, size or quantity.

Sole is mainly harvested by gillnet in the artisanal fishery. Three methods are generally used: circle, bottom stationary and drift. Usually considered to be one of the most selective gear types, the multispecies nature of the fishery complex in the Gambia increases the probability of impact on non-target species. Over the last few years, there has been a change in the gillnet characteristics and fishing methods as fishermen place more of an emphasis on catching high value demersal fish such as catfish, grunts and croakers leading to higher nets and a looser hanging ratio. The selectivity of the gillnet has decreased becoming more of an entanglement net.

During the pre-audit assessment conducted by the MSC for certification of the Gambian sole fishery (Medley et al., 2008), the lack of information on retained bycatch and ETP species was identified as a weakness for future management actions. Ninety-two potential non-target species had been identified by the MSC but insufficient data was available on these species to allow for a standardized assessments. The MSC developed a simple risk evaluation of bycatch in the sole fishery (Table 1) using attributes referring to productivity and susceptibility. Overall it was determined that a medium level of risk of causing serious or irreversible harm as a result of the sole fishery was present. However, more catch specific information would allow for a better understanding, especially if minimum sizes were to be used in management.

Additionally, it was highlighted that a co-management approach would produce a stronger plan for research and management activities. Therefore, a participatory bycatch assessment was developed with support from the BaNafaa project (USAID funded through WWF) in cooperation with the Department of Fisheries and stakeholders. The key issue is to document the bycatch with a particular concern for marine turtles and sharks and other vulnerable fish stocks.

## Materials and Methods

The bycatch surveys were carried out in the landings sites of Gunjur, Sanyang, Brufut and Kartong which collectively harvest over 50% of the artisanal fishery sole landings. At each site, a master fisherman was selected. A BaNafaa staff member accompanied the fishermen on the fishing trip and recorded bycatch (species and weight), fishing areas using GPM Map 60CSx Compass (with accuracy of <10m), and gear type. Fish were weighed using a 25 kg scale. Fish were all brought back to the beach where recordings were made just prior to sale of the fish. Encounters with ETP species were also recorded. A minimum of 3 trips/month were recorded (July =3; Aug =10; Sept =9; Oct =8; Nov =7; Dec=8; Jan =8). Fish were identified using the guide to the identification of saltwater Senegalese and Gambian Fish (Bellemans et al, 1988). Data on GIS coordinates were uploaded to ARCVIEW 10.1. Gear used by each fishermen was as standardized as possible however, mesh sizes and length of net varied by date and site.

### Results

Table 1. Number of species collected in gillnet survey

Month	Gunjur	Brufut	Kartong	Sanyang
July 2010	17	21	24	25
Aug	26	29	39	28
Sept	14	23	25	24
Oct	25	27	26	30
Nov	27	31	26	26
Dec	19	26	30	28
Jan 2011	20	22	30	33
Total Species	39	43	47	41

Table 2. Catch of *Cymbium* (mean weight in kgs) in bycatch survey nets by site

Species	Kartong	Sanyang	Brufut	Gunjur
<i>Cymbium cymbium</i>	(3.3)	(3.7)	7.2	7.8
<i>Cymbium pepo</i>	20.97	9.4	6.8	18.45
<i>Cymbium glans</i>	12.23	8.15	(1.46)	5.9

Table 3. Catch (mean weight in kgs) of primary species including sole

Name	Kartong	Sanyang	Brufut	Gunjur	Risk
<i>Arius latiscutatus</i>	39.4	27.7	14.8	30.9	high
<i>Pomadasys jubelini</i>	8.0	4.8	8.9	15.1	low
<i>Pseudotolithus typus</i>	4.9	5.7	8.1	15.6	med
<i>Scomberomorus tritor</i>	4.9	(0.03)	(0.55)	(0.2)	-
<i>Cynoglossus senegalensis</i>	4.9	12.6	8.6	8.3	target

Name	Kartong	Sanyang	Brufut	Gunjur	Risk
<i>Pseudolithus senegalensis</i>	(3.1)	13.5	8.7	3.1	med
<i>Pseudolithus brachynathus</i>	(1.7)	3.4	9.9	(0.09)	med
<i>Pseudolithus elongatus</i>	(1.2)	0	5.9	(1.2)	med
<i>Plectoryhnues mediterraneus</i>	(1.2)	(0.06)	5.4	(0.7)	low
<i>Synaptura cadenati</i>	(1.7)	(2.8)	4.8	6.0	target
Total weight of all catch (kg)	1703	2173	6034	2530	

### Bycatch Study Sites

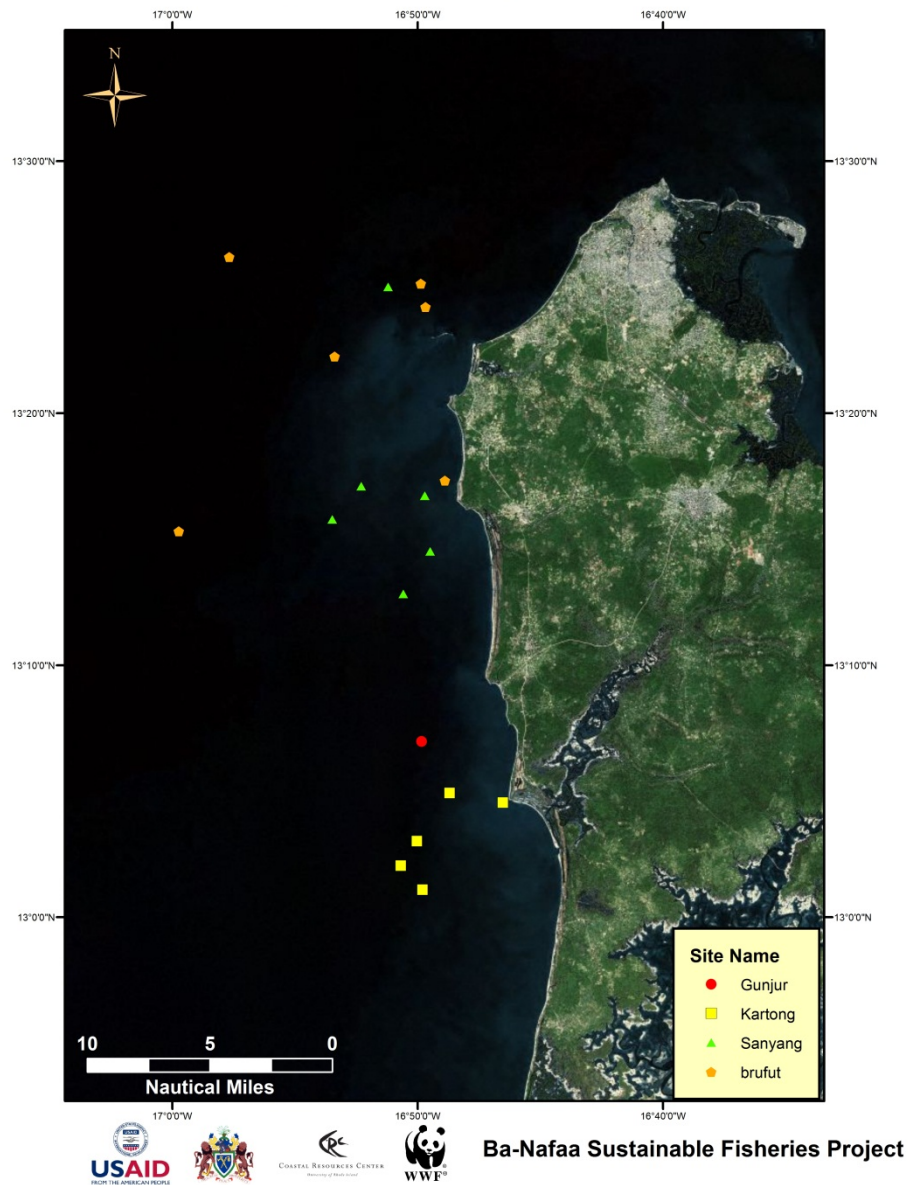


Figure 1. Fishing locations from the bycatch survey by vessel home port.

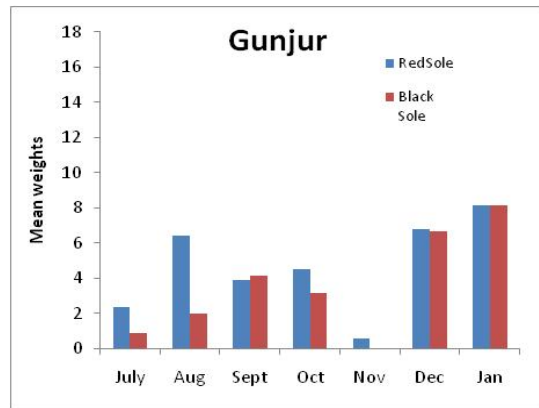
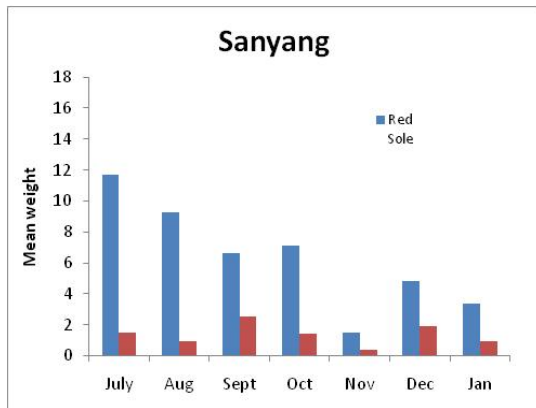
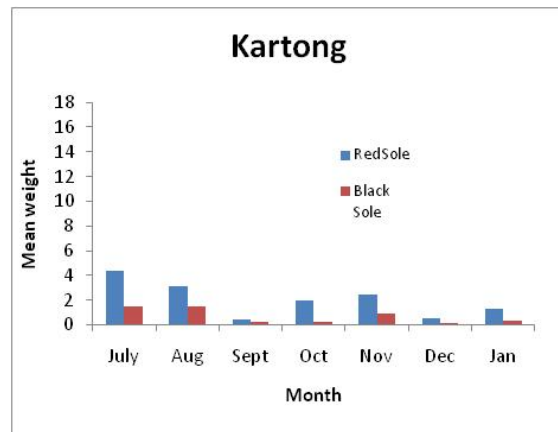
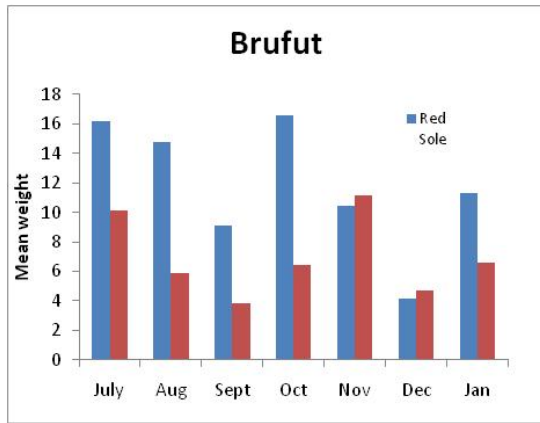


Figure 2. Mean weight of sole was calculated for each month for each site for relative trends (fishing effort is not standardized between sites).

## Discussion

Data collection has continued on this project through June 2011 for a complete year of sampling. This data is currently being updated and a final report will be forthcoming.

## References

- Bellemans, M., Sagna, A., Fischer, W. and N. Saalabba. 1988. Fiches FAO d'identification des species pour les besoins de la peche. Guide de Ressources Halieutiques du Senegal et de la Gambie. Rome, FAO, 227 pps.
- Medley, P., Carleton, C., Southall, T., Keus, B., Ndenn, J., and M. McFadden. 2008. The Gambia small scale artisanal fishery for sole (*Cynoglossus senegalensis* and *Synaptura cadenati*). MSC Sustainable Fisheries Certification. Food Certification International, Scotland. 66 pps.