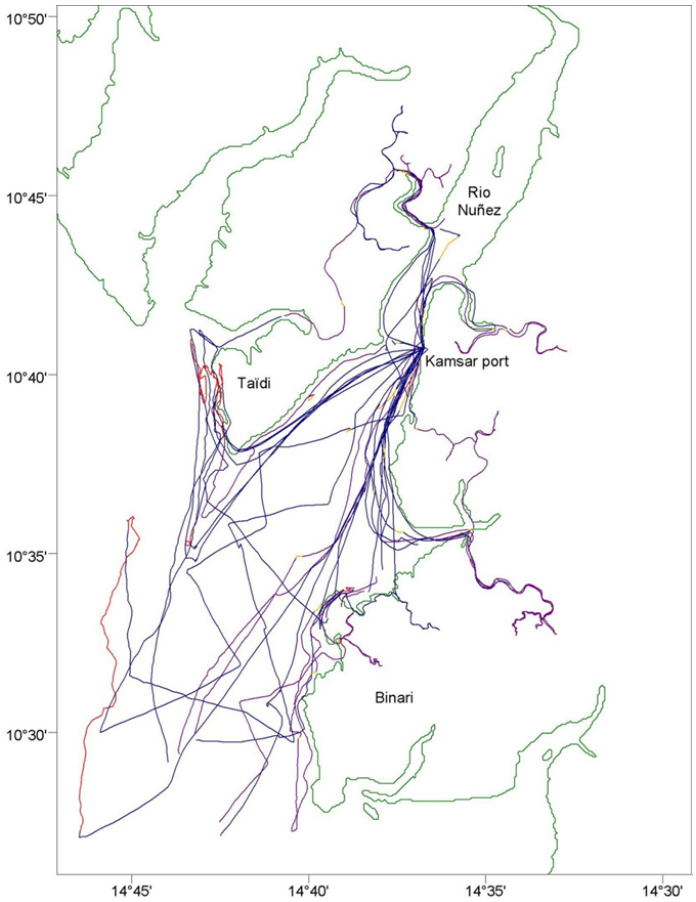
0.3.2.3 Marine mammals, turtles and crocodiles

Methodology

The inventories for this group were carried out between 24 October and 8 November, covering a linear total of 893.5 km. Visual survey was the major survey method, with a total of 829.8 km coverage. A total of 266.8 km of survey coverage was achieved with a side scanning sonar and led to 9 echoes of interest. Fifty-one local fishermen were interviewed.

Map 0-10 Tracking of surveys for marine mammals, turtles and crocodiles [1]



[1] Visual observation alone in blue, visual observation plus sonar in purple, questionnaires and follow up in orange.

Atlantic humpback dolphin (Sousa teuszii)

To date, there was only one prior verified record for this species in Guinea: a male captured by fishermen was unloaded at Dixinn on March 13 2002. During the field work the species was seen eight times in the Study Area. The largest group included approximately 25 individuals. From photographs taken of the dolphins and their interpretation, the local population is estimated to be at least 47 individuals. Analysis of the observations leads to the belief that there is a regular presence of the Atlantic humpback dolphin on the west coast of the Island of Taïdi.

The Atlantic humpback dolphin, a timid species, is one of the least known species of the Delphinidae.

Photo 0-1 Atlantic humpback dolphin with young

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West African manatee (Trichechus senegalensis)

The West African manatee is endemic to the west coast of Africa. The species is considered Vulnerable by the IUCN (2013) and in peril according to the *Monographie nationale sur la diversité biologique (*Bah *et al,* 1997.

It was observed once during the field survey between the Island of Binari and the Bank of Dapiar. The species is frequently mentioned as being present in the Study Area. Several interviewed fishermen (N=31) have reported sightings or capture of 13 individuals. In March 2014, a manatee was hit near the beginning of the dredged channel and captured and sold at the fishing port of Kamsar.

Photo 0-2 West African manatee

West African Nile crocodile

During the field survey there were eight visual sightings of crocodiles of which six were positively identified as West African Nile crocodiles. There were also four observations of tracks (not identified as to species) and two captive individuals seen (both West African Nile crocodiles). During interviews with fishermen (N=31), three crocodiles were reported as seen or captured in the "marigot de Taïdi".

Genetic studies of the Nile crocodile found two divergent lineages: (1) the traditional Nile crocodile (*Crocodylus niloticus*) occurring primarily in eastern and southern Africa with smaller populations in central Africa; and (2) a West African Nile crocodile (*C. suchus*) distributed in the Congo basin and throughout West Africa (including Guinea). Given evidence for declines due to anthropogenic pressures, it is likely that *Crocodylus suchus* qualifies for Vulnerable (or higher) IUCN status compared with *C. niloticus* which is listed as of only Least Concern.

Photo 0-3 West African Nile crocodile

Green turtle

A carapace of this species was found in a fishermen's camp at the mouth of a tidal channel in the northwestern part of the Island of Binari.

Hawksbill turtle

A small turtle of this species was seen during the field surveys southwest of the Island of Binari.

Olive Ridley

A carapace of this species was found on the Island of Taïgbé.

0.3.2.4 Marine fisheries

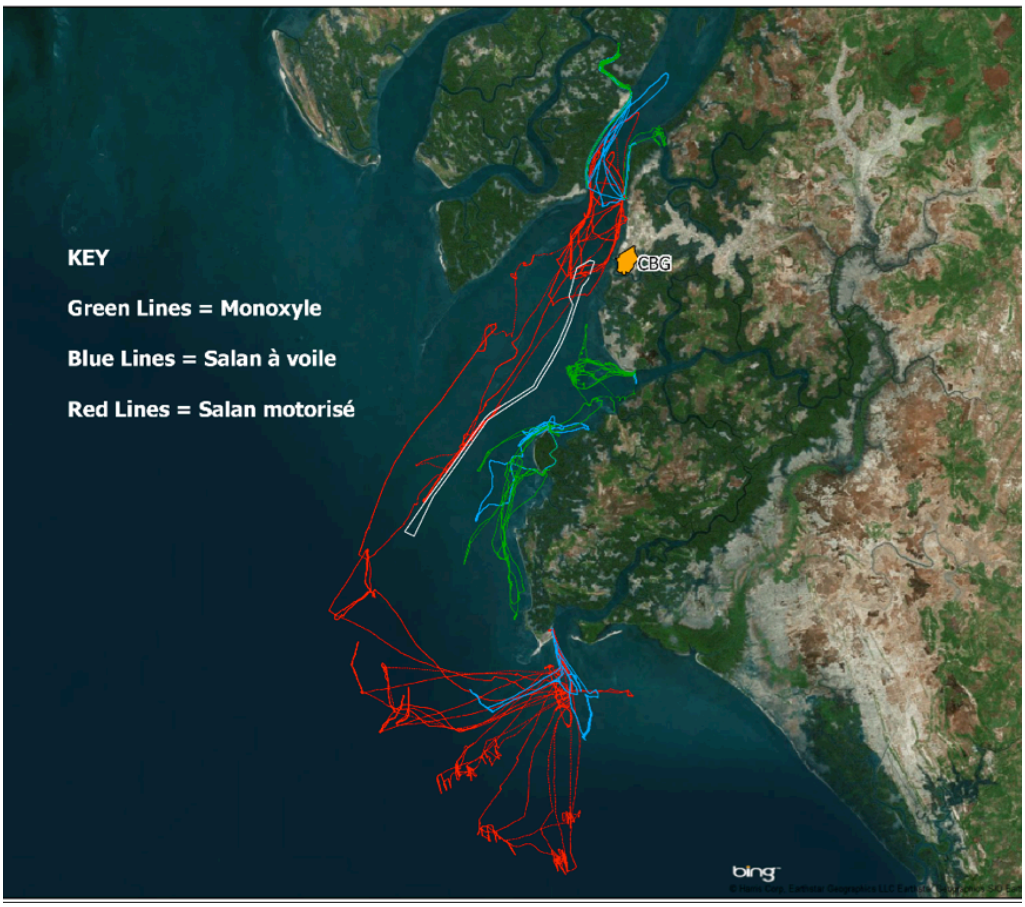
Methodology

The marine fisheries survey took place between November 17 and December 9 2013. It was concentrated on the front line fishing camps and ports (C/P) around the access channel to the port of Kamsar, a length of approximately 17 km. The survey was concentrated in this area because of the possibility at the time of a dredging program to deepen and widen the channel as part of the Project.

Map 0-11 Major fishing zones of the front line fishing camps/ports around the channel

From November 17 to 23, all of the artisanal fishing camps/ports in the area around the channel were visited to obtain basic information from the *chef de port* or the person responsible for the fishing community. Of these 18 C/P, eight were retained based on their size and their location so as to cover the fishing activities along the channel and upstream and downstream, for a subsequent study from November 25 to December 9. At these eight C/P, the fish caught were identified, weighted and measured and the fishing zones identified by the use of GPS. The species caught were identified in the field wherever possible.

Map 0-12 GPS tracks of 59 fishing trips out of 8 front line fishing camps and ports



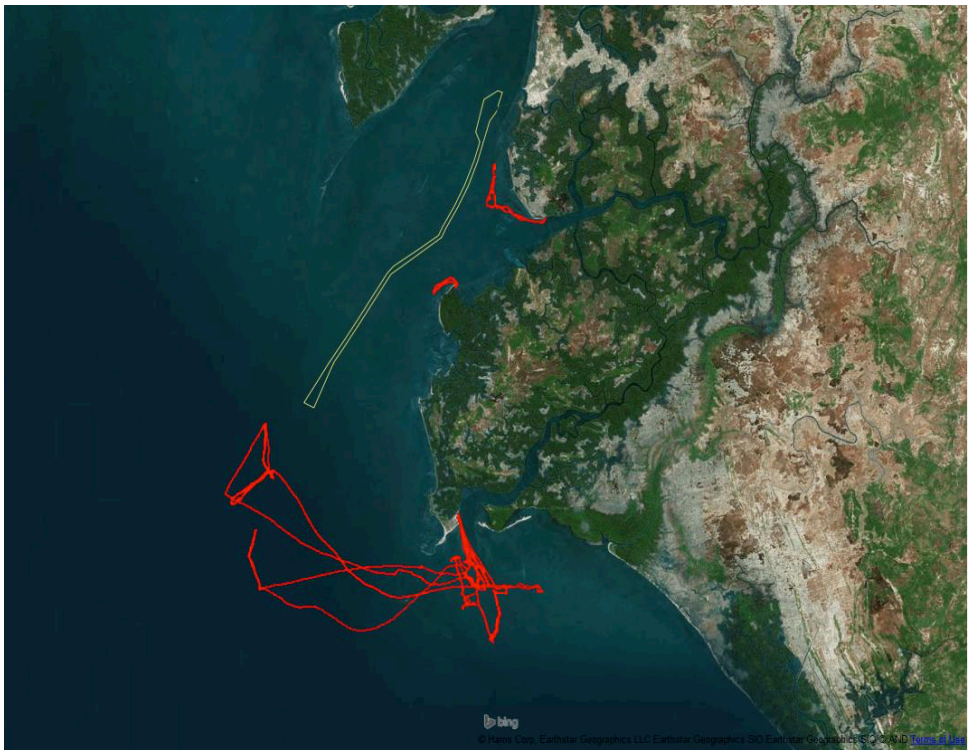
Results

Among the species of fish identified at the unloading of the catch at the eight C/P, two are classified as Endangered (EN) by the IUCN: the dusky grouper and the blackchin guitarfish. A third, the Lusitanian cownose ray as Near Threatened (NT). The blackchin guitarfish is of particular interest because it is Endangered and present near the mineral loading port at Kamsar.

Blackchin guitarfish (Rhinobatos cemiculus)

Amongst the captures on boats followed by GPS, eight individuals of this species were identified at Taïgbé, Dapiar 1 and Yongonsal. With an average weight of 3.88 kg, their length varied between 51 and 130 cm. The tracks of the boats followed by GPS (Map 0-13) give an indication of their place of capture.

Map 0-13 Tracks of boats that caught blackfin guitarfish



0.3.2.5 Freshwater ecology

Methodology

Freshwater ecology inventories of fish and macroinvertebrates were undertaken in the Sangarédi Study Area between November 17 and December 7 2013. In total, 38 sites were studied, split between the two watersheds of the area studies: that of the Cogon River (17 sites) and that of the Tinguilinita River (21 sites).

Measurements of pH and conductivity were made *in situ* using previously calibrated instruments. In addition the canopy and the composition of the substrate were assessed visually and expressed in percentage coverage of the site. Discharge velocity was estimated using a float. The depth was measured on a crossection perpendicular to the stream bed, at several relatively equidistant points, to arrive at an average depth. The stream flow was determined from the stream width, the average depth and the velocity.

Two fishing techniques were used to sample fish: passive fishing and active fishing. The passive fishing was done using nets and fish traps whereas the active fishing was done with dip nets and cast nets.

Macroinvertebrates were sampled using a special dip net following the SASS (South African Scoring System) method. This method requires sampling the different habitats present at the stations. The sampling method involves submerging and dragging the net for a certain distance or time according to the type of habitat. For crustaceans (crabs and shrimps), in addition to the specialized dip nets, fish traps and dip nets are used. The specimens collected are sorted *in situ* and preserved in 90% alcohol. Afterwards the specimens are analysed in a laboratory to identify them to the lowest possible taxonomic level.

Results

The inventories enabled the identification of 58 species of fish, including two considered as Endangered and two species considered Vulnerable according to the IUCN criteria, and three species endemic to Guinea. In total, 2,039 fish specimens were collected during the study.

The most common species is *Epiplatys barmoiensis* that was observed in 27 of the 38 sites visited, for an occurrence rate of 71.1%.

As for the freshwater marcoinvertebrates, 105 taxa at the generic and specific level were identified, dominated by insects. None of these taxa is of particular conservation interest.

Epiplatys njalaensis

According to the IUCN, this Endangered species is only present in Sierra Leone. However, according to Fishbase, it is also present in Guinea. It is thus a species of limited distribution. It is present in small streams and rivers under forest cover. In the Study Area it was captured in both of the watersheds (Cogon 3 sites, Tinguilinita 1 site). It should be noted that at sampling point Z3.1, 80 individuals were captured. This point is on the Kougnoubhè, a tributary to the Thiapikouré in the Cogon watershed.

Photo 0-4 *Epiplatys njalaensis*

Archiaphyosemion jeanpoli

This Endangered species has a range of 5,500 km^2 restricted to Guinea and Liberia. It is thus a species of limited distribution. It is present in small savannah streams. In the Study Area it was captured once at station Z2.1 in the Tinguilinta watershed.

Photo 0-5 *Archiaphyosemion jeanpoli*

0.3.2.6 Mammals

Methodology

Inventories in Boké prefecture, and more precisely in the Study Areas of Kamsar and Sangarédi, were undertaken between November 12 and December 9 2013. A little more than 72 km of linear reconnaissance surveys for mammals and 645 days of photographic traps were carried out.

Thirty-four Reconyx HC-600 Rapidfire camera traps were set up.. This type of camera, sensitive to movements in close proximity, can be left in place for weeks to take hundreds of photographs practically without disturbing the animals present.

They are as effective during the day as the night for the photographic capture of animal species.

Photo 0-6 A camera trap

Photo 0-7 African clawless otter caught in a camera trap

Results

A total of 25 species and three genera were identified during the study, including both species noted during the reconnaissance inventories and ones from the camera traps. The present study has allowed the identification of six new species for Boké prefecture, all through the use of the camera traps.