3.0 METHODOLOGY

3.1 The study area

3.1.1 Geographical location and General Description

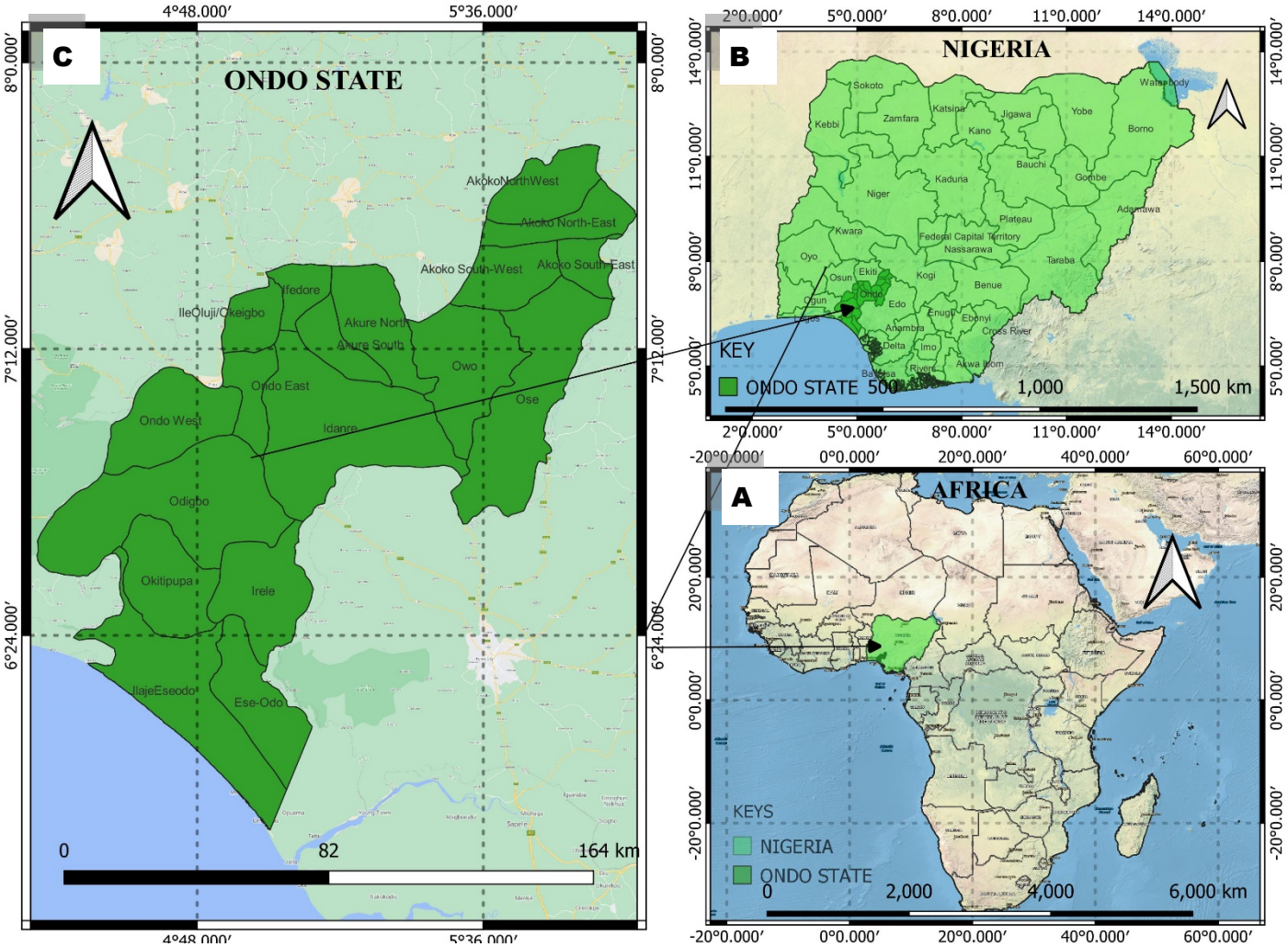
The study was carried out in the coastal areas of Ondo State located in the Southwestern region of Nigeria. It lies between Latitude 5^0 50' N - 6^0 09' N and Longitude 4^0 45' E - 5^0 05' E. Ondo State coastline is about 180 km (Mafolabomi *et al.,* 2009). The total area covered by the watershed is over 2000km^2. It comprises of four local government areas. Okitipupa local government is the most populated local government in this study area with population of 234,138 of land mass of 803 km^2. They are Ikales speaking people. Ilaje local government has an area of 1,318 km2 and is the largest local Government in Ondo State in terms of its landmass with a population figure of two hundred and seventy seven thousand and thirty four (277, 034). They belong to Ilaje ethnic group. Ese-Odo local government has an area of 762 km2 and a population of 154,978 and comprises of Ijaw and Apoi ethnic groups. While Irele Local Government is the least populated with population of 145,166 and has an area of 963 square kilometres. They are also Ikales speaking people (National Population Commission, 2006). Commercial activities in the area are carried out in speedboats and canoes used for transportation of goods and people while fishing and agriculture are the main activities of local residents.

(Kabir O Abass *et al.,* 2020).

3.1.2 Climate and Biodiversity

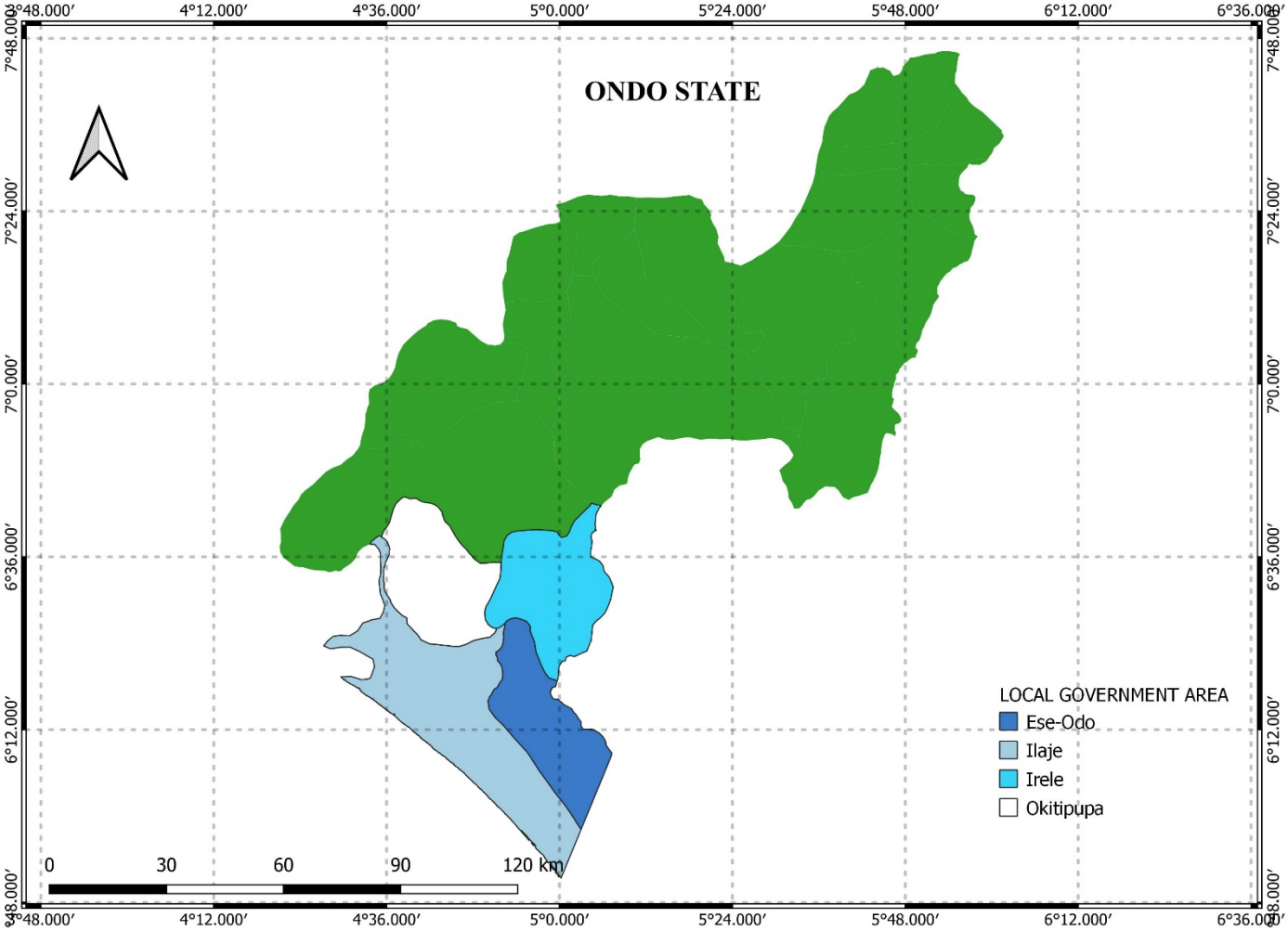
Generally, the riverine areas experiences a tropical climate consisting of both wet (April to October) and dry seasons. During the wet season, the average rainfall index is about 3000 mm while the mean temperature is 28^{o}C. The average rainfall index for the dry season is 800 mm with a mean temperature of 32^{o}C (Agunbiade *et al*, 2010). The area is drained by many perennial streams and rivers, that traverse several settlements of the coast, and empties into the open ocean through estuary with exchange of water between the coast and coastline (Agunbiade *et al*, 2010).

Mangrove swamp is the dominant vegetation type in this area, especially the red mangrove *Rhizophora racemose an*d the white mangrove *Avicennia spp* typical of swamps. A striking feature of vegetation in this area is the desiccation induced by marine water incursion into about 10,000 hectares of freshwater swamp forest (Olorunlana *et al*, 2013).



A: The location of Nigeria in Africa, B: The location of Ondo State in Nigeria, C: The Map of Ondo State.

Source: Field survey, 2021.



Map of Ondo Sate showing the location of the local government areas for the study.

Source: Field survey, 2021.

3.2 Method of Data Collection

Quantitative and qualitative research techniques were employed for this study. Data collection tools employed includes Questionnaire administration, Focus Group Discussions and Field observation.

Well-structured questionnaire was purposively administered to farmers, fishermen, boat/ canoe transporters and others that have work to do with the water bodies in the communities from each Local Government Area. For this study, a total of 100 respondents was selected across the four Local Government Areas based on willingness to participate. The questionnaire has five sections as follows: Section A: Demographic Profile of respondents, Section B: Distribution and pattern of occurrence of African Manatee and Spotted-necked otter, Section C: The threat factors associated with African Manatee and Spotted-necked otter in the area, Section D: Human-Manatee/Otter conflict in the study area, Section E: Awareness and attitude towards African Manatees and Spotted-necked otters conservation. A colour picture of the African manatee/otter was shown to each participant for confirmation and identification.

Focus Group Discussions were created among the fishermen and farmers communities located along the coastlines in each of the four Local Government Areas. Interviewees with more than 10 years of fishing/farming experience were selected. Subjects relating to the Ecology, Threats, Conflicts and Attitudes of humans towards Manatee/Otter Conservation were discussed. Well-detailed pictures of Manatee/otter were shown for easy identification while questions was asked in the simplest format using familiar terms and translation in local language was done (Aristide, 2011 and Odewumi *et al.,* 2016). A comprehensive list of all the communities along the coastline in the four Local Government Areas were collected. For this

research, Sixty percent of the communities were sampled. Aboto, Akata, Ipare, Laradha, Olopo and Lekki meta were selected from Ilaje. Agadagba, Arogbo, Enikorogha, Igbekebo and Igbotu were selected from Ese-odo; Akotogbo, Ode Iju-osun and Ode Iyansan were selected from Irele while Erinje, Araromi Ayeka and Oloto communities were selected from Okitipupa Local Government Area. A local interpreter was employed to translate the questions into Ijaw language during the discussion among the Ijaw communities in the study area.

Field Observation: Direct visit to the communities along the coastline in the four local government areas was done to ascertain the presence of the animals (Samson Dognimon *et al.,* 2019). Walking transect along the banks of the rivers and using speedboat/canoe on the water bodies was employed. This involve staying and walking along the river banks to observe Manatee/otter activities as well as possible threats and conflict by the species. I stayed and walk along the river banks from 5:00 am to 6:00 pm each day. The GPS coordinates of the distribution and occurrence pattern of Manatee/otter in the study area was taken and this was used to generate distribution map for the species.

3.2.1 Data Analysis

A descriptive analysis was used to analyze the questionnaire using SPSS Data editor. All results are illustrated using tables and chart, inferential statistics were analyzed using T-test. Data collected on the focus group discussions were analyzed qualitatively through thematic analysis.

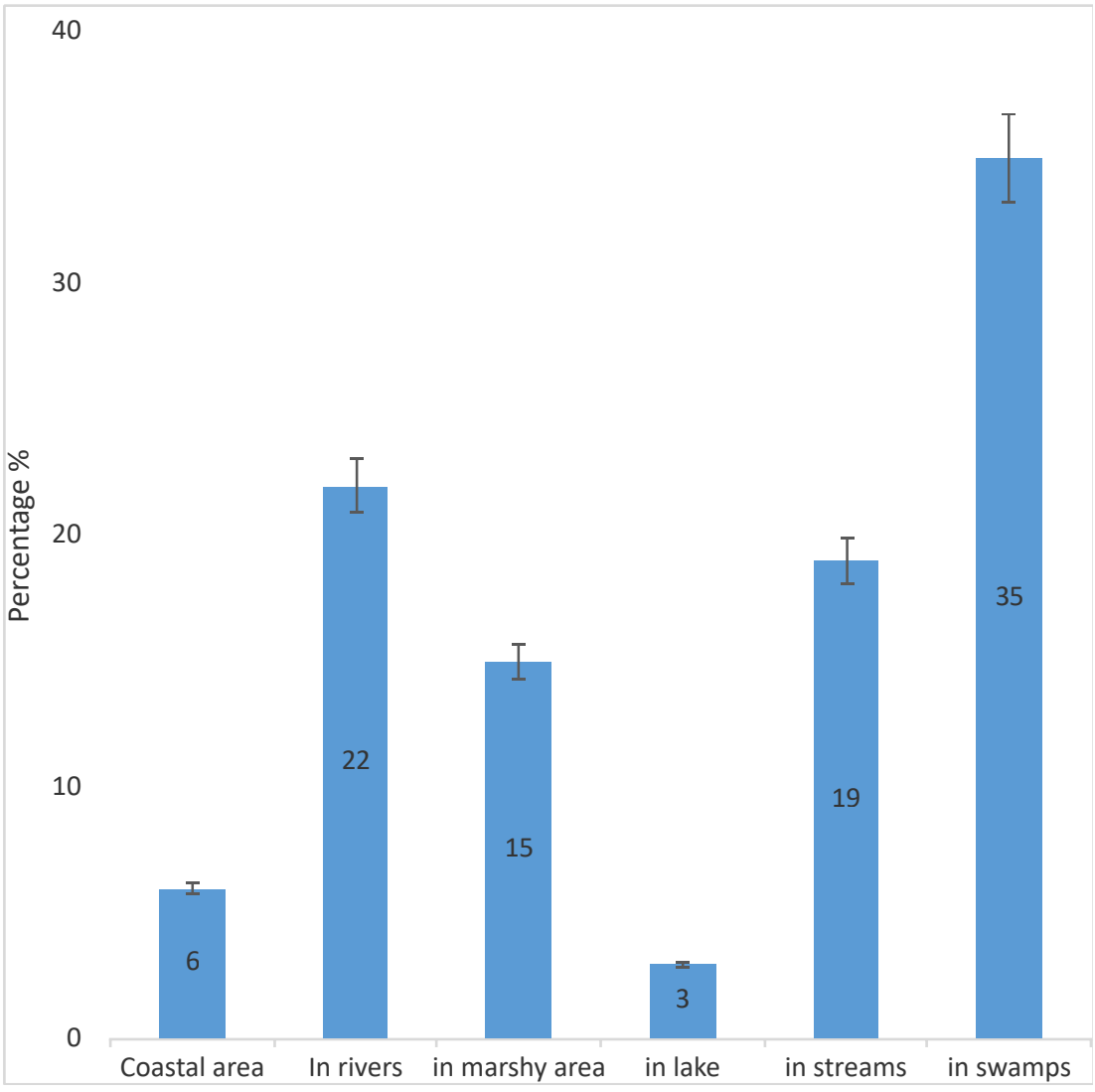
RESULT

6. Distribution and Patterns of Occurrence of Spotted-necked Otter in the Coastal Regions of Ondo State.

Table 6 reveals that 86 (86.0%) of the respondents normally see Spotted-necked otter in their areas while 16 (16.0%) of the respondents disagree. 49 (49.0%) of the respondents said they often see spotted-necked otter Once every week, followed by 39 (39.0%) of the respondents stated that they often see Spotted-necked Once every month while 7 (7.0%) of the respondents said they have seen otter More than 5 years. From the research, 51 (51.0%) of the respondents usually sight Spotted-necked otter most anytime, 22(22.0%) of the respondents usually sight manatee most at night, 15 (15.0%) of the respondent usually sight Spotted-necked Otter in the Afternoon while 12 (12.0%) of the respondents usually sight Spotted-necked Otter in the morning. In addition, almost all the respondents (65, 65.0%) stated that they usually sight Spotted-necked most during the rainy season this was followed by 30 (30.0%) of the respondents usually sight Spotted-necked Otter in both seasons while 5 (5.0%) of the respondents stated that they usually sight Spotted-necked otter in dry season.

Figure 3 present the habitat type where Spotted-necked Otters are seen most by the respondents.

Habitat type of



Spotted-necked otter in the Coastal area of Ondo State.

Source: Field survey, 2021.

4.0 Focus Group Discussions with Fishermen, Farmers and Boat/canoe transporters in the selected Communities.

Occurrence Pattern of Spotted-necked Otter

Ilaje Local Government Area

The presence of Spotted-necked Otter was observed in all the communities sampled for this research work. All the interviewees confirmed to have seen Spotted-necked directly in and around the rivers, in the swamp, streams, marshy area and indirectly through observation of net destroyed, leftover fishes, and spraint in forested areas, logs, near river banks. Otter is generally called “Lombo” among the Ilajes regardless of species. In Okoha Igbokoda, all the interviewees confirmed to have seen otter directly and through indices. In Akata, Spotted necked otter and African Clawless Otters’ presence were confirmed in the River Akata. An interviewee affirmed that Spotted-necked Otters keep increasing because it was difficult to kill as well as the population is much during the rainy season. Another interviewees said otter are usually seen in the morning. An Ijaw man who specialize in fishing reported that Spotted-necked otter swim in water, usually in pair. He confirmed to have seen Spotted-neck otter in the forest, logs that the spraints contain fish scales, bones. In Olopo, The presence of Spotted-necked Otter and African Clawless was confirmed to be present by all the people interviewed

during the Focus Group Discussions. They all confirmed that Otter occur anytime of the day and in both seasons that it usually inhabit marshy and swampy area around river Alape. They confirmed to have seen otter taking fish in nets set around the rivers and swampy area. One of the interviewees reported that otter also feed on crabs and snake apart from fish. At Ipare community, the result of the Focus Group Discussions held revealed that all the interviewee had had encountered with Spotted-necked otter with few of the interviewees confirmed to have seen African Clawless Otter as well. An interviewee confirmed that Otter could be seen anytime especially when the environment is cool and silent.

Ese odo Local Government Area

In Agadagba, the report of the interview affirmed that Spotted-necked Otter was well known by all the interviewees since many of them are into fishing occupation. It was called "Okosi" in Ijaw dialect. They confirmed to have seen it severally at any time of the day in both season inside river Agadagba as well as swampy area. They also comfirmed to have seen it spraints on logs, small stones around the swamp. In Enikorogha, the presence of Otter was confirmed and the population keep increasing due to it fecundity ability as reported by all the interviewees. In Igbekebo, most of the interviewees confirmed to have seen Otter directly and indirectly (Spraints) especially during the rainy season when the level of river Oluwa had increased and abundant of fish to prey on. In Igbotu, An interview confirmed to have seen otter at around 10:37 am on the 24th of May, 2021. In Arogbo, all the Interviewees confirmed that they usually see otter anytime.

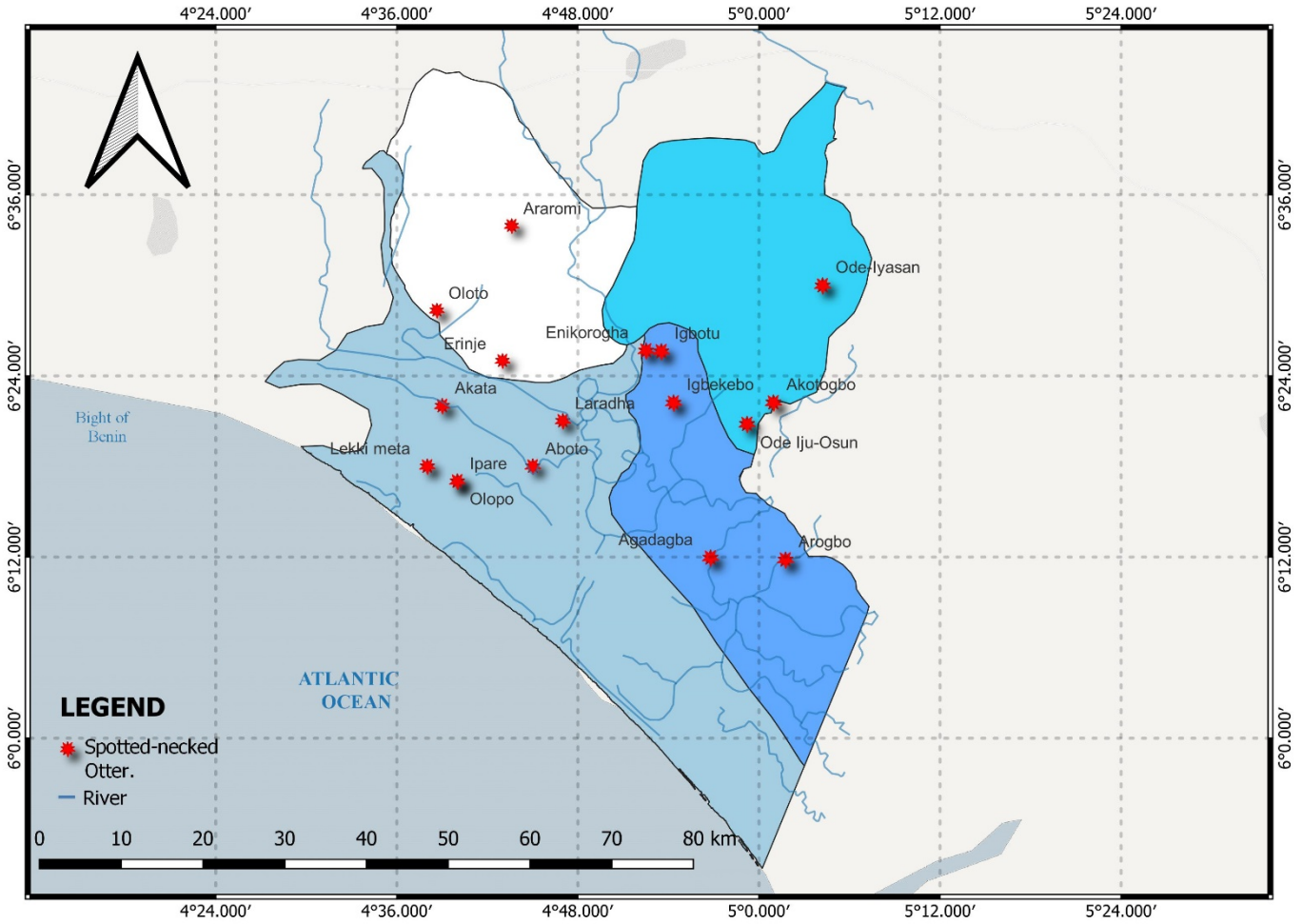
Irele Local Government Area

In Akotogbo, all the Interviewees confirmed the presence of Spotted-necked Otter and African Clawless Otter in the Akotogbo River anytime of the day and most especially during the rainy season. An interviewee confirmed that he saw Spotted-necked Otter recently while swimming in the river. They also confirmed to have seen Spotted-necked Otter Spraints on logs and in the forest close to the river. In Ode-Iju osun, I visited Aba-Ijaw community who are majorly into fishing activity, they confirmed that Otter was abundant in Iju-Osun. In Ode-Iyansan, the interview revealed that Otter was present in Iyansan River as well as African Clawless Otter. Most of the interviewees confirmed that Spotted-necked Otter usually stay in an environment that is cool and silent.

Okitipupa Local Government Area

In Araromi Ayeka, all the Interviewees confirmed the presence of both Spotted-necked Otter and African Clawless Otter in the river Oluwa. All the interviewees reported that Otter was difficult to kill. In Erin Orere Ara, the presence of Otter was also confirmed as reported by the interviewees. In Igbinsin Oloto, the outcome of the discussions revealed that all the interviewees had sighted Otter directly and also confirmed that the spraints contained fish scales and bones. Otter presence was also confirmed at Erinje as well as Otter's footprints

The table 17 presented the sign of indices of Spotted-necked Otter in the study area.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Erinje
Akata
Igbekebo
Akologbo
Laradha
Bight of Benin
Lekki meta
Aboto
Ode Iju-Osun
Ipare
Olopo
Agadagba
Arogbo
ATLANTIC OCEAN
LEGEND
Spotted-necked Otter.
River
0 10 20 30 40 50 60 70 80 km

The distribution map of Spotted-necked Otter in the study area

Source: Field survey, 2021.

Across section of the Focus Group Discussion at Ode-Iju Osun.

Observing the activity of Spotted-necked Otter in River Oluwa at Laradha, Igbokoda.

Source: Field Survey, 2021.

Head of Spotted-necked Otter preserved to be sold to traders from Benin Republic.

Skulls of Otter at Enikorogha

Source: Field survey, 2021.

On River Oluwa, Major river where Otter inhabit

Source: Field survey, 2021.