

# BAS-OGOOUÉ

## SPOTLIGHT

**“The Ogooué is home to several important ecosystems [...] risk of pollution from mineral industries and transport combined with changes to the flow regime are not negligible [...]”**

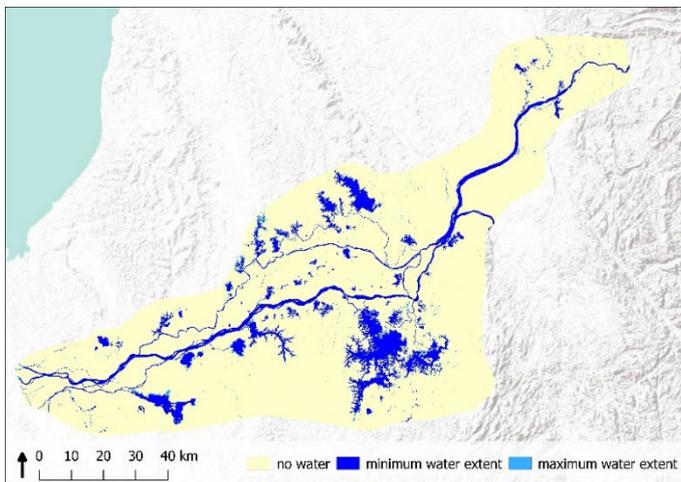
| Kittel et al., 2018 [6] |

## FAST FACTS

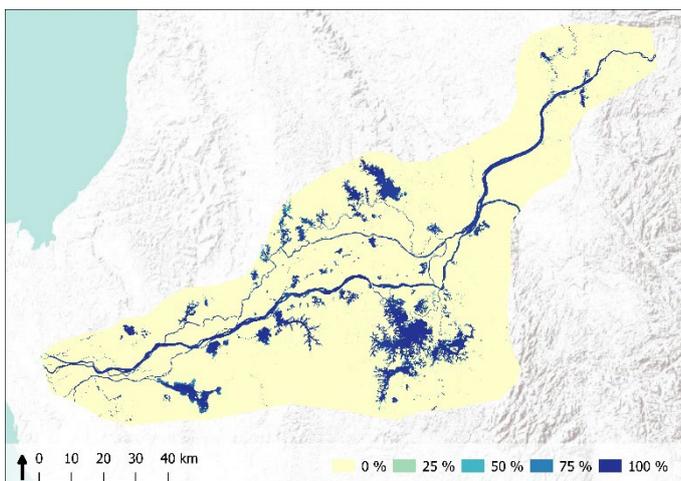
- The Ogooué River is a 1200 kilometres long river in West-Central Africa which watershed comprises nearly the entire country of Gabon. It drains into the Gulf of Guinea approximately 100 kilometres south of Libreville.
- The basin covers roughly 224,000 square kilometres, and the Ogooué River is the fourth largest river in Africa by volume of discharge.
- The river is navigable until Ndjole, a town at the northern end of the Area of Interest displayed in the top-left figure.
- The Bas-Ogooué is a vast alluvial plane, with dense forest, riparian marshes, savannah, lakes and river streams.
- The lower basin is home for many threatened species such as gorilla, chimpanzee, elephant, buffalo, mandrill, African manatee and hippopotamus. Also abundant water birds and fish populations are found here.
- No specific management plan is imposed to control the use of the natural resources by the local population, only local regulations aim to protect and maintain the ecosystem. A National Park and Biosphere Reserve are being developed. [1]
- Decreasing revenues in oil production in Gabon require the implementation of regulations aiming at protecting other natural resources.

## INUNDATION REGIME PRODUCTS

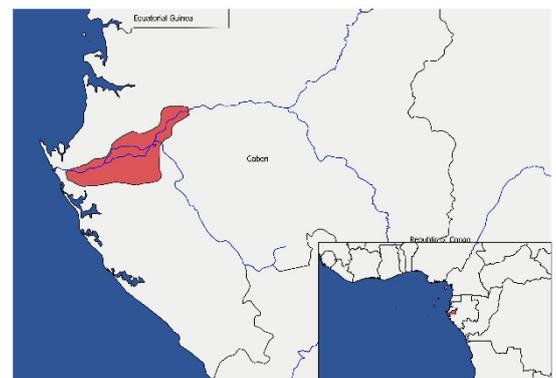
### Inundation Regime – Water Extent



### Inundation Regime – Water Frequencies

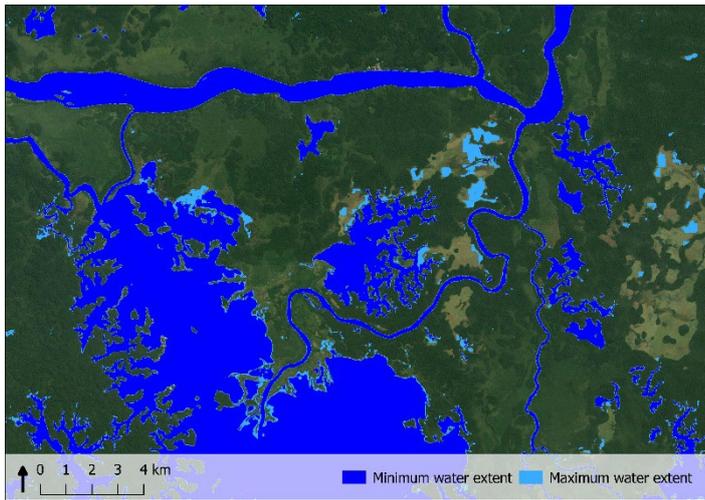


**Description:** The two maps show the Bas-Ogooué from the last 300 km to near the river mouth. Various river arms and lakes are along the main channel. These products have been derived from multiple optical and radar images to capture the intra- and inter-annual variability of the river.



Overview of the Bas-Ogooué Ramsar site, located in western Gabon.

## Detail of the Bas-Ogooué region



**Description:** The detail clearly shows that some water bodies dry out during the summer months and some lakes have changing water levels throughout the year.

## Image of the Bas Ogooué zone



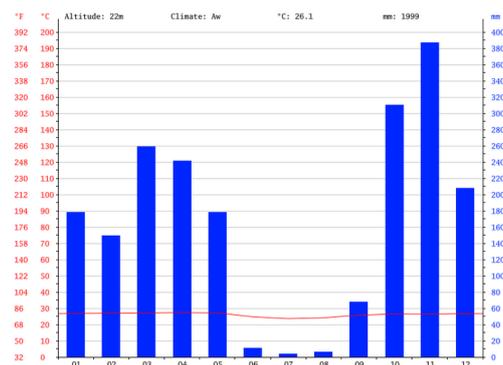
**Description:** This image of the Bas-Ogooué shows dense forest and a branched river system. [2] Many threatened species live in this ecosystem.

## Challenges

The rich fauna of the Bas-Ogooué is characterized by many endangered animals. The habitats of gorillas, chimpanzees, elephants and others are constantly diminished. The challenges for the Bas-Ogooué Ramsar site are uncontrolled logging, water pollution and unregulated fishing. First measures for a Sustainable Management of Critical Wetland Ecosystems have been implemented and support the diversification of economic activity, like the development of eco-responsible fishing practices, and aim to ease the pressure on ecosystems through new sources of incomes [3]. Additionally, threat analyses are conducted and anti-poaching strategies will be implemented [4]. Furthermore, the collective awareness of the importance of wetland ecosystems in good conditions should be strengthened.



RGB image of the Bas-Ogooué and the river estuary. The red point indicates the location of Lambaréné (see diagram below).



Climate diagram of Lambaréné, a town on the shore of the Ogooué River 160 km upstream the estuary. The predominant climate of the basin is "tropical savanna" resulting in high annual precipitation (~2000mm/m<sup>2</sup>), but with a pronounced dry spell throughout the summer months, which can cause severe droughts [5]. The product examples shown on the previous page nicely depict these intra-annual variations in the amount of monthly rainfall by varying water frequencies of some lakes as well as along the river bed.

## References

- [1] <https://rsis Ramsar.org/ris/1851>
- [2] <https://www.amazinggabon.com/en/the-moyen-ogooou-province/>
- [3] <https://www.worldbank.org/en/news/feature/2018/06/01/lambarene-accords-residents-a-central-role-in-the-protection-of-threatened-ecosystems>
- [4] [http://www.wwf-congobasin.org/where\\_we\\_work/gabon/lower\\_ogooou\\_programme](http://www.wwf-congobasin.org/where_we_work/gabon/lower_ogooou_programme)
- [5] <https://en.climate-data.org/africa/gabon/moyen-ogooou/lambarene-3988/>
- [6] Kittel, C. M., Nielsen, K., Tøttrup, C., & Bauer-Gottwein, P. (2018). Informing a hydrological model of the Ogooué with multi-mission remote sensing data. *Hydrology and Earth System Sciences*, 22(2), 1453-1472.

All satellite derived products shown here have been derived from Sentinel-1 CSAR (radar) and Sentinel-2 MSI (optical) imagery. The product development and processing has been performed within the ESA project GlobWetland-Africa.

Contact: [info@geoville.com](mailto:info@geoville.com)