Ramsar Information Sheet

Published on 28 May 2024
Update version, previously published on : 1 January 2005

Kenya

Lake Nakuru

Designation date	5 June 1990
Site number	476
Coordinates	00°23'26"S 36°05'47"E
Area	18 800,00 ha

Color codes

Fields back-shaded in light blue relate to data and information required only for RIS updates.

Note that some fields concerning aspects of Part 3, the Ecological Character Description of the RIS (tinted in purple), are not expected to be completed as part of a standard RIS, but are included for completeness so as to provide the requested consistency between the RIS and the format of a 'full' Ecological Character Description, as adopted in Resolution X.15 (2008). If a Contracting Party does have information available that is relevant to these fields (for example from a national format Ecological Character Description) it may, if it wishes to, include information in these additional fields.

1 - Summary

Summary

Lake Nakuru is a shallow, strongly alkaline lake, with surrounding woodland and grassland set in a picturesque landscape within the Lake Nakuru National Park that abuts Nakuru town. The lake is located in a closed basin of about 1800 km2 of which 3,300 ha forms the main lake water body. The lake's high alkalinity, conductivity and other physical - chemical parameters makes it uninhabitable to many aquatic species; however the few that have adapted to these harsh conditions have made the lake to have one of the highest producer biomass among Kenya's southern Rift Valley alkaline lakes. The foundation of the lake's simple food chains is the cyanophyte Arthrospira fusiformis, which often occurs as unialgal bloom. At such times, it can support huge numbers of Lesser Flamingo (Phoeniconaias minor). The introduction of fish species Oreochromis alcalicus grahami in 1960s has attracted a number of other secondary consumers including several piscivorous bird species. The lake's catchments has experienced expansion in agriculture and urban developments. There has been accidental introduction of nile tilapia Oreochromis nilotica. Increased numbers of fresh water fish eating bird species has been recorded. In the recent past, the lake has expanded in volume and height due high precipitation attributed to climate change, this has resulted in a drastic decline in flamingo numbers recorded.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency	Wildlife Research and Training Institute
Postal address	842-20117

National Ramsar Administrative Authority

Institution/agency	Kenya Wildlife Service
Postal address	P.O. Box 40241 – 00100 Nairobi, Kenya

2.1.2 - Period of collection of data and information used to compile the RIS

From year	2016
To year	2022

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish)	Lake Nakuru
Unofficial name (optional)	Lake Nakuru National Park

2.1.4 - Changes to the boundaries and area of the Site since its designation or earlier update

(Update) A. Changes to Site boundary	Yes ○ No ◉
(Update) B. Changes to Site area	No change to area
(Update) For secretariat only: This update is an extension	☐

2.1.5 - Changes to the ecological character of the Site

(Update) 6b i. Has the ecological character of the Ramsar Site (including applicable Criteria) changed since the previous RIS?	Yes (likely)
(Update) Are the changes	Positive ○ Negative ○ Positive & Negative ◉
(Update) Positive %	50
(Update) Negative %	50
(Update) No information available	☐

(Update) Optional text box to provide further information

Excessive flooding since 2010 affecting habitat suitability for waterbirds especially the lesser flamingos with sporadic to decline in sightings observed in the years.

(Update) Changes resulting from causes operating within the existing boundaries?	☐
(Update) Changes resulting from causes operating beyond the site's boundaries?	☑
(Update) Changes consequent upon site boundary reduction alone (e.g., the exclusion of some wetland types formerly included within the site)?	☐
(Update) Changes consequent upon site boundary increase alone (e.g., the inclusion of different wetland types in the site)?	☐

(Update) Please describe any changes to the ecological character of the Ramsar Site, including in the application of the Criteria, since the previous RIS for the site.

Excessive flooding affecting habitat suitability for waterbirds especialky flamingos. Sporadic tono sightings observed in the years. Critarion5.

(Update) Is the change in ecological character negative, human-induced AND a significant change (above the limit of acceptable change)	Yes ○

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
<3 file(s) uploaded>

Former maps: 0

Boundaries description

The site is located in the Eastern Rift Valley in Kenya. It follows the designated and gazetted boundary of Lake Nakuru National Park which was gazetted as a wildlife protected area in 1974. It is surrounded by Nakuru City and settlement to the North, Eastern and Western Boundaries. The southern Boundary is connected to Soysambu Conservancy.

2.2.2 - General location

a) In which large administrative region does the site lie? Nakuru County

b) What is the nearest town or population centre? Nakuru City

2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries? Yes ○ No ◉

b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party? Yes ○ No ◉

2.2.4 - Area of the Site

Official area, in hectares (ha): 18800

Area, in hectares (ha) as calculated from GIS boundaries: 19035.758

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
WWF Terrestrial Ecoregions	East African Halophytics

Other biogeographic regionalisation scheme

Specify the biogeographic regionalisation scheme and the biogeographic region please

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

<no data available>

☑ Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information: Lake Nakuru is globally renowned for hosting the largest population of Lesser Flamingos (Near threatened)—what has been described as “the world’s greatest ornithological spectacle”. With over 450 species of birds, 50 species of mammals and 300 species of plants, it is one of the highest biodiversity parks in the country. The lake and its littoral area support over 70 species of waterfowl and water-related birds. Each year the resident bird life of the park is enriched by the presence of several species of Palearctic waders that use the lake as a staging ground during their winter migration down the Rift Valley fly way (GoK and UNDP, 2021)

☑ Criterion 3 : Biological diversity

Justification: Lake Nakuru supports over 450 avian species and about 70 waterbird species, including 1 million flamingos. The lake also supports large densities of cynophytes Spirulina platensis, characteristic of the Rift Valley saline lakes. The spirulina in turn supports sodic fish Tilapia grahami (Oreochromis alcalicus grahami) introduced into the lake from Lake Magadi in the 1960s. Introduction of this fish has enriched waterbird diversity by supporting hundreds of fish eating water birds like Pelicans and Cormorants.

☑ Criterion 4 : Support during critical life cycle stage or in adverse conditions

Optional text box to provide further information: Lake Nakuru offers display and refuge site to the near threatened Lesser Flamingo (Phoeniconaias minor) and Greater Flamingo (Phoenicopterus ruber roseus). During water bird counts conducted in January 2021 a total of 19602 individual birds were counted falling in 77 species (Irene et.al 2021). Breeding attempts for Lesser Flamingo has also been reported from the Lake. The Lake is a pathway and staging site for several Palearctic migrants during migration seasons. The springs and their associated wetlands found at the Lake is a source of drinking water for birds and mammals during critical breeding stages.

☑ Criterion 5 : >20,000 waterbirds

Overall waterbird numbers: 25,551

Start year: 2021

End year: 2021

Source of data: The National Water Bird Census for Kenya Report, 2021 & 2023

Optional text box to provide further information: Over 77 species of birds have been identified at Lake Nakuru including during the early and mid - year water bird counts. The Lake supports over 20,000 water birds for different species of water birds. In the year 2021, 25,551 individual birds were counted while 19,299 individuals were counted in 2023. The number of birds has been fluctuating due to changes in water chemistry of the lake.

☑ Criterion 6 : >1% waterbird population

Optional text box to provide further information

Previously, in the five - year period of bird counts (1999 - 2003) Lake Nakurusupported over 1% of the East African Flamingo populations of Lesser Flamingo (Phoeniconaias minor) (average of 488,908 birds; 24.4%) and Greater Flamingos (Phoenicopterus ruber roseus) (average of 3,519 birds; 10.05%). Now with the increasing water levels, the large numbers of flamingos have since disappeared to other rift valley lakes.

3.2 - Plant species whose presence relates to the international importance of the site

<no data available>

3.3 - Animal species whose presence relates to the international importance of the site

Phylum	Scientific name	Species qualifies under criterion				Species contributes under criterion				Pop. Size	Period of pop. Est.	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
		2	4	6	9	3	5	7	8								
Others																	
CHORDATA / ACTINOPTERYGII	*Alcolapia grahami*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☐	☐		
CHORDATA / MAMMALIA	*Ceratotherium simum*	☑	☐	☐	☐	☑	☐	☐	☐				NT	☑	☐		
CHORDATA / MAMMALIA	*Diceros bicornis*	☑	☐	☐	☐	☐	☐	☐	☐				CR	☑	☐		
CHORDATA / MAMMALIA	*Giraffa camelopardalis*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☐	☐	Endangered	population decreasing
CHORDATA / MAMMALIA	*Hippopotamus amphibius*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐		
CHORDATA / MAMMALIA	*Panthera leo*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☑	☐		
CHORDATA / MAMMALIA	*Panthera pardus*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☑	☐	current status Near threatened	
Birds																	
CHORDATA / AVES	*Anhinga rufa*	☑	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐	regionally threatened	
CHORDATA / AVES	*Aquila clanga*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☐	☑	Endangered	A migrant species
CHORDATA / AVES	*Aquila heliaca*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☑	☑		A migrant
CHORDATA / AVES	*Ardea alba*	☑	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐	regionally threatened	
CHORDATA / AVES	*Ardeola idae*	☑	☐	☐	☐	☑	☐	☐	☐				EN	☐	☑		
CHORDATA / AVES	*Balearica regulorum*	☑	☐	☐	☐	☑	☐	☐	☐				EN	☐	☐		
CHORDATA / AVES	*Falco naumanni*	☑	☐	☐	☐	☑	☐	☐	☐				LC	☐	☑		
CHORDATA / AVES	*Phoeniconaias minor*	☑	☑	☑	☐	☑	☑	☐	☐	10437	2021	0.52	NT	☐	☐	CITES Appendix II	display and refuge site
CHORDATA / AVES	*Phoenicopterus roseus*	☑	☑	☑	☐	☑	☑	☐	☐	446	2021	0.46	LC	☐	☐	CITES Appendix II	display and refuge site
CHORDATA / AVES	*Podiceps cristatus*	☑	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐	regionally threatened	
CHORDATA / AVES	*Prionops poliolophus*	☑	☐	☐	☐	☑	☐	☐	☐				NT	☐	☐	regionally threatened	

1) Percentage of the total biogeographic population at the site

Lake Nakuru offers display and refuge site to the threatened Lesser Flamingo (Phoeniconaias minor) and Greater Flamingo (Phoenicopterus ruber roseus). During water bird counts conducted at the Lake since 1990s, a significant percentage of juvenile flamingos have been counted at the lake. Breeding attempts for Lesser Flamingo has also been reported from the Lake. The Lake is a pathway and staging site for several Palearctic migrants during migration seasons. The springs and their associated wetlands found at the Lake is a source of drinking water for birds and mammals during critical breeding stages.

3.4 - Ecological communities whose presence relates to the international importance of the site

Name of ecological community	Community qualifies under Criterion 2?	Description	Justification
Planktons	☑	Diatoms and other algae that bloom occasionally form substantial amount of total biomass	Food for the flamingo and fish
Algae	☑	The main primary producer of the open water zone is the blue - green algae Spirulina platensis that constitutes 95% of the algal population	The blue green algae is the primary food for the lesser flamingo
Diatoms	☑	Diatoms and other algae that bloom occasionally form substantial amount of total biomass	Contitute part of the lake's total biomass

Optional text box to provide further information

Diatoms and other algae that bloom occasionally form substantial amount of total biomass. The main primary producer of the open water zone is the blue - green algae Spirulina platensis that constitutes 95% of the algal population. Primary consumers vary from microscopic zooplanktons to the flamingo. The most important zooplankton is the copepod Lavenula africana though rotifers such as Brachinous dimidiatus and B. plicatilis occasionally become dominant. The lesser flamingo is the major primary consumer of Spirulina platensis while Oreochromis alcalicus grahami also grazes on it. Other important primary consumers include Hippopotamus Hippopotamus amphibius, which feed on the shoreline vegetation at night and import nutrient when they return to the open water zone.

4 - What is the Site like? (Ecological character description)

4.1 - Ecological character

Three major Rivers, the Njoro, Makalia and Nderit drain into the Lake, together with treated water from the town's sewage works and the outflows from several springs along the shore. Generally these flows cause nutrient cycling, which is of great benefit to the aquatic organisms. Diatoms and other algae that bloom occasionally form substantial amount of total biomass. The main primary producer of the open water zone is the blue - green algae Arthrospira fusiformis that constitutes 95% of the algal population. Primary consumers vary from microscopic zooplanktons to the flamingo. The most important zooplankton is the copepod Lavenula africana though rotifers such as Brachinous dimidiatus and B. plicatilis occasionally become dominant. The lesser flamingo is the major primary consumer of Arthrospira fusiformis while Oreochromis alcalicus grahami also grazes on it. Other important primary consumers include Hippopotamus Hippopotamus amphibius, which feed on the shoreline vegetation at night and import nutrient when they return to the open water zone.

The lake shores are mainly open alkaline mud with areas of sedge Cyperus laevigatus and Typha marsh around the River inflows and springs, giving way to grassland and a belt of Acacia xanthophloea woodland. The Eastern and Northern shores are characterized by a swamp of deep, soft mud kept moist by springs and seepage along the lakeside. Sedges and rushes grow here and provide shelter for a variety of animals and birds. The rushes are mostly confined to areas of relatively fresh water while the sedges tolerate more soda. Many waders especially the migrants sift through the mud for small insects. The Western and Southern shores are sandy, and are habitat for sand pipers and other water birds.

4.2 - What wetland type(s) are in the site?

Inland wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
Fresh water > Flowing water >> N: Seasonal/ intermittent/ irregular rivers/ streams/ creeks	Larmudiac river	4		
Saline, brackish or alkaline water > Lakes >> Q: Permanent saline/ brackish/ alkaline lakes	Lake Nakuru	1	5000	
Saline, brackish or alkaline water > Marshes & pools >> Sp: Permanent saline/ brackish/ alkaline marshes/ pools	Lake Nakuru marshes	3		
Fresh water > Lakes and pools >> Tp: Permanent freshwater marshes/ pools	Baharini springs	2		

Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type
8: Wastewater treatment areas	Nakuru sewarage treatment plant	3	

Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
Savannah grasslands	
Acacia xanthophloea woodlands	
Tarchonanthus camphoratus shrubland	
Euphorbia forest	

(ECD) Habitat connectivity: Lake Nakuru constitute one of the extensive Kenyan Rift Lakes System under the World Heritage Sites.

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/LILIOPSIDA	*Chloris gayana*	in open grassland
TRACHEOPHYTA/LILIOPSIDA	*Cynodon dactylon*	
TRACHEOPHYTA/LILIOPSIDA	*Cyperus laevigatus*	in open grassland
TRACHEOPHYTA/LILIOPSIDA	*Digitaria abyssinica*	in open grassland
TRACHEOPHYTA/MAGNOLIOPSIDA	*Euphorbia candelabrum*	
TRACHEOPHYTA/MAGNOLIOPSIDA	*Olea europaea cuspidata*	
TRACHEOPHYTA/MAGNOLIOPSIDA	*Pluchea bequaertii*	in open grassland
TRACHEOPHYTA/LILIOPSIDA	*Sporobolus spicatus*	in open grassland
TRACHEOPHYTA/MAGNOLIOPSIDA	*Tarchonanthus camphoratus*	in bushed woodlands
TRACHEOPHYTA/LILIOPSIDA	*Themeda triandra*	in open grassland
TRACHEOPHYTA/LILIOPSIDA	*Typha domingensis*	
TRACHEOPHYTA/MAGNOLIOPSIDA	*Vachellia xanthophloea*	
TRACHEOPHYTA/MAGNOLIOPSIDA	*Vepris simplicifolia*	

Invasive alien plant species

Phylum	Scientific name	Impacts	Changes at RIS update
TRACHEOPHYTA/MAGNOLIOPSIDA	*Achyranthes aspera*	Actual (minor impacts)	increase
TRACHEOPHYTA/MAGNOLIOPSIDA	*Datura stramonium*	Actual (minor impacts)	No change
TRACHEOPHYTA/MAGNOLIOPSIDA	*Lantana camara*	Actual (minor impacts)	increase
TRACHEOPHYTA/MAGNOLIOPSIDA	*Lantana trifolia*	Actual (minor impacts)	increase
TRACHEOPHYTA/MAGNOLIOPSIDA	*Lippia javanica*	Actual (minor impacts)	increase
TRACHEOPHYTA/MAGNOLIOPSIDA	*Ocimum gratissimum*	Actual (minor impacts)	increase
TRACHEOPHYTA/MAGNOLIOPSIDA	*Ocimum gratissimum gratissimum*	Actual (minor impacts)	No change
TRACHEOPHYTA/MAGNOLIOPSIDA	*Sida schimperiana*	Actual (minor impacts)	increase
TRACHEOPHYTA/MAGNOLIOPSIDA	*Solanum incanum*	Actual (minor impacts)	increase
TRACHEOPHYTA/MAGNOLIOPSIDA	*Solanum villosum*	Actual (minor impacts)	No change
TRACHEOPHYTA/MAGNOLIOPSIDA	*Urtica massaica*	Actual (minor impacts)	increase

Optional text box to provide further information

Intensive habitat management strategies to reduce/manage the invasive species are being undertaken in the park. Such strategies include the mapping of invasive species distribution and manual removal of invasive species in specified management blocks. Nevertheless more funds needed to sustainably manage the invasive species throughout the year with little to no breaks between management sessions as is the case now.

4.3.2 - Animal species

Other noteworthy animal species

Phylum	Scientific name	Pop. size	Period of pop. est.	%occurrence	Position in range /endemism/other
CHORDATA/AVES	*Circus macrourus*				Near threatened
CHORDATA/AVES	*Coracias garrulus*				Near threatened
CHORDATA/AVES	*Falco concolor*				Near threatened
CHORDATA/AVES	*Gallinago media*				Near threatened
CHORDATA/AVES	*Gyps africanus*				Endangered
CHORDATA/AVES	*Gyps rueppellii*				Endangered
CHORDATA/AVES	*Limosa limosa*				Near threatened
CHORDATA/AVES	*Oxyura maccoa*				Near threatened
CHORDATA/AVES	*Stephanoaetus coronatus*				Near threatened
CHORDATA/AVES	*Terathopius ecaudatus*				Near threatened
CHORDATA/AVES	*Torgos tracheliotus*				Vulnerable
CHORDATA/AVES	*Trigonoceps occipitalis*				Vulnerable
CHORDATA/AVES	*Turdus abyssinicus*				Vulnerable

Invasive alien animal species

Phylum	Scientific name	Impacts	Changes at RIS update
CHORDATA/ACTINOPTERYGII	*Oreochromis niloticus*	Actual (minor impacts)	No change
CHORDATA/ACTINOPTERYGII	*Oreochromis variabilis*	Actual (minor impacts)	No change

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Aw: Tropical savanna (Winter dry season)

Due to changes in climate, Lake Nakuru rose from 40.4 km2 to 68.18 km2, a difference of 28.14 km2 or 70.28%. The rising levels of the lake coincide with the increase in rainfall in the catchment areas, with sharp increases in the surface area observed in 2014 and 2020. (GoK and UNDP 2021).
The rising water levels have also affected livelihoods through loss of grazing and farm and crop land. Reports of attacks by wild animals like snakes have also been made. Additionally, it was observed that the affected communities are at high risk of contracting waterborne diseases due to the submersion of public utilities like sewage treatment plants and other sanitation units.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 1756

a) Maximum elevation above sea level (in metres): 2059

- Entire river basin ☐
- Upper part of river basin ☐
- Middle part of river basin ☐
- Lower part of river basin ☑
- More than one river basin ☐
- Not in river basin ☐
- Coastal ☐

Please name the river basin or basins. If the site lies in a sub-basin, please also name the larger river basin. For a coastal/marine site, please name the sea or ocean.

Lake Nakuru Catchment

4.4.3 - Soil

- Mineral ☑

(Update) Changes at RIS update: No change ◉ Increase ○ Decrease ○ Unknown ○

Organic ☑

(Update) Changes at RIS update: No change ◉ Increase ○ Decrease ○ Unknown ○

No available information ☐

Are soil types subject to change as a result of changing hydrological conditions (e.g., increased salinity or acidification)? Yes ○ No ◉

Please provide further information on the soil (optional)

The area surrounding Lake Nakuru catchment belongs to Tertiary - Quaternary volcanic materials associated with alkaline sediments. The main geological features found around this wetland include:
(i) The Rift Valley bottom or lowland, in which the Lake Nakuru lies,
(ii) The escarpments including the foot - slopes and cliffs on the western side of the lake, Mau and Eburru
(iii) The uplifted lion hill range on the eastern side and other hills,
(iv) Menengai crater on the northern side of the lake and
(v) Fault lines that run in a North - South direction.

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually seasonal, ephemeral or intermittent water present	
Usually permanent water present	increase

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from surface water	☐	increase
Water inputs from groundwater	☐	increase
Water inputs from precipitation	☐	increase

Water destination

Presence?	Changes at RIS update
Feeds groundwater	increase
Unknown	No change

Stability of water regime

Presence?	Changes at RIS update
Water levels largely stable	increase
Water levels fluctuating (including tidal)	No change

Please add any comments on the water regime and its determinants (if relevant). Use this box to explain sites with complex hydrology:

The lake is a closed basin experiencing rising Lake levels from 4.5 to 10 meters in the past 12 years (2010-2022)

(ECD) Connectivity of surface waters and of groundwater: There is no connectivity. The lake is saline yet the groundwater is fresh. If there was connectivity this would not have been the case.

(ECD) Stratification and mixing regime: The lake is stratified and there is mixing in the afternoons due to the winds

4.4.5 - Sediment regime

Sediment regime is highly variable, either seasonally or inter-annually ☑

(Update) Changes at RIS update: No change ◉ Increase ○ Decrease ○ Unknown ○

Sediment regime unknown ☐

Please provide further information on sediment (optional):

The sedimentation is dependent on the rainfall regime in the catchment as well as the human activities

(ECD) Water turbidity and colour: 27.9 and Brown colour

(ECD) Water temperature: 24oC

4.4.6 - Water pH

Alkaline (pH>7.4) ☑

(Update) Changes at RIS update: No change ◉ Increase ○ Decrease ○ Unknown ○

Unknown ☐

Please provide further information on pH (optional):

9.4 declined from 10.5 due to increasing discharge evidenced by rising lake levels and increased lake area

4.4.7 - Water salinity

Euhaline/Eusaline (30-40 g/l) ☑

(Update) Changes at RIS update: No change ◉ Increase ○ Decrease ○ Unknown ○

Unknown ☐

Please provide further information on salinity (optional):

3.1 (ppt)

(ECD) Dissolved gases in water

7,1 mg/l

4.4.8 - Dissolved or suspended nutrients in water

Eutrophic ☑

(Update) Changes at RIS update: No change ◉ Increase ○ Decrease ○ Unknown ○

Unknown ☐

Please provide further information on dissolved or suspended nutrients (optional):

High nutrients levels of nitrates, phosphates and ammonia were recorded with nitrates scoring highest levels of between 3-4 mg/l

(ECD) Water conductivity: 5709.9 µs/cm

4.4.9 - Features of the surrounding area which may affect the Site

Please describe whether, and if so how, the landscape and ecological characteristics in the area surrounding the Ramsar Site differ from the site itself: i) broadly similar ○ ii) significantly different ◉

Surrounding area has greater urbanisation or development ☑

Surrounding area has higher human population density ☑

Surrounding area has more intensive agricultural use ☑

Surrounding area has significantly different land cover or habitat types ☑

Please describe other ways in which the surrounding area is different:

There is increasing urbanization, human population, settlements and land use changes driven by Nakuru City. The city is fast growing and has challenges of solid and liquid wastes which finds its way into Lake Nakuru

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Genetic materials	Ornamental species (live and dead)	Medium

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Erosion protection	Soil, sediment and nutrient retention	Medium
Pollution control and detoxification	Water purification/waste treatment or dilution	Medium
Climate regulation	Regulation of greenhouse gases, temperature, precipitation and other climactic processes	Medium
Hazard reduction	Flood control, flood storage	Medium

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Nature observation and nature-based tourism	High
Recreation and tourism	Picnics, outings, touring	High
Spiritual and inspirational	Cultural heritage (historical and archaeological)	Medium
Spiritual and inspirational	Aesthetic and sense of place values	Medium
Scientific and educational	Major scientific study site	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High
Scientific and educational	Educational activities and opportunities	High
Scientific and educational	Type location for a taxon	High
Scientific and educational	Long-term monitoring site	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	High

Other ecosystem service(s) not included above:

Carbon sequestration

Within the site: Residents approx. 20

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site? Yes ◉ No ○ Unknown ○

Where economic studies or assessments of economic valuation have been undertaken at the site, it would be helpful to provide information on where the results of such studies may be located (e.g. website links, citation of published literature):

(PDF) Environmental valuation in developing countries: The recreational value of wildlife viewing (researchgate.net)

4.5.2 - Social and cultural values

i) the site provides a model of wetland wise use, demonstrating the application of traditional knowledge and methods of management and use that maintain the ecological character of the wetland ☐

ii) the site has exceptional cultural traditions or records of former civilizations that have influenced the ecological character of the wetland ☐

iii) the ecological character of the wetland depends on its interaction with local communities or indigenous peoples ☐

iv) relevant non-material values such as sacred sites are present and their existence is strongly linked with the maintenance of the ecological character of the wetland ☐

<no data available>

4.6 - Ecological processes

<no data available>

5 - How is the Site managed? (Conservation and management)

5.1 - Land tenure and responsibilities (Managers)

5.1.1 - Land tenure/ownership

Public ownership

Category	Within the Ramsar Site	In the surrounding area
National/Federal government	☑	☑
Local authority, municipality, (sub)district, etc.	☐	☑

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	☐	☑

Provide further information on the land tenure / ownership regime (optional):

Public land held in trust by the National Government managed by the state agency responsible for wildlife management (Kenya Wildlife Service)

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: Kenya Wildlife Service, Nakuru

Provide the name and/or title of the person or people with responsibility for the wetland: Titus Mitau, Site manager, Lake Nakuru National Park

Postal address: P.O Box 535-20100 Nakuru

E-mail address: swlakenakuru@kws.go.ke

5.2 - Ecological character threats and responses (Management)

5.2.1 - Factors (actual or likely) adversely affecting the Site's ecological character

Human settlements (non agricultural)

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Housing and urban areas	High impact	High impact	☐	No change	☑	increase
Commercial and industrial areas	High impact	High impact	☐	No change	☑	increase
Tourism and recreation areas	Low impact	Medium impact	☑	increase	☑	increase
Unspecified development	High impact	High impact	☐	No change	☑	No change

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Drainage	High impact	High impact	☑	increase	☑	increase
Water abstraction	Medium impact	Medium impact	☐	No change	☑	increase

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Annual and perennial non-timber crops	High impact	High impact	☐	No change	☑	increase
Wood and pulp plantations	High impact	High impact	☐	No change	☑	increase
Livestock farming and ranching			☑		☑	

Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Mining and quarrying	High impact	High impact	☐	No change	☑	No change
Renewable energy	Low impact	Medium impact	☐	No change	☑	increase

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Roads and railroads	Low impact	High impact	☑	increase	☑	increase
Utility and service lines (e.g., pipelines)	Low impact	High impact	☑	No change	☑	increase

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Hunting and collecting terrestrial animals	Low impact	Medium impact	☐	No change	☑	increase
Gathering terrestrial plants			☐		☑	
Logging and wood harvesting			☐		☑	
Fishing and harvesting aquatic resources	Low impact	Low impact	☑	No change	☑	increase

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Recreational and tourism activities	Low impact	High impact	☑	No change	☑	increase

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Fire and fire suppression	High impact	High impact	☑	No change	☑	No change
Dams and water management/use	Low impact	Medium impact	☑	No change	☑	increase
Vegetation clearance/ land conversion	Medium impact	Medium impact	☐	No change	☑	increase
Unspecified/others			☑		☑	

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Invasive non-native/ alien species	High impact	High impact	☑	increase	☑	increase
Problematic native species	Low impact	Medium impact	☑	No change	☑	increase

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Household sewage, urban waste water	High impact	High impact	☑	increase	☑	increase
Industrial and military effluents	High impact	High impact	☑	increase	☑	increase
Agricultural and forestry effluents	High impact	High impact	☑	increase	☑	increase
Garbage and solid waste	High impact	High impact	☑	increase	☑	increase
Air-borne pollutants	High impact	High impact	☑	No change	☑	No change

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Habitat shifting and alteration	High impact	High impact	☑	decrease	☑	increase
Droughts	High impact	High impact	☑	No change	☑	No change
Storms and flooding	High impact	High impact	☑	increase	☑	increase

5.2.2 - Legal conservation status

Global legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Other global designation	Lake Nakuru Important Bird Area	https://www.datazone.birdlife.org/userfiles/files/IBAs/monitoringPDFs/2011-Kenya	whole
Other global designation	Lake Nakuru Ramsar Site	htttps://www.ramsar.org/wetland/ kenya	whole
World Heritage site	Kenya lake system in the Great Rift Valley	https://whc.unesco.org/en/list/1 060	whole
World Heritage site	Lake Nakuru National Park	www.whc.unesco.org/en/list/1060	whole

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Bird Sanctuary			whole
Forestry Conservation Areas			whole
National Park	Lake Nakuru National Park	www.kws.go.ke	whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Lake Nakuru National Park	www.birdlife.org	whole

5.2.3 - IUCN protected areas categories (2008)

Ia Strict Nature Reserve ☐

Ib Wilderness Area: protected area managed mainly for wilderness protection ☐

II National Park: protected area managed mainly for ecosystem protection and recreation ☑

III Natural Monument: protected area managed mainly for conservation of specific natural features ☐

IV Habitat/Species Management Area: protected area managed mainly for conservation through management intervention ☐

V Protected Landscape/Seascape: protected area managed mainly for landscape/seascape conservation and recreation ☐

VI Managed Resource Protected Area: protected area managed mainly for the sustainable use of natural ecosystems ☐

5.2.4 - Key conservation measures

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Improvement of water quality	Partially implemented
Habitat manipulation/enhancement	Partially implemented
Hydrology management/restoration	Partially implemented
Catchment management initiatives/controls	Partially implemented
Soil management	Partially implemented
Re-vegetation	Partially implemented

Species

Measures	Status
Threatened/rare species management programmes	Implemented
Control of invasive alien plants	Partially implemented
Reintroductions	Implemented

Human Activities

Measures	Status
Communication, education, and participation and awareness activities	Implemented
Research	Implemented
Management of water abstraction/takes	Partially implemented
Regulation/management of recreational activities	Implemented
Harvest controls/poaching enforcement	Implemented
Regulation/management of wastes	Partially implemented
Livestock management/exclusion (excluding fisheries)	Implemented

5.2.5 - Management planning

Is there a site-specific management plan for the site? Yes

Has a management effectiveness assessment been undertaken for the site? Yes ○ No ◉

If the site is a formal transboundary site as indicated in section Data and location > Site location, are there shared management planning processes with another Contracting Party? Yes ○ No ◉

Please indicate if a Ramsar centre, other educational or visitor facility, or an educational or visitor programme is associated with the site:

Research facilities:
(i) Research Station - Lake Nakuru National Park has a full fledged research station.
(ii) Water Quality Monitoring Laboratory - A modern laboratory is in place that can monitor potable water, effluents; sewage works efficiency, lake and river waters.
The Park has two education centers for school visits and tailor - made training.
Visitor facilities in the site: 2 Lodges with a total occupancy capacity of 240 beds, picnic sites, special and public campsites and view points.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Yes, there is a plan

5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water regime monitoring	Implemented
Water quality	Implemented
Plant community	Implemented
Animal community	Implemented
Animal species (please specify)	Implemented
Birds	Implemented

Rhino surveillance done on a 24 - hour basis. Sighting and data on habitat utilization, social characteristics and feeding patterns are recorded. Individual Animal location and movement patterns are mapped using GIS.

Meteorology: Meteorological variables currently being monitored are rainfall, temperature, relative humidity, evaporation, radiation and wind speed.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

1.Government of Kenya and UNDP (2021) Rising Water Levels in Kenya's Rift Valley Lakes, Turkwel Gorge Dam and Lake Victoria
2. Ireeene M. et.al (2020) January 2020 Waterbird Count Results in the RiftValley, Nairobi, Central, Eastern, and Coastal Kenya
3. Kiogora T. et.al (2020) Assessment of the fish species and water quality in lake nakuru: cotoxicological study of the potential role of heavy metals in the recent fish die-offs

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)
<1 file(s) uploaded>

ii. a detailed Ecological Character Description (ECD) (in a national format)
<no file available>

iii. a description of the site in a national or regional wetland inventory
<no file available>

iv. relevant Article 3.2 reports
<no file available>

v. site management plan
<no file available>

vi. other published literature
<2 file(s) uploaded>

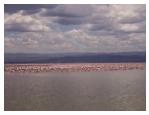
6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:

aerial view Lake nakuru showing submerged roads after lake water level rise (*Martha Mutiso, marthnzisa@gmail.com, 07-08-2013*)

Flamingos in Lake Nakuru in the background (*Martha Mutiso, marthnzisa@gmail.com, 09-10-2006*)

Aerial view of Lake Nakuru (*Martha Mutiso, marthnzisa@gmail.com, 09-10-2006*)



Flamingos in Lake Nakuru in the background (*Martha Mutiso, marthnzisa@gmail.com, 09-10-2006*)

6.1.4 - Designation letter and related data

Designation letter
<1 file(s) uploaded>

Date of Designation: 1990-06-05