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 Baringo is a freshwater lake situated in the eastern arm of Kenya's Great Rift Valley between latitude 0°30′ - 0°45′N and longitude 36°00′ - 36°10′ E at an altitude of 975 m asl and approximately 60 km north of the equator. It is one of the seven inland drainage lakes within the Rift Valley drainage basin. It is located 140 km north of Nakuru city and about 300 km north of Nairobi city, the capital of Kenya. The total area of the Ramsar site is 314.69 km2 (31, 469 ha) consisting of a water body of 166.62 km2 (16,662 ha) and riparian zone of 148.07 Km2 (14,807 ha). However, due to the recent flooding in the rift valley lakes, the water body expanded to an estimated area of 268.06 Km2 in 2020 (GOK & UNDP, 2021). Several seasonal rivers drain into the lake, including OI Arabel, Makutan, Tanguibei, Endao and Chemeron, Pekerra and Molo are perennial rivers, although with significantly reduced water discharges during dry seasons. As a freshwater body, its important to the communities in its basin as a source of water, for domestic use and livestock consumption. Other important uses are income generation through tourism, biodiversity conservation and fishing. The indigenious human communities earn their living mainly through pastrolism and agropastoralism. Ecologically, the lake constitutes a critical habitat and refuge for more than 500 avifaunal species. Some of the migratory waterbird species are of regional and global conservation significance. The lake is an invaluable habitat for seven fresh water fish species of which one (Oreochromis alcalicus baringoensis) is endemic to the lake. Local fisheries are particularly important towards sustainable socioeconomic development of the communities. In addition it is a habitat for many species of animals such as Hippopotamus (Hippopotamus amphibius), Crocodile (Crocodylus niloticus) and a wide range of mammals, amphibians, reptiles and the invertebrate communities. It has high natural and cultural attractions that contribute immensely towards ecotourism development i

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 (WRTI)

P.O. Box 842 - 20100, Naivasha, Kenya Postal address

National Ramsar Administrative Authority

Institution/agency Kenya Wildlife Service

P. O. Box 40241 - 00100, Nairobi, Kenya Postal address

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 Baringo
Spanisn)	
Unofficial name (optional)	NA

2.

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 O Negative O Positive & Negative O
^(Update) No information available
^(Update) Changes resulting from causes operating within the existing boundaries?
^(Update) Changes resulting from causes operating beyond the site's Journal States 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.
Heavy rains during the period 2009 to 2013 resulting to increased water volumes in the influent rivers resulting to lake flooding.
(^{Update)} Is the change in ecological character negative, human-induced AND a significant change (above the limit of acceptable change) Yes ●
^(Update) Has an Article 3.2 report been submitted to the Secretariat? Yes O
2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image

<2 file(s) uploaded>

Former maps 0

Data & location, S2 - Page 1

The lake lies within the Kenyan Rift Valley, occupying a depression formed by geological processes. To the west and south west, it is bordered by the Tugen Hills which rise steeply from the lake's edge, hence providing a scenic view. To the north west, it is delineated by the road. The South is surrounded by rich community lands who practice agriculture and pastoralism. The shoreline is rugged and curved along the water's edge. it encompasses rocky cliffs, beaches and on some occasions marsh. A very rich riparian region also surrounds the lake. The lake also has several Islands, notably OI Kokwe, Samatian and Giraltar.

2.2.2 - General location

a) In which large administrative region does the site lie?	Baringo County
b) What is the nearest town or population centre?	Kampi ya Samaki

2.2.3 - For wetlands on national boundaries only

Yes 🔾 No 🖲	a) Does the wetland extend onto the territory of one or more other countries?
Yes O No 🖲	b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party?

2.2.4 - Area of the Site

Area, in hectares (ha) as calculated from GIS boundaries 31096.429

2.2.5 - Biogeography

Biogeographic regions		
Regionalisation scheme(s)	Biogeographic region	
Freshwater Ecoregions of the World (FEOW)	South Eastern Rift	
WWF Terrestrial Ecoregions	East African Halophytics	
Marine Ecoregions of the World (MEOW)		
Freshwater Ecoregions of the World (FEOW)		

Other biogeographic regionalisation scheme

It is part of the Gregory Rift Valley

3 - Why is the Site important?

3.1 - Ramsar Criteria and their justification

Criterion 1: Representative, rare or unique natural or near-natural wetland types

Hydrological services provided	Lake Baringo is freshwater lake located in an arid zone unlike other Rift Valley Lakes which are mostly saline hence it is an important source of freshwater for domestic use, livestock, fisheries, biodiversity and agricultural production. The lake is fed by perennial rivers Molo and Perkerra and seasonal rivers Ol Arabel, Makutan, Endao, Tangulbei and Chemeron. Lake Baringo has no outlet but outflow is through groundwater seepage. The lake level fluctuates over the years depending on seasonality and other factors and it has risen significantly due to the recent floods. The rivers and the lake ecosystem provide many hydrological functions for example freshwater storage and ground water discharge and recharge, flood control and water purification.
	The lake's surrounding area is home to several irrigation schemes, including the Baringo-Suguta irrigation scheme, which supports the production of crops such as maize, beans, and vegetables. The lake's fishery is also an important source of livelihood for the local communities, with several fish species such as tilapia and catfish and being caught in the lake
	Lake Baringo is a significant ecosystem that provides a wide range of ecosystem services to the local communities and beyond. These services include: Water supply: Lake Baringo serves as a vital source of freshwater for domestic, agricultural, and industrial purposes. The lake's water is used for irrigation, and domestic use. Fisheries: The lake supports a diverse fishery, including tilapia, catfish and several other species. Fishing is an important economic activity for the local communities, providing them with a source of income and protein.
Other ecosystem services provided	Tourism and recreation: Lake Baringo's unique ecosystem, including several bird species and hippos, makes it an attractive destination for tourists. The lake provides recreational opportunities such as bird watching, boating, and camping, contributing to the local economy. Climate regulation: The lake helps regulate the local climate by providing a cooling effect on the surrounding areas, reducing the impacts of high temperatures. Cultural significance: The lake has significant cultural and spiritual value to the local Njemps, Pokot and
	Tugen communities, who consider it a sacred site. It is also an important site for cultural events and ceremonies. Biodiversity: Lake Baringo is home to several endemic and endangered species, including the giraffe and several fish species. The lake's ecosystem plays a crucial role in supporting biodiversity in the region.

☑ Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information African darter. Great egret. Saddle-billed stork. White backed duck. White beaded vulture. Martial eagle.		The lake is an important habitat for the endemic Oreochrimis niloticus baringoensis which is found only in Lake Baringo. The site also harbors the threatened Labeo cylindricus and Barbus intermedius.
	Optional text box to provide further	
African darter. Great egret. Saddle-billed stork. White backed duck. White headed vulture. Martial eagle.	information	Lake Baringo is home to a number of regionally threatened bird species including; Great crested grebe,
		African darter, Great egret, Saddle-billed stork, White backed duck, White headed vulture, Martial eagle,
Baillon's crake and African skimmer		Baillon's crake and African skimmer

Criterion 3 : Biological diversity

Lake Baringo is a critical habitat for more than 500 avifaunal species including species of regional and global conservation significance such as the Lesser Kestrel (Falco naumanni), Pallid Harrier (Circus macrourus) and Madagascar Pond-Heron (Ardeola idea). It harbors mammalian species such as the threatened Hippopotomous (Hippopotamus amphibious) and Rothschild's giraffe (Giraffa camelopardalis rothschildi) at Ruko Community Conservancy which borders the lake. The lake has a high diversity of amphibians, invertebrates and reptiles such as crocodiles (Crocodylus nilotica) and a range-restricted snake Coluber keniensis

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

	The Ol'Kokwe Island on the lake is an important breeding habitat for Goliath heron Ardea goliath) and the wetland is an important stopover and a wintering ground for palaearctic migrants.
End year	
Optional text box to provide further	XXXX
information	

Criterion 7 : Significant and representative fish

	Lake Baringo fishery comprise three commercially important species (Oreochromis niloticus, Clarias
	gariepinus and Protopterus aetiopicus) while Labeo barbus intermedius and Labeo cylindricus rarely
Justification	appears in fishermen's catches. P. aethiopicus was the most abundant fish landed in Lake Baringo in
	2021 constituting 47.7% followed by C. gariepinus 29.8%, L. intermedius 11% and O. niloticus 12%
	(Mugo et al 2022).

Criterion 8 : Fish spawning grounds, etc.

Justification	The fish catch trends for the indigenous Oreochromis niloticus baringoensis, which was the main commercial species since 1960s, has been on the decline over the years. Its decline has been attributed to overfishing, depletion of juvenile fish stocks through fishing in breeding grounds among other reasons. Recent studies done in Lake Baringo indicate that Oreochromis niloticus baringoensis, Labeo barbus intermedius and Labeo cylindricus in breeding areas were of higher abundance than in normal fishing grounds for commercial fishers. The breeding areas were also important as recruitment grounds. These areas therefore need to be protected for fisheries sustainability through monitoring control and surveillance (MCS) and use of right sizes of gear (Mugo et al 2022).
	Ruko Community Conservancy which borders the lake to the North is home to 14 threatened Rothschild giraffe/Nubian giraffe or formerly Baringo giraffe (Giraffa camelopardalis rothschildi) that is endemic to Baringo which were translocated from Soysambu Conservancy in 2011. The species is listed as Near Threatened by IUCN and there are about 700 individuals in Kenya

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

Phylum	Scientific name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
Plantae								
TRACHEOPHYTA/ MAGNOLIOPSIDA	Euryale ferox		×		LC			Used for making domestic bread(ugali)

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

Phylum	Scientific name	Sper qual uno crite 2 4	lifies der erion	cont ui crit	ecies tributes nder terion 7 8	Siz	% occurrence 1)	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
Others	1									1		
CHORDATA/ MAMMALIA	Hippopotamus amphibius							VU				
	and Crustacea											
CHORDATA/ ACTINOPTERYGI	II Clarias gariepinus				D		9.8	LC				https://doi.org/10.14321/aehm.025.04.53
CHORDATA/ ACTINOPTERYGI	Enteromius II lineomaculatus				DØC]	0.96	LC				
CHORDATA/ ACTINOPTERYGI	Labeo cylindricus						0.89	LC				https://doi.org/10.14321/aehm.025.04.53
CHORDATA/ ACTINOPTERYGI	Labeobarbus II altianalis							LC				https://doi.org/10.14321/aehm.025.04.53
CHORDATA/ ACTINOPTERYGI	Labeobarbus II johnstonii					1		LC				https://doi.org/10.14321/aehm.025.04.53
CHORDATA/ ACTINOPTERYGI	Oreochromis II niloticus				D		80.4	LC				https://doi.org/10.14321/aehm.025.04.53
CHORDATA/ SARCOPTERYGI	Protopterus aethiopicus					1	7.95	LC				
Birds	1 .		1 1							1		
CHORDATA/ AVES	Acrocephalus griseldis							EN		ø		
CHORDATA/ AVES	Anhinga rufa							LC				
CHORDATA/ AVES	Aquila heliaca							VU	V	V		
CHORDATA/ AVES	Ardea alba melanorhynchos											
CHORDATA/ AVES	Ardea goliath			ØC				LC				The Ol'Kokwe Island on the lake is an important breeding habitat for Goliath herons
CHORDATA/ AVES	Ardeola ralloides							LC				
CHORDATA/ AVES	Balearica pavonina							VU				
CHORDATA/ AVES	Circus macrourus							NT			Cited Apendix II	
CHORDATA/ AVES	Ephippiorhynchus senegalensis							LC				
CHORDATA/ AVES	Falco fasciinucha							VU				
CHORDATA/ AVES	Falco naumanni							LC		V		
CHORDATA/ AVES	Gyps rueppellii							EN				
CHORDATA/ AVES	Necrosyrtes monachus							EN				
CHORDATA/ AVES	Neophron percnopterus							EN		V		
CHORDATA/ AVES	Phoeniconaias minor							NT			CITES Appendix II	
CHORDATA/ AVES	Podiceps cristatus							LC				
CHORDATA/ AVES	Polemaetus bellicosus							EN				
CHORDATA/ AVES	Porzana pusilla											

Phylum	Scientific name	Species qualifies under criterion2469	Species contributes under criterion3578	Pop. Size	Period of pop. Est.	IUCN Red List	CITES Appendix I	CMS Appendix I	Other Status	Justification
CHORDATA/ AVES	Rynchops flavirostris					LC				
CHORDATA/ AVES	Terathopius ecaudatus					NT				
CHORDATA/ AVES	Thalassornis Ieuconotus					LC				
CHORDATA/ AVES	Torgos tracheliotus	Rooc				VU				
CHORDATA/ AVES	Trigonoceps occipitalis	ØOOC				CR		V		

1) Percentage of the total biogeographic population at the site

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
Fish Community	V		The lake is an important habitat for the endemic Oreochrimis niloticus baringoensis which is found only in Lake Baringo. The site also harbors the threatened Labeo cylindricus and Barbus intermedius.
Riparian Vegetation			Riparian vegetation is threatened through clearing by communities and by invasive alien species Prosopis
Hippo community			The lake hosts a large population of hippos
Bird community	Ø		Lake Baringo is home to a number of regionally threatened bird species including; Great crested grebe, African darter, Great egret, Saddle-billed stork, White backed duck, White headed wilture, Martial eagle, Baillon's crake and African skimmer

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

4.1 - Ecological character

The lake ecosystem supports a number of aquatic flora and fauna including phytoplanktons and zooplanktons, diverse fish community, avifauna and large mammals. The shoreline consists of riparian vegetation and marshes such as Typha domingensis and Cyperus papyrus although the shoreline vegetation is poorly developed around most parts of the lake. Other vegetion recorded in the wetland include Paspalidium geminatum, Aeschynomene pfundii, Nymphaea lotea, Azolla spp and submerged Ceratophyllum demersum. Invasive plants such as Water hyacinth Eichhornia crassipes and Pistia Stratiotes have been recorded in the site. The terrestrial part is dominated by Acacia tortilis, Acacia mellifora and Boscia spp although this is threatened by the invasive plant Prosopis Juliflora.

Lake Baringo constitutes a critical habitat and refuge for more than 500 avifaunal species including species of regional and global significance. The lake is an invaluable habitat for seven fresh water fish species including Aplocheliches sp., Barbus intermedius australis, Barbus lineomaculatus, Clarias gariepinus,Labeo cylindricus, Protopterus aethiopicus and Oreochromis niloticus baringoensis which is endemic to the lake (Britton et al. 2006). Four species, namely, Barbus intermedius australis, Clarius gariepinus, Oreochromis niloticus baringoensis, and Protopterus aethiopicus are economically exploited. The fishery of the lake was once dominated by the endemic Oreochromis niloticus baringoensis but is presently dominated by Protopterus aethiopicus. Fishery is particularly important towards socio-economic development of the local communities. In addition it is a habitat for threatened mammal species such as Hippopotamus (Hippopotamus amphibious), Rothschild giraffe (Giraffa camelopardalis rothschildi), Crocodile (Crocodylus niloticus), amphibian and invertebrate communities.

Lake Baringo has a surface area of about 160 km2, however due to the recent floods in Kenya's Rift Valley Lakes, it was one of the worst affected lakes with an estimated area of 108.57 km2 being submerged between 2010 and 2020. This led to the loss of riparian habitats which are important wildlife habitats and loss of tourism infrastructure thus affecting the tourism sector in the region. This further resulted in the displacement of wildlife and increase in Human Wildlife conflicts in the neighboring settlements. The rise in lake levels also submerged several settlements bordering the lake particularly in the southern and the western parts with approximately 3,087 households being affected (GOK &UNDP, 2021).

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

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 > Lakes and pools >> O: Permanent freshwater lakes	Lake Baringo	1	27000	Rare
Fresh water > Marshes on inorganic soils >> Tp: Permanent freshwater marshes/ pools	Lake Baringo	2		Unique

Human-made wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type
2: Ponds		4	
3: Irrigated land		2	
4: Seasonally flooded agricultural land		2	
9: Canals and drainage channels or ditches		3	

Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
There are seven islands within the lake namely Longicharo, Rongena, Samatian, Ol kokwa, Parmolok and the Devil's Island.	559

	Lake Baringo is connected to other smaller swamps within the riparian system upstream and recently
(ECD) Habitat connectivity	connected to other neighbouring wetlands for example Lake 94, Weiwei-mining and Bogoria due to the
	rise in Lake levels. Hippopotamus and Crocodiles have bee

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/MAGNOLIOPSIDA	Aeschynomene pfundii	
TRACHEOPHYTA/MAGNOLIOPSIDA	Boscia angustifolia	
TRACHEOPHYTA/LILIOPSIDA	Cyperus papyrus	endangered by poor land use practices.
TRACHEOPHYTA/LILIOPSIDA	Diplachne fusca	
TRACHEOPHYTA/MAGNOLIOPSIDA	Nymphaea lotus	
TRACHEOPHYTA/MAGNOLIOPSIDA	Senegalia mellifera	
TRACHEOPHYTA/LILIOPSIDA	Setaria geminata	
TRACHEOPHYTA/LILIOPSIDA	Typha domingensis	
TRACHEOPHYTA/MAGNOLIOPSIDA	Vachellia tortilis	

Invasive alien plant species

Phylum	Scientific name	Impacts	Changes at RIS update
TRACHEOPHYTA/LILIOPSIDA	Eichhornia crassipes	Actual (minor impacts)	increase
TRACHEOPHYTA/LILIOPSIDA	Pistia stratiotes	Potential	No change
TRACHEOPHYTA/MAGNOLIOPSIDA	Prosopis juliflora	Actual (major impacts)	increase

Optional text box to provide further information

The invasive Prosopis juliflora is widely distributed around LakeBaringo and has negatively affected the dominant native plant species such as the Acacia tortillis. The aquatic invasive plant water hyacinth has invaded the lake and its major tributaries in the recent years. The water hyacinth and Nile cabbage were probably introduced by fisher folk through their fishing gears.

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/REPTILIA	Crocodylus niloticus				
CHORDATA/MAMMALIA	Giraffa camelopardalis camelopardalis	14	2022		
CHORDATA/AVES	Oxyura maccoa				Near threatened

Optional text box to provide further information

Protopterus aethiopicus was introduced Lake Baringo in 1975 to boost the fishery but has ended up dominating the fishery of the lake which was previously dominated by the endemic Oreochromis niloticus baringoensis (Mlewa & Green 2006). The species largely survives in many East and Central Africa wetlands. The species was first witnessed in Lake Baringo landing beaches in 1984 and has since comprised the long line fishery of the lake, alongside the native catfish Clarius gariepinus. It is now the dominant species in the fish catches (Kobingi et al 2020).

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
B: Dry climate	BWh: Subtropical desert (Low-latitude desert)

The recent rise in lake levels in Rift Valley Lakes has affected the site resulting in the loss of riparian habitat, infrastructure damage and displacement of wildlife and several settlements bordering the lake. Lake Baringo was one of the worst affected lakes in the Rift Valley with an estimated area of 108.57 km2 being submerged between 2010 and 2020 (GOK &UNDP, 2021).

4.4.2 - Geomorphic setting

	a) Minimum elevation above sea level (in metres)
5	a) Maximum elevation above sea level (in metres)
Entire river basin	
er part of river basin 🔲	
e part of river basin 🛛	
er part of river basin 🗹	
han 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 Baringo has a catchment area of 6820 km2 including the Mau forest and the Tugen Hills. The main perennial rivers are Perkerra and Molo while the seasonal rivers include Endao, Chemeron, Ol Arabel, Mukutani and Tangulbei. Lake Baringo waters remain fresh despite the lack of surface outlet and high evaporation rates that characterizes the rift floor but some water is lost by underground seepage through the fractured lake floor (Onyando et al., 2005).

4.4.3 - Soil

Mineral 🗹

^(Update) Changes at RIS update No change ^(Update) Increase ^(Update) Decrease ^(Update) Unknown ^(Update)

No available information

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

Please provide further information on the soil (optional)

The soils in the basin are generally sandy, loam and volcanic ash.

4.4.4 - Water regime

Water permanence		
Presence?	Changes at RIS update	
Usually permanent water present		

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from precipitation		No change
Water inputs from surface water		No change
Water inputs from groundwater		No change

Water destination

Presence?	Changes at RIS update
Feeds groundwater	No change

Stability of water regime	
Presence?	Changes at RIS update
Water levels largely stable	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 water levels are largely stable however the lake level fluctuates over the years depending on seasonality and other factors such as siltation. In the recent years the water level has risen significantly due to the floods which affected the Rift Valley Lakes.

	Lake Baringo has no visible outlet but is believed to have an underground seepage at Loruk to the north and the water flows out as geysers and hot springs into Lake Turkana.
(ECD) Stratification and mixing regime	The mixing of surface and bottom water induced by the wave actions together with the clay soils of the catchment contributes to the lake's notable high turbidity, reported to affect the primary productivity of the lake.

4.4.5 - Sediment regime

Significant accretion or deposition of sediments occurs on the site 🗹

(Update) Changes at RIS update No change
 Increase O Decrease O Unknown O

Sediment regime unknown \Box

Please provide further information on sediment (optional):

The clearing of vegetation in the catchment and riparian areas has resulted in increased soil erosion and sediment transport to the lake leading to pollution, reduced water depth and increased incidences of flooding

(ECD) Water turbidity and colour	The water is turbid with turbidity of 9.89 NTU in 2016 and 86.9 in 2020 (KMFRI, 2020)
(ECD) Light - reaching wetland	The Lake's high turbidity limits light penetration into the water column resulting in low biomass production
(ECD) Water temperature	Water temperature mean is about 26°C

4.4.6 - Water pH

Alkaline (pH>7.4) 🗹

^(Update) Changes at RIS update No change ^(Update) Increase ^(Update) Decrease ^(Update) Unknown ^(Update)

Unknown

Please provide further information on pH (optional):

The pH range is between 8-9. The lake's pH is relatively high because of alkaline hostspring discharge from Kokwa island which is located in the lake.

4.4.7 - Water salinity

Fresh (<0.5 g/l) 🗹

(Update) Changes at RIS update No change Increase O Decrease O Unknown O

Unknown 🗖

Please provide further information on salinity (optional):

Salinity range from 0.15 ppt to 0.2ppt (Ochuka et al 2019)

(ECD) Dissolved gases in water

Mean dissolved oxygen of 5.81 mg/L was recorded in 2020

4.4.8 - Dissolved or suspended nutrients in water

Eutrophic 🗹

(Update) Changes at RIS update No change
Increase O Decrease O Unknown O

Unknown 🗖

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

According to a recent study, the lake recorded high nutrient loading leading to the deterioration of the water quality. The study recorded; TN (1.32-9.98 mg/L), nitrate (0.09 - 5.11 mg/L), TP (0.25 - 2.91 mg/L), OP (0.09 - 1.84 mg/L) (Ochuka et al 2019).

(ECD) Water conductivity Electrical conductivity of 378 to 445 µS/cm was recorded between 2016 and 2020 (KMFRI, 2020). During a field visit condu

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 i) broadly similar O ii) significantly different I area surrounding the Ramsar Site differ from the i) broadly similar O ii) significantly different I area surrounding the Ramsar Site differ from the i) broadly similar O ii) significantly different I area surrounding the Ramsar Site differ from the i) broadly similar O ii) significantly different is a site different of the integration of the in

Surrounding area has greater urbanisation or development

Surrounding area has higher human population density \Box

Surrounding area has more intensive agricultural use 🗹

Surrounding area has significantly different land cover or habitat types \Box

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

The surrounding area has intensive agriculture including the Perkerra irrigation scheme. There are upcoming urban centers such as Kampi ya Samaki, Loruk and Marigat with increasing human population. The site is also a key tourism destination with increasing number of hotels being developed within the site. In addition there is geothemal exploration in the surrounding area to the South of the lake (Paka and Loruk).

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services Importance/Extent/Significance Ecosystem service Examples Sustenance for humans Food for humans High (e.g., fish, molluscs, grains) Water for irrigated Fresh water Medium agriculture Drinking water for humans Fresh water High and/or livestock Wetland non-food products Fuel wood/fibre Medium Livestock fodder Medium Wetland non-food products Wetland non-food products Other Medium Genetic materials Medicinal products Medium

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	Medium
Erosion protection	Soil, sediment and nutrient retention	High
Hazard reduction	Flood control, flood storage	Low

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Recreational hunting and fishing	High
Spiritual and inspirational	Cultural heritage (historical and archaeological)	Medium
Spiritual and inspirational	Spiritual and religious values	Medium
Scientific and educational	Educational activities and opportunities	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	Medium
Scientific and educational	Major scientific study site	Medium

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	Medium

Optional text box to provide further information

Lake Baringo Ramsar site is an important ecosystem hosting a high diversity of flora and fauna including threatened species such as the Common Hippopotamus, Rothschild Giraffe and some threatened bird species thus is an important tourist destination. It supports a thriving fishery which is important to the local community. The lake is also an important source of drinking water for humans, livestock, irrigated agriculture and energy production (geothermal).

Other ecosystem service(s) not included above:

The Lake has some Islands such as Kokwa, Samatian and Longicharo with human settlements, hotels and schools hence the lake serves as a transport channel to these islands.

Within the site: 10000

Outside the site: 100000

Have studies or assessments been made of the economic valuation of ecosystem services provided by this Ramsar Site?

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 $\hfill\square$ civilizations that have influenced the ecological character of the wetland

iii) the ecological character of the wetland depends on its interaction

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

Category	Within the Ramsar Site	In the surrounding area
Local authority, municipality, (sub)district, etc.	×	
Private ownership		r
Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)		×
		Ø
private/individual owner(s)		V
	Within the Ramsar Site	In the surrounding area

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

The Lake is under the management of Baringo County Government while the surrounding area is communal land and some areas are under private ownership.

5.1.2 - Management authority

rights

Please list the local office / offices of any agency or organization responsible for managing the site:	Baringo County Government
Provide the name and/or title of the person or people with responsibility for the wetland:	The Governor of Baringo County
	P.O Box 53-30400, Kabarnet, Kenya.
E-mail address:	info@baringo.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	Low impact	High impact	V	No change	X	No change		
Tourism and recreation areas	Medium 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
Water abstraction	High impact	High impact	×	No change	×	No change
Salinisation	Low impact	High impact	×	No change	×	No change
Canalisation and river regulation	Low impact	High impact		No change	×	No change

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	Medium impact	High impact		No change	×	No change	
Livestock farming and ranching	High impact	High impact	×.	No change	×	No change	

Energy production and mining

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

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	×	No change	X	No change
Utility and service lines (e.g., pipelines)	High impact	High impact	×	No change	×	No change
Shipping lanes	High impact	High impact	×	No change	×	No change

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	High impact	V	No change	×	No change
Logging and wood harvesting	Medium impact	High impact	V	No change	V	No change
Fishing and harvesting aquatic resources	Low impact	High impact	V	No change		No change

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	V	No change	V	No change

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Dams and water management/use			×			
Vegetation clearance/ land conversion	Low impact	Low impact	×	No change		No change
Unspecified/others	Low impact	Low impact	s.	No change		No change

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			×			

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	×	No change	X	No change
Agricultural and forestry effluents	Low impact	High impact	×	No change	×	No change
Garbage and solid waste	Low impact	High impact	Ø	No change	×	No change

Geological events

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Earthquakes/tsunamis	Low 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	V	No change	X	No change
Droughts	High impact	High impact	×	No change	×	No change
Temperature extremes	High impact	High impact	×	No change	×	No change
Storms and flooding	High impact	High impact	×	No change	1	No change

Please describe any other threats (optional):

High water levels has been experienced in the recent years at Lake Baringo and the entire Kenya's Rift Valley Lakes due to flooding leading to loss and habitat shifts (GOK &UNDP, 2021).

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 Baringo Geopark		whole

National legal designations			
Designation type	Name of area	Online information url	Overlap with Ramsar Site
National Reserve	Lake Baringo National Reserve		whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Lake Baringo	datazone.birdlife.org	whole

5.2.3 - IUCN protected areas categories (2008)

la Strict Nature Reserve 🔲

- Ib Wilderness Area: protected area managed mainly for wilderness protection
 - Il 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	Partially implemented	

Habitat

Measures	Status
Re-vegetation	Partially implemented
Catchment management initiatives/controls	Partially implemented

Species

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

Human Activities

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

5.2.5 - Management planning

Is there a site-specific management plan for the site? In preparation

Has a management effectiveness assessment been undertaken for the site? Yes O No ()

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

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

Visitor center is in place in Lake Bogoria National Reserve. Warden's office A Snake Park in Lake Baringo where visitors are provided with information about the site Field research station available . Social amenities available.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No, but restoration is needed

Further information

There are some restoration activities undertaken in the surrounding areas for example management of Prosopis juliflora around Lake Baringo project by woody weeds and Kenya Forestry Research Institute (KEFRI), manual removal of Water hyacinth was undertaken by the County Government of Baringo and grass reseeding on eroded areas by the Rehabilitation of Environment project.

5.2.7 - Monitoring implemented or proposed

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

Periodic waterfowl counts are currently conducted in the site twice in a year as part of the National waterfowl Census programme. Wildlife Monitoring is conducted periodically within the Lake and neighboring Community Wildlife Conservancies adjacent to Lake Baringo. Fish and water quality monitoring is being undertaken by KEMFRI.

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

1. Baker B.H and J. Wohlenberg (1971) Structure and Evolution of the Kenyan Rift Valley. Nature: 229:538-542

2. Bartholomew, G.A. and Pennycuit, C.J. 1973. The Flamingo and Pelican Populations of the Rift Valley Lakes in 1969. East Africa Wildlife Journal 11: Pg. 189-198.

3. Fairhead, J.D. 1976. The structure of the Lithosphere beneath the Eastern Rift, East Africa, deduced from gravity studies. Journal of Tectonophysics 30: Pg. 269-298.

4. Kilham, P. 1971: Biogeochemistry of African Lakes and Rivers. Ph. D. Thesis. Duke University.

5. Kobingi, N., Gichana, Z., Nyamora, J., Kipkorir, K., Kerich, E., & Angima, M. (2023). Some Aspects of Fish Biology and Ecology of River Perkerra in Lake Baringo Basin, Kenya. Journal of

Aquatic Terrestrial Ecosystems, 1(1), 1-10.

6. McCall, C.J. H. 1957. Geology of the Nakuru- Thomson Falls- Lake Hannington Area. Geological Survey of Kenya. Report No. 78. pg.122. Government Printer. Nairobi, Kenya

7. Melack, J.M. 1979. Photosynthesis and growth of Spirulina platensis (cynaophyta) in Equatorial Lake (Lake Simbi, Kenya). Limnology and Oceanography 24(4): 753-760.

8. Melack, J.M. 1981. Photosynthetic Activity of Phytoplankton in Tropical African Soda Lakes. Journal of Hydrobiologia. 81: pg 71-85.

9. Melack, N.E. 1976. Limnology and dynamics of phytoplankton in Equatorial African lakes. Ph.D. Thesis, Duke University.

10. Mwangi, N.E. 1992. The Vegetation of Lake Bogoria National Reserve: Composition, Structure and Distribution. M.Sc. Thesis, Moi University.

11. Mlewa, Chrisestom M., and John M. Green. "Translocation of marbled African lungfish, Protopterus aethiopicus (Telostei: Protopteridae), and its fishery in Lake Baringo, Kenya." African

Journal of Aquatic Science 31.1 (2006): 131-136.

12. Nyakeya, K., Chemoiwa, E., Nyamora, J. M., Ogombe, C. O., Gichana, Z. M., Mbaru, E. K., ... & Basweti, E. (2020). Endemic Lake Baringo Oreochromis niloticus fishery on verge of collapse:

Review of causes and strategies directed to its recovery, conservation and management for sustainable exploitation. Lakes & Reservoirs: Research & Management, 25(4), 423-438.

13. P.K. Njuguna 1992. Some Aspects of the Limnology of Lake Bogoria and their influence on Lesser Flamingo Spatial Distribution. Msc. Thesis. Moi University.

14. Talling, J.F. and Talling, I.B. 1965. The Chemical Compositon of African Lake waters. International Gesamten Hydrobiology. 50: 421-463. 15. Tuite, E.H. 1978. The Lesser Flamingo Phoeniconaias minor: Aspects of it's Ecology and Behaviuor in Eastern Rift Valley of Kenya and Northern Tanzania. Ph.D. Thesis, University of Bristol.

16. Tuite, E.H. 1979. Population Size, distribution and biomass density of the Lesser Flamingo Phoeniconaias minor in Eastern Rift Valley. Journal of Applied Ecology. 16: 765-775.

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)

ii. a detailed Ecological Character Description (ECD) (in a national format)

iii. a description of the site in a national or regional wetland inventory

iv. relevant Article 3.2 reports <4 file(s) uploaded>

v. site management plan

<no file available>

vi. other published literature

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



The little islands in Lake Baringo are illuminated by the setting sun. (*Wilson Tiren wilstiren@yahoo.co.uk, 22-*12-2023)

6.1.4 - Designation letter and related data

Designation letter

Date of Designation 2002-01-10