



## 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 Elmenteita is a shallow alkaline lake lying on the floor of Kenya's southern Rift Valley. It is located in a closed basin whose water budget is maintained by recharge from hot springs located on the southern lakeshore, two inflowing rivers, surface runoff, direct rainfall and evapotranspiration. The lake's surface area is variable, but on average it is about 22 km<sup>2</sup> with a depth of about 2m. The Lake is a part of a wider catchment basin where human population has been increasing rapidly in recent years. The high alkalinity, conductivity and other physical - chemical parameters limit its capacity to host many aquatic species. But the few aquatic species that have adapted to the lake's limnological conditions show high productivity. The blue green algae *Spirulina plantensis* and benthic algae are the main primary producers that support the lakes' food chain. Over the years, a fish species, *Oreochromis alcalicus grahami* has been introduced to the lake from Lake Nakuru, about 23 km to the west. This to a great extent has enhanced the population of piscivorous birds at the Lake. High rate of evapotranspiration leaves behind white pellets of soda ash (sodium bicarbonate), which is mined by the local community as livestock mineral supplement.

## 2 - Data & location

### 2.1 - Formal data

#### 2.1.1 - Name and address of the compiler of this RIS

##### Responsible compiler

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

##### National Ramsar Administrative Authority

Institution/agency	Kenya Wildlife Service
Postal address	40241-00100, Nairobi

#### 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 Elmenteita
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#### 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 <input type="radio"/> No <input checked="" type="radio"/>
(Update) B. Changes to Site area	No change to area
(Update) For secretariat only: This update is an extension	<input type="checkbox"/>

#### 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?	Not evaluated
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## 2.2 - Site location

### 2.2.1 - Defining the Site boundaries

#### b) Digital map/image

<2 file(s) uploaded>

Former maps	0
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#### Boundaries description

Lake Elmenteita Ramsar site boundary follows the Nairobi- Nakuru highway to the east with an arm stretching to enclose the Kariandusi hot spring catchment. The Western boundary covers the Soysambu wildlife sanctuary enclosing the sleeping warrior hills and hot springs towards the southern boundary

### 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?	Gilgil

### 2.2.3 - For wetlands on national boundaries only

a) Does the wetland extend onto the territory of one or more other countries?	Yes <input type="radio"/> No <input checked="" type="radio"/>
b) Is the site adjacent to another designated Ramsar Site on the territory of another Contracting Party?	Yes <input type="radio"/> No <input checked="" type="radio"/>

### 2.2.4 - Area of the Site

Official area, in hectares (ha):

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

### 2.2.5 - Biogeography

#### Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Other scheme (provide name below)	Rift Valley

#### Other biogeographic regionalisation scheme

### 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 Elmenteita is a unique saline shallow lake in the Kenya's southern Rift Valley. The surrounding landscape is characterized by rocky faults, volcanic outcrops and cones.

- Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information Lake Elmenteita supports several species falling into different conservation categories as threatened, vulnerable and endangered at local, national, regional and international levels. These include, Lesser Flamingo (*Phoenicopterus minor*) and Greater Flamingo (*Phoenicopterus ruber roseus*) are both regionally and globally threatened mainly due to their habitat specificity. Other threatened species found in the Lake are: (i) Great Crested Grebe (*Podiceps cristatus*): - critically threatened in the eastern Africa region; (ii) Great White Pelican *Pelecanus onocrotalus*: - global restricted range and on the CMS Appendix I.; (iii) Great Egret (*Casmerodius albus*), Maccoa Duck (*Oxyura maccoa*): - (CMS Appendix II)

- Criterion 3 : Biological diversity

Justification The lake has a variety of fast growing single celled algae, large populations of diatoms and supports variable densities of blue green algae (*Spirulina platensis*) which is the main food for Lesser Flamingo. *Spirulina platensis* is the characteristic dominant phytoplankton found in the Rift Valley saline lakes and is a major primary producer.

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

Optional text box to provide further information The western part of the lake is dominated by numerous islands of black lava, mostly bare but occasionally invaded by the grasses *Sporobolus spicatus* and *Chloris gayana*. In dry years, these islands are connected to the shore by stretches of mud flats and have been found to provide the only suitable nesting and breeding grounds for Great White Pelicans (*Pelecanus onocrotalus*) in the Rift Valley region. The grasslands especially those found in the western shores of the lake are breeding site for Blacksmith plover (*Vanellus armatus*), and the Lake acts as an important foraging and dispersal area for Lesser Flamingo (*Phoenicopterus minor*) when environmental conditions especially food resource base is limiting in other saline lakes like Nakuru and Bogoria. The lake regularly supports migrant waders such as Pied avocet (*Recurvirostra avosetta*) and Little stint (*Calidris alba*) and other migratory birds such as the Eurasian Marsh Harrier on their stopover during migration. The Lake is a major stop over and a foraging site for Palearctic migrants.

- Criterion 5 : >20,000 waterbirds

Overall waterbird numbers 43,000

Start year 2016

End year 2022

Source of data: National Waterbird Census for Kenya 2017, 2018, 2019, 2020, 2021, 2022

- Criterion 6 : >1% waterbird population

Optional text box to provide further information

Lake Elmenteita supports over 1% of the East African Lesser Flamingo population

### 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
<b>Plantae</b>								
TRACHEOPHYTA / LILIOPSIDA	<i>Cyperus laevigatus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>		
TRACHEOPHYTA / MAGNOLIOPSIDA	<i>Tarhonanthus camphoratus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>		
TRACHEOPHYTA / MAGNOLIOPSIDA	<i>Vachellia xanthophloea</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	LC	<input type="checkbox"/>		

The lake has a variety of fast growing single celled algae, large populations of diatoms and supports variable densities of blue green algae (*Spirulina platensis*) which is the main food for Lesser Flamingo. *Spirulina platensis* is the characteristic dominant phytoplankton found in the Rift Valley saline lakes and is a major primary producer.

### 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								
<b>Birds</b>																	
CHORDATA / AVES	<i>Ardea alba</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	42			LC	<input type="checkbox"/>	<input type="checkbox"/>	CITES Appendix III	
CHORDATA / AVES	<i>Calidris alba</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>				LC	<input type="checkbox"/>	<input type="checkbox"/>		Lake is a migration site
CHORDATA / AVES	<i>Circus aeruginosus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	6			LC	<input type="checkbox"/>	<input type="checkbox"/>		Lake is a migration site
CHORDATA / AVES	<i>Oxyura maccoa</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	10			EN	<input type="checkbox"/>	<input type="checkbox"/>	Proposed for CMS Appendix I listing	
CHORDATA / AVES	<i>Pelecanus rufescens</i>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	324			LC	<input type="checkbox"/>	<input type="checkbox"/>		
CHORDATA / AVES	<i>Phoeniconaias minor</i>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	570150	2022	28.5	NT	<input type="checkbox"/>	<input type="checkbox"/>	CITES Appendix II	The site is an important dispersal area
CHORDATA / AVES	<i>Phoenicopterus roseus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	2245			LC	<input type="checkbox"/>	<input type="checkbox"/>	CITES Appendix II	
CHORDATA / AVES	<i>Podiceps cristatus</i>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	43			LC	<input type="checkbox"/>	<input type="checkbox"/>	critically threatened in the eastern Africa region	
CHORDATA / AVES	<i>Recurvirostra avosetta</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	1075			LC	<input type="checkbox"/>	<input type="checkbox"/>		migration site
CHORDATA / AVES	<i>Vanellus armatus</i>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	80			LC	<input type="checkbox"/>	<input type="checkbox"/>		breeding site

1) Percentage of the total biogeographic population at the site

The Lake is a major staging site for Palaearctic migrants and over the years, significant populations of different migrant species including other major waterbird species in Kenya have been recorded at the site. Generally, the Lake and its environs is a true representative of a natural or near natural saline wetland type.

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

<no data available>

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

### 4.1 - Ecological character

The Lake is in an environment of extremes, with variations in humidity, water temperature, rainfall and water levels. The water chemistry makes the Lake habitable to very few organisms including diatoms, zooplanktons, phytoplankton and various waterbird species. 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 *Brachionus dimidiatus* and *B. plicatilis* occasionally become dominant. The lesser flamingo is the major primary consumer of *Spirulina platensis*.

The Southern, southeastern and western 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 waterfowl. The rushes are mostly confined to areas of relatively fresh water while the sedges tolerate more soda. Various waders especially the migrants sift through the mud for small insects. The springs and their associated wetlands are important bottleneck habitats for waterfowl as source for fresh water. They are a source of drinking water for birds, bath place for soda - encrusted birds to wash their plumage and drinking place for livestock. Lake Elmenteita provides seasonal habitat to both the lesser and greater Flamingo, which exhibit high nomadism within the Rift Valley saline lakes in East Africa and elsewhere into central and southern Africa in search of lakes with the preferred ecological conditions for feeding, display and breeding. Grasslands surrounding the lake are dominated by *Cynodon dactylon*, *Themeda triandra*, *Chloris gayana*, among others, and scattered shrubs. The Yellow Fever Tree (*Acacia xanthophloea*) is the dominant terrestrial tree species and forms the woodland in some parts of the shoreline, an important habitat for birds. Most of the lake's riparian land is still intact with minimal human manipulation. Other forms of land use influencing the ecological character include livestock production and tourism.

### 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
Saline, brackish or alkaline water > Lakes >> Q: Permanent saline/ brackish/ alkaline lakes	Lake Elmenteita	1		Unique
Saline, brackish or alkaline water > Lakes >> R: Seasonal/ intermittent saline/ brackish/ alkaline lakes and flats		3		
Saline, brackish or alkaline water > Marshes & pools >> Sp: Permanent saline/ brackish/ alkaline marshes/ pools		2		Unique
Fresh water > Flowing water >> Y: Permanent Freshwater springs; oases		4		

### 4.3 - Biological components

#### 4.3.1 - Plant species

Other noteworthy plant species



Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Achyranthes aspera</i>	composes the herbaceous layer
TRACHEOPHYTA/LILIOPSIDA	<i>Chloris gayana</i>	in the dry bush land, Dominates Lakeside grasslands
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Commicarpus pedunculatus</i>	Below the upper canopy
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Conyza varia</i>	composes the herbaceous layer
TRACHEOPHYTA/LILIOPSIDA	<i>Cynodon dactylon</i>	
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Euphorbia candelabrum</i>	in the dry bush land
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Gutenbergia cordifolia</i>	composes the herbaceous layer
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Hypoestes aristata</i>	composes the herbaceous layer
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Ipomoea cairica</i>	Below the upper canopy
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Lantana trifolia</i>	in the dry bush land
TRACHEOPHYTA/LILIOPSIDA	<i>Pennisetum clandestinum</i>	
TRACHEOPHYTA/LILIOPSIDA	<i>Pennisetum hohenackeri</i>	Dominates other grasslands
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Searsia natalensis</i>	in the dry bush land
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Senecio hadiensis</i>	Below the upper canopy
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Sesbania sesban</i>	in the dry bush land
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Solanum incanum</i>	composes the herbaceous layer
TRACHEOPHYTA/LILIOPSIDA	<i>Sporobolus fimbriatus</i>	Dominates other grasslands
TRACHEOPHYTA/LILIOPSIDA	<i>Sporobolus spicatus</i>	Dominates Lakeside grasslands
TRACHEOPHYTA/LILIOPSIDA	<i>Themeda triandra</i>	Dominates other grasslands
TRACHEOPHYTA/MAGNOLIOPSIDA	<i>Urtica massaica</i>	composes the herbaceous layer

#### 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	<i>Ceryle rudis</i>				It is the only species of Kingfisher that feeds by fishing from the hover rather than always from a perch.
CHORDATA/AVES	<i>Chroicocephalus cirrocephalus</i>				
CHORDATA/MAMMALIA	<i>Equus quagga burchellii</i>				
CHORDATA/MAMMALIA	<i>Eudorcas thomsonii</i>				
CHORDATA/MAMMALIA	<i>Giraffa camelopardalis</i>				
CHORDATA/AVES	<i>Haliaeetus vocifer</i>				is another characteristic species of Lake Elmenteita, but its population is low.
CHORDATA/AVES	<i>Leptoptilos crumeniferus</i>				
CHORDATA/MAMMALIA	<i>Madoqua kirkii</i>				
CHORDATA/AVES	<i>Prionops poliophopus</i>				. Its habitat is almost exclusively the acacia woodland within the site.

#### 4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
B: Dry climate	BSh: Subtropical steppe (Low-latitude dry)

There is considerable variation in climate within the Lake Elmenteita catchment basin depending on altitude and topography. The climate ranges from cold, hot and humid to arid and semi - arid climatic conditions characteristic of areas within the Rift Valley. Records in the area indicate a mean annual precipitation of between 600 to 700mm (Soysambu, Nderit and Winston estate, Kekopey ranch, Lanet police station and Chokora farm near Mbaruk). Rainfall is bimodal with the long - rains in April to June and the short rains between October to November. The short rains are less pronounced and the area is reported to be under the influence of the Congo monsoons from the south which cause some light rains during the months of June and July (Ojany and Ogendo, 1973).

The lake ecosystem is situated on an extensive, dry semi arid belt of the Rift Valley extending from Mbaruk to the north north and Kedong valley in the south, with annual mean temperatures ranging between 18.5°C and 19.8°C.

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres)

a) Maximum elevation above sea level (in metres)

- 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 Elmenteita catchment (area 500km<sup>2</sup>) is defined by the Eburru range and forest to the South, plains to the west, Ndundori highlands to the north and the Aberdare escarpment to the East. The drainage basin, which has a largely dendrite pattern, can be divided into four minor watersheds Mbaruk, Chamuka, Kariandusi and Mbaruk - Chamuka. Mbaruk watershed is the largest and wettest while Kariandusi is the driest. Lake Elmenteita is situated in a high altitude depression of the Eastern portion of the Great Rift Valley in Kenya. To the south lies the "badlands", an area of young volcanic rocks including cones and flows of Holocene age. To the North are a number of slightly older volcanic rocks predominantly basalt lava. On the eastern side of the lake are a number fault scarps.

4.4.3 - Soil

Mineral

(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)

Primarily the soils are of volcanic origin and tend to be friable, well drained and in some instances shallow. Those on the central plains are mainly derived from lacustrine deposits and volcanic ashes. Having developed on sediments, the soils are grey, deep, poorly drained and slightly calcareous to saline in nature. On the more open grassland plains are soils derived from pumice beds and ashes from recent volcanoes and appear to be well drained friable loams to sandy clay loam that support the bulk of grazing land around the lake. Rocks that compose the cliffs and rock outcrops are of basaltic formation.

The soil in most areas is highly permeable and very little surface runoff is noticeable after rains; soils vary considerably within the basin from light grey dusty soils (Andosols) on the flat plains around lake Elmenteita, which have developed on the diatomaceous silts of this part to gravel at deposition sites.

4.4.4 - Water regime

Water permanence

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

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from precipitation	<input type="checkbox"/>	No change
Water inputs from surface water	<input type="checkbox"/>	No change
Water inputs from groundwater	<input type="checkbox"/>	No change

Stability of water regime

Presence?	Changes at RIS update
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:

Lake Elmenteita has no surface outlet or underground seepage for releasing its water to other aquifers. The lake water levels are maintained through ground recharge by hot springs found in the southern part of the lake and seepage to its south - east, Meroronyi, Mbaruk and Kariandusi river flows, direct rainfall and evapotranspiration.

4.4.5 - Sediment regime

Sediment regime unknown

Please provide further information on sediment (optional):

The lake bottom is filled with weathered material from the catchment area. The soil type is mainly sandy alluvial, of volcanic origin as evident by soda ash and fine sandy/loam soils on the lake bottom and its immediate surrounding areas.

(ECD) Water temperature

Remarkable monthly variation generally ranging between 170 C and 220 C and 400C in the southern hot springs.

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):

The lake pH ranges between 9.6 at the hot springs and 10.4 in the main lake.

4.4.7 - Water salinity

Fresh (<0.5 g/l)

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

Mixohaline (brackish)/Mixosaline (0.5-30 g/l)

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

Euhaline/Eusaline (30-40 g/l)

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

Unknown

4.4.8 - Dissolved or suspended nutrients in water

Eutrophic

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

Unknown

(ECD) Water conductivity

Conductivity at 20°C: 6,500 – 165,000uscm - 1

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:

Within the site, there is commercial and small - scale livestock production, tourism, mining involving extraction of sand, salt and diatomite and land preserved for biodiversity. In the surroundings, there is also small-scale and livestock agriculture, conversation but there is in addition, also urban and rural settlements as well as natural forest, woodlands and forest plantations.

## 4.5 - Ecosystem services

### 4.5.1 - Ecosystem services/benefits

#### Provisioning Services

Ecosystem service	Examples	Importance/Extent/Significance
Fresh water	Drinking water for humans and/or livestock	Medium
Fresh water	Water for irrigated agriculture	Medium
Wetland non-food products	Livestock fodder	Medium
Wetland non-food products	Other	Medium
Genetic materials	Ornamental species (live and dead)	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	Medium

#### Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Picnics, outings, touring	Medium
Recreation and tourism	Nature observation and nature-based tourism	Medium
Spiritual and inspirational	Cultural heritage (historical and archaeological)	Medium
Spiritual and inspirational	Aesthetic and sense of place 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 microorganisms, the genes they contain, and the ecosystems of which they form a part	Medium

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

### 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	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>

##### Private ownership

Category	Within the Ramsar Site	In the surrounding area
Other types of private/individual owner(s)	<input type="checkbox"/>	<input checked="" type="checkbox"/>

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

**Territorial jurisdiction:** The Government of Kenya has overall jurisdiction over Lake Elmenteita and its riparian land. Regionally, the County Government and the County Commissioner, Nakuru County ) represents the national and local government government. Environmental issues in the country are under the Ministry of Environment and Natural Resources, the National Environment Management Authority (NEMA). Kenya Wildlife Service is responsible for the management of Ramsar sites in collaboration with the local communities and other stakeholders.

**Functional jurisdiction.** There is no one single government agency with overall jurisdiction over the area. A number of government departments are in charge of implementing their sectoral issues: Kenya Wildlife Service (Ramsar, wildlife), Water, Agriculture, and Forest Departments. The Nakuru County Council also has some jurisdiction over the area.

#### 5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site:

Kenya Wildlife Service

Provide the name and/or title of the person or people with responsibility for the wetland:

Esther Wangeci, Senior Warden

Postal address:

P.O BOX 40241 – 00100, Nairobi

E-mail address:

ewangeci@kws.org

## 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			<input type="checkbox"/>		<input checked="" type="checkbox"/>	

#### Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Livestock farming and ranching	Low impact	Low impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Non specified			<input checked="" type="checkbox"/>		<input checked="" type="checkbox"/>	

#### 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	Medium impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	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	Medium impact	Medium impact	<input checked="" type="checkbox"/>	No change	<input type="checkbox"/>	No change
Utility and service lines (e.g., pipelines)	Medium impact	High impact	<input checked="" type="checkbox"/>	No change	<input checked="" type="checkbox"/>	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			<input checked="" type="checkbox"/>		<input type="checkbox"/>	

#### Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Vegetation clearance/land conversion	Low impact	Low impact	<input type="checkbox"/>	No change	<input checked="" type="checkbox"/>	No change
Unspecified/others			<input type="checkbox"/>		<input checked="" type="checkbox"/>	

### 5.2.2 - Legal conservation status

#### National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Greater Lake Elmenteita Conservation Area			whole
Lake Elmenteita Community Eco-tourism Project			whole
National Wildlife Sanctuary	Lake Elmenteita Wildlife Sanctuary		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

<no data available>

### 5.2.4 - Key conservation measures

#### Human Activities

Measures	Status
Management of water abstraction/takes	Proposed
Regulation/management of recreational activities	Proposed
Communication, education, and participation and awareness activities	Implemented
Research	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  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:

There is a tourist class hotel, campsites, existing and proposed wildlife sanctuaries.

### 5.2.6 - Planning for restoration

Is there a site-specific restoration plan? Please select a value

### 5.2.7 - Monitoring implemented or proposed

Monitoring	Status
Water quality	Implemented
Birds	Implemented

- Ecological linkages between the lake and its catchment
- Ecological linkages between the lake and other water bodies in the region.
- Land use practices within the catchment

## 6 - Additional material

### 6.1 - Additional reports and documents

#### 6.1.1 - Bibliographical references

Bartholomew, G. A., Pennyquick, C. J. 1973. The flamingo and pelican populations of the Rift Valley lakes in 1968 - 1969. *East Africa Wildlife Journal* 11:189 - 198.

Bennun, L.A. & Njoroge, P. 1999. Important Bird Areas of Kenya. East Africa Natural History Society, Nairobi.

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Copley, H. 1998. The lakes and rivers of Kenya: a short guide to the inland waters and their inhabitants, World Bank Washington DC.

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East Africa Natural History Society. 1996. Check - list of the birds of Kenya. East Africa Natural History Society, Nairobi.

Gichuki, F.N., Mungai, D.N., Gachene, C.K., Thomas, B.B. 1998. Land and water management in Kenya. Proceedings of water resource management Workshop. Nairobi

Howard, G. W. 1992. Under standing wetland biodiversity in east Africa: workshop proceedings: Field document 10 Summary. Nakuru, Kenya

Mbogo, D. K. 1993. A preliminary study of zooplankton (ROTIFERA and CRUSTACEA: copepoda and cladocera) of Kenya.

Meadows, B. 1978. Limnological investigations of lakes in Kenya, 1976 - 1977. Technical report series. No. 6., Ministry of Water Development, Nairobi.

Melack, J.M. 1978. Temporal variability of phytoplankton in tropical lakes. *Oecologia* 44: 1 - 7

Mwaura, F. 1991. Some aspects of hydrochemistry, Lake level and Vegetation dynamics in the Elmenteita Basin, MSc. Thesis, University of Nairobi

Nasirwa, O. & Owino, A.O. 2000. Waterbird counts in Kenya 1999 & 2000. *Kenya Birds* 8: 85 - 87.

Nasirwa, O., Owino, A.O., Muchai, M. & Ndang'ang'a, K. 2005. Assessing trends in waterbird numbers in major Kenyan wetland sites (1991 - 2004). Ostrich. In press

Ochieng, E. O. 1987. Limnological aspects and trace element analysis of some selected Kenyan natural inland waters. M.Sc. Thesis. University of Nairobi.

Owino A.O. 2002. Shoreline distribution patterns of Kittlitz's Plover *Charadrius pecuarius Temminck* at Lake Nakuru, Kenya. *African Journal of Ecology* 40:393 - 395.

Owino, A. O., Bennun, L. A., Nasirwa, O. & Oyugi, J. 2002. Trends in waterbird numbers in southern Rift Valley of Kenya, 1991 - 2000. *Waterbirds* 25 (2): 191 - 201.

(See Additional reports and documents for the complete bibliographical references list)

#### 6.1.2 - Additional reports and documents

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

<2 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

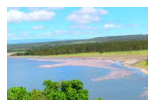
<no file available>

vi. other published literature

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#### 6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:



Lesser flamingos seen in front of an acacia forest observed near Lake Elmenteita's shoreline ( Alois, Aloisegarvey@gmail.com 23-05-2023 )



Lesser flamingoes seen along the shores of Lake Elmenteita ( Alois, Aloisegarvey@gmail.com 23-05-2023 )

#### 6.1.4 - Designation letter and related data

Designation letter

<1 file(s) uploaded>

Date of Designation