Ramsar Information Sheet

Published on 28 May 2024
Update version, previously published on : 9 July 2012

Kenya

Tana River Delta Ramsar Site

Designation date	9 July 2012
Site number	2082
Coordinates	02°29'30"S 40°17'11"E
Area	163 600,00 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

The Tana River Delta is a Ramsar site no. 2082, located in the Coast region of Kenya, administratively in Tana River County and Lamu County. Designated on September 7th, 2012, it spans over 163,600 hectares. The delta is recognized as the second most important estuarine and deltaic ecosystem in Eastern Africa, providing diverse freshwater, floodplain, estuarine and coastal habitats with extensive and varied mangrove systems, pristine beaches and shallow marine areas. This diversity of habitats contributes to the delta's ecological functions, supporting a rich biodiversity of flora and fauna.

The delta ecosystem is vital to the survival of many endangered and threatened species such as Tana Mangabey (Cercocebus galeritus), Tana River Red Colobus (Procolobus rufomitratus rufomitratus), White-collared Monkey (Cercopithecus mitis albotorquatus), and African Elephant (Loxodonta africana). The delta's ecosystem also provides habitats for various marine animals including prawns, shrimps, bivalves, and fish, as well as being a critical feeding and wintering ground for several migratory waterbirds such as waders, gulls and terns. The delta has over 600 plant species, including the endangered Cynometra lukei and Gonatopus marattioides.

Human activities within the delta include fishing, small-scale family-oriented agriculture, mangrove wood exploitation, grazing, water supply, tourism, and research, including ongoing protection and monitoring of breeding turtles and the conservation of dugongs. The Tana River Delta is also an Important Bird Area (IBA), a Key Biodiversity Area (KBA) and one of the few estuarine staging posts on the West Asia - Eastern Africa coastal flyway, making it an essential stopover point for many migratory birds.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency	Nature Kenya-EANHS1, Wildlife Research & Training Institute- Kenya2
Postal address	1. P.O. Box 44486-00100, Nairobi ; 2. P.O Box 842 -20117, Naivasha

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)	Tana River Delta Ramsar Site

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?	No

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
<2 file(s) uploaded>

Former maps	0

Boundaries description

The boundary delineation is a composite of various types of boundary. The south-western boundary is formed by the Kilifi-Tana Counties north of Marereni. The western boundary is formed by the Malindi-Garsen road up to Minjila, 6km south of the town of Garsen. The Minjila to Witu road forms the northern boundary up to Lango la Simba bridge and extends east to the north-eastern corner. The boundary then runs south, where it rejoins the Minjila-Witu road at the site where the road leaves the floodplains and onto the terraces. The eastern boundary is formed by the Witu - Kipini road and then down southeast to the coast. The southern boundary is formed by the connection between the southwestern and the south-eastern corners in Ungwana (Formosa) Bay.
Tana River Delta Ramsar site is shared between Tana River County, 90% and Lamu County, 10%. The main towns in River Delta Ramsar main towns are Garsen and Kipini. Other smaller settlements are Witu, Minjila. The Tana River Delta Ramsar Site can be reached by road from Mombasa city, using the B8 and C112 roads from Mombasa, Malindi, Garsen, Witu and Kipini.

2.2.2 - General location

a) In which large administrative region does the site lie?	Tana River County
b) What is the nearest town or population centre?	Kipini

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): 163600

Area, in hectares (ha) as calculated from GIS boundaries: 167154.585

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Other scheme (provide name below)	Afro-tropical region, Eastern Africa coastal forest hotspot, Western Indian Ocean
Marine Ecoregions of the World (MEOW)	East African Coral Coast

Other biogeographic regionalisation scheme

The site is also classified as a one of the hotspots for Coastal Forests of Eastern Africa and the Eastern Afromontane http://www.conservation.org/where/priority_areas/hotspots/africa/Coastal-Forests-of- Eastern- Africa/Pages/default.aspx

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	The Tana River Delta Ramsar site covers the delta starting just upstream of the main split between the Matomba and Oda branches of the Tana River. Further upstream, north of the Ramsar site, there are braided channels, shifting meanders and floodplains with saline groundwater at shallow depth indicating a probably recent deltaic past. The size of the Tana River Delta Ramsar Site is estimated at approximately 163,600ha or 1,636 km2. Mangrove forests cover about 84 sqKm (Verdone, et al. 2021). The water courses in the delta have seen continuous shifting and changing with river mouths opening and closing and human interventions often, at least temporarily, redirecting the main flows. At least four former courses of the Tana can be traced in the residual water courses and oxbow lakes which lie within the delta. The oldest is thought to be the channel which flowed through Vumbe and Lango la Simba to enter the sea via the Ozi River (Nyunja et al. 2013). The volume of the river has been declining at an alarming rate due to the activities, upstream (Odhengo et al. 2014). This has resulted in reduced water availability for communities and loss of biodiversity. Although the decline in river discharge is principally due to water flow regulation by five hydro dams upstream, it can also be attributed to climate change, unsustainable use of water and rise in demand for the water. Construction of dykes for the TARDA rice project in the Delta has also resulted to communities in the area being completely deprived of a source of water and livelihoods. Flooding has also contributed to siltation of ox-bow lakes and riverbeds.
Other ecosystem services provided	The Tana River Delta Ramsar Site is a vital ecosystem that provides numerous services essential to the well-being of the region's residents. According to Field et al (2018), the Tana River Delta Ramsar Site provides a range of ecosystem services, including Harvested Wild Goods, Cultivated Goods, Climate Regulation Services, Water provision, Flood Regulation and Water Quality Regulation Services. The value of these services was estimated under three different scenarios: Business As Usual (B), Conservation (Bns), and Hybrid (C), which incorporates sustainable management practices. The total value of harvested goods was estimated to be over KSh.2 billion in 2017. However, under scenarios C, Bs, and Bns, the estimated values were KSh. 1.13 billion, KSh.1.75 billion, and KSh.4.65 billion, respectively. Livestock grazing was the most valuable harvested wild good, with an estimated value of KSh. 1.85 billion in 2017. Other harvested wild goods included fuel, honey, and construction materials. All residents of the Delta rely on several sources of water within the area. Flooding is perceived as a problem by 62% of the residents due to its negative effects on disease outbreaks, crop destruction, livestock loss, infrastructure damage, displacement, and transport and education disruptions. However, residents also acknowledged that flooding can lead to improved food security through increased fisheries, livestock, and agricultural production. The projection also showed that carbon stocks in all scenarios decreased over the 33-year period. The scenarios with intensive land use (Business As Usual (Bs) and Conservation Scenerio(Bns)) showed the greatest declines in soil and vegetation carbon stocks due to the conversion of carbon-rich trees and shrub habitats.
Other reasons	The TRD is the second most important estuarine and deltaic ecosystem in Eastern Africa, after the Rufiji Delta in Tanzania. The Tana River provides a perennial but strongly seasonal and double peaked freshwater inflow loaded with fine fertile sediment and charged with nutrients that, in favorable years, can cover the vast freshwater and coastal floodplains. The TRD has extensive and diverse mangrove systems and marine brackish and freshwater intertidal areas, pristine beaches and shallow marine areas in Ungwana Bay forming productive and functionally interconnected ecosystems.

☑ Criterion 2 : Rare species and threatened ecological communities

☑ Criterion 3 : Biological diversity

Justification: The Tana delta, located in Kenya, is a unique wetland habitat that hosts several threatened and data-deficient avifauna, both resident and migratory. The wetland is home to globally threatened species, including the Basra Reed Warbler (EN), White Backed Vulture (EN), and Madagascar Pratincole (VU). Sea turtles are also a significant component of the marine ecosystem in the Tana River Delta. They help to maintain the health of seagrass beds and coral reefs that benefit commercially valuable fish species. The Ramsar Site is home to five species of threatened sea turtles, including Hawksbill Turtle (CR) and Green Turtle (EN), Olive Ridley Turtle (VU), and Leatherback Turtle (VU). The Loggerhead Turtle (EN). Hawksbill Turtle and Green Turtle are potentially breeding in the area. In addition to sea turtles, the Tana River Delta is also home to several unique fish species, including the endemic Labeo sp. This species is listed as Vulnerable in the IUCN Red List of Threatened Species. The sawfish family Pristidae, including the Narrowsnout Sawfish, Wide sawfish, and Knifetooth sawfish, are also threatened species that have been recorded in the area. These species are classified as Critically Endangered. The Dugong dugon (VU), a marine mammal that feeds on seagrasses, is also present in the Tana River Delta occasionally observed by fishermen. The Tana River Delta is not only rich in marine life but also in terrestrial mammals. The riverine forest remnants of the TRD are home to several endangered species, including the Tana River Mangabey, Tana River Red Colobus, Golden-rumped elephant shrew, Wild dog, Elephant, Hippopotamus, Lion, and Ader's Duiker. These species are all classified as either Vulnerable or Endangered by the IUCN. Finally, the Tana River Delta is also home to over 600 plant species, many of which are threatened or endangered. These include Cynometra lukei, Gonatopus marattioides, Oxystigma msoo, Camptolepis ramiflora, Angylocalyx braunii, Chytranthus obliquinervis, Afrocanthium pseudoverticillatum, Dalbergia vacciniifolia, Drypetes natalensis var. leiogyna, Tricalysia ovalifolia var. glabrata, and Uvariodendron kirkii. These species are all classified as Vulnerable or Endangered by the IUCN.

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

Optional text box to provide further information: The Tana River Delta Ramsar site supports endemic flora and fauna whose entire life cycle is dependent on. These species include- Plant; Euphorbia tanaensis (CR B2ab(iii)+D.), Primates- Tana River Mangabey Cercocebus galeritus (CR A3c), and Tana River Red Colobus Procolobus rufomitratus rufomitratus (CR, A3c)

☑ Criterion 5 : >20,000 waterbirds

Overall waterbird numbers: 23394

Start year: 2016

End year: 2022

Source of data: National Waterbird Census For Kenya, January 2021

Optional text box to provide further information: Ireene Madindou, Alice Bett, Fleur Ng'weno, Colin Jackson, David Kimiti, Paul Gacheru, Solomon Kyalo, Titus Imboma, Eunice Kamau, Lennox Kirao (2021). The National Waterbird Census For Kenya; January 2021- Waterbird Count Results in the Rift Valley, Nairobi, Central, Eastern, and Coastal Kenya. NMK.

☑ Criterion 6 : >1% waterbird population

Optional text box to provide further information: Tana river delta is a significant wintering ground for several waterbird species, such as the Madagascar Pratincole Glareola ocularis. 1500 individual Madagascar Pratincole Glareola ocularis , listed as Near Threatened under criteria C2a(ii) in IUCN Redlist has been recorded in Tana River Delta in different times by local birders accounting for at least 20% of the species global population utilizing the delta.

☑ Criterion 7 : Significant and representative fish

Justification	Study carried out in 2020 revealed that the Tana delta is home to 89 species from 45 different families. The most commonly caught species were Arius africanus (31%), followed by Clarias gariepinus (21%), Pellona ditchela (10%), which is a small pelagic fish, and several sardine species (approximately 5%). Other significant catches included Otolithes ruber, a type of croaker (10%), eel catfish Plotosus limbatus (6%), Mullet Mugil cephalus (4%), and Nile tilapia Oreochromis niloticus (4%) (Fatma et al. 2021). Labeo mesops and Redtail labeo (CR) (still under description) is also present (Njagi & Gathua 2021)

☑ Criterion 8 : Fish spawning grounds, etc.

Justification	The Tana delta is an important fish spawning ground for several reasons. First, the delta's estuaries and mangrove swamps provide the necessary habitat and food sources for fish during their reproductive stages. A study conducted in 2020 found that several fish species, including Arius africanus, Clarias gariepinus, and Otolithes ruber, utilize the delta's estuaries and mangrove swamps for spawning (Githui et al., 2020). These habitats offer shelter, protection, and nutrient-rich environments that promote successful reproduction and the survival of fish populations. The delta's diverse aquatic ecosystem supports a wide variety of fish species. This diversity of fish species is an indication of the delta's healthy and productive ecosystem. The delta's complex ecosystem dominated by abundant vegetation, such as mangroves and seagrasses, also provides an ideal environment for fish eggs and larvae to survive. Moreover, the Tana delta's location and physical characteristics contribute to its suitability as a fish spawning ground. The delta is situated at the mouth of the Tana River, which is the largest river in Kenya, and provides a constant flow of freshwater to the delta's estuaries and mangrove swamps. The delta's shallow waters and abundant vegetation offer ideal spawning grounds for fish that prefer shallow and sheltered areas.
Optional text box to provide further information	The delta provides a critical habitat for a diverse range of flora and fauna, including several species of conservation concern. Protecting and managing this area is essential to ensure the continued survival of these species and to maintain the ecological balance of the region. According to a recent field assessment conducted by Kivai et al. (2021), the Tana River Delta Ramsar Site has been found to support a significant population of critically endangered Tana River Mangabey Cercocebus galeritus (873 individuals) (CR) and Tana River Red Colobus Procolobus rufomitratus rufomitratus (429 individuals) (CR). These primate species are not the only ones of conservation concern in the area, as the delta is also home to several other threatened non-avian species. Among them are the Endangered African Elephant Loxodonta africana (EN), the Hippopotamus Hippopotamus amphibius (VU), the Vulnerable Lion Panthera leo (VU), the Dugong Dugong dugon (VU), and the Sokoke Dog Mongoose Bdeogale omnivora (VU). The presence of these threatened and endangered species in the Tana River Delta Ramsar Site underscores the importance of preserving this vital ecosystem.

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	*Afrocanthium pseudoverticillatum*	☑	☐	☐	VU	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Angylocalyx braunii*	☑	☐	☐	VU	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Camptolepis ramiflora*	☑	☐	☐	VU	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Chytranthus obliquinervis*	☑	☐	☐	VU	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Cynometra lukei*	☑	☐	☐	EN	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Dalbergia vacciniifolia*	☑	☐	☐	VU	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Drypetes natalensis leiogyna*	☑	☐	☐	VU	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Empogona ovalifolia glabrata*	☑	☐	☐	VU	☐		
TRACHEOPHYTA / LILIOPSIDA	*Gonatopus marattioides*	☑	☐	☐	EN	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Oxystigma msoo*	☑	☐	☐	VU	☐		
TRACHEOPHYTA / MAGNOLIOPSIDA	*Uvariodendron kirkii*	☑	☐	☐	VU	☐		

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 / REPTILIA	*Caretta caretta*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☑	☑		
CHORDATA / MAMMALIA	*Cephalophus adersi*	☑	☐	☐	☐	☐	☐	☐	☐				CR	☐	☐		
CHORDATA / MAMMALIA	*Cercocebus galeritus*	☑	☐	☐	☐	☑	☐	☐	☐				EN	☑	☐		
CHORDATA / MAMMALIA	*Cercopithecus albogularis albotorquatus*	☐	☐	☐	☐	☑	☐	☐	☐					☐	☐		
CHORDATA / REPTILIA	*Chelonia mydas*	☑	☑	☐	☐	☑	☐	☐	☐				EN	☑	☑		potential breeding area
CHORDATA / MAMMALIA	*Chlorocebus pygerythrus hilgerti*	☐	☐	☐	☐	☑	☐	☐	☐					☐	☐		
CHORDATA / MAMMALIA	*Damaliscus lunatus*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		
CHORDATA / REPTILIA	*Dermochelys coriacea*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☑	☑		
CHORDATA / MAMMALIA	*Dugong dugon*	☑	☐	☐	☐	☑	☐	☐	☐				CR	☑	☐		
CHORDATA / REPTILIA	*Eretmochelys imbricata*	☑	☑	☐	☐	☑	☐	☐	☐				CR	☑	☑		potential breeding area
CHORDATA / MAMMALIA	*Galagoides cocos*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		
CHORDATA / MAMMALIA	*Hippopotamus amphibius*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐		
CHORDATA / REPTILIA	*Lepidochelys olivacea*	☑	☐	☐	☐	☑	☐	☐	☐				VU	☑	☑		

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								
CHORDATA / MAMMALIA	*Loxodonta africana*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☑	☐		
CHORDATA / MAMMALIA	*Lycaon pictus*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐		
CHORDATA / MAMMALIA	*Otolemur garnettii lasiotis*	☐	☐	☐	☐	☑	☐	☐	☐					☐	☐		
CHORDATA / MAMMALIA	*Panthera leo*	☑	☐	☐	☐	☐	☐	☐	☐				VU	☐	☐		
CHORDATA / MAMMALIA	*Papio cynocephalus ibeanus*	☐	☐	☐	☐	☑	☐	☐	☐					☐	☐		
CHORDATA / MAMMALIA	*Piliocolobus rufomitratus*	☑	☐	☐	☐	☑	☐	☐	☐				EN	☑	☐		
CHORDATA / MAMMALIA	*Rhynchocyon chrysopygus*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐		
Fish, Mollusc and Crustacea																	
CHORDATA / ACTINOPTERYGII	*Ambassis gymnocephalus*	☐	☐	☐	☐	☐	☐	☐	☑				LC	☐	☐		
CHORDATA / ACTINOPTERYGII	*Anguilla bicolor*	☐	☐	☐	☐	☐	☐	☐	☑				NT	☐	☐		
CHORDATA / ACTINOPTERYGII	*Anguilla mossambica*	☐	☐	☐	☐	☐	☐	☑	☑				LC	☐	☐		
CHORDATA / ELASMOBRANCHII	*Anoxypristis cuspidata*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☑	☑		
CHORDATA / ACTINOPTERYGII	*Awaous aeneofuscus*	☐	☐	☐	☐	☐	☐	☑	☑					☐	☐		
CHORDATA / ACTINOPTERYGII	*Chelon melinopterus*	☐	☐	☐	☐	☐	☐	☐	☑				LC	☐	☐		
CHORDATA / ACTINOPTERYGII	*Eleotris fusca*	☐	☐	☐	☐	☐	☐	☐	☑				LC	☐	☐		
ARTHROPODA / MALACOSTRACA	*Fenneropenaeus indicus*	☐	☐	☐	☐	☑	☐	☑	☐					☐	☐		
CHORDATA / ACTINOPTERYGII	*Glossogobius giuris*	☐	☐	☐	☐	☐	☐	☑	☑				LC	☐	☐		
CHORDATA / ACTINOPTERYGII	*Lutjanus argentimaculatus*	☐	☐	☐	☐	☐	☐	☐	☑					☐	☐		
ARTHROPODA / MALACOSTRACA	*Macrobrachium rude*	☐	☐	☐	☐	☑	☐	☑	☐				LC	☐	☐		
ARTHROPODA / MALACOSTRACA	*Macrobrachium scabriculum*	☐	☐	☐	☐	☑	☐	☑	☐				LC	☐	☐		
ARTHROPODA / MALACOSTRACA	*Marsupenaeus japonicus*	☐	☐	☐	☐	☑	☐	☑	☐					☐	☐		
ARTHROPODA / MALACOSTRACA	*Metapenaeus monoceros*	☐	☐	☐	☐	☑	☐	☑	☐					☐	☐		
CHORDATA / ACTINOPTERYGII	*Oligolepis acutipennis*	☐	☐	☐	☐	☐	☐	☐	☑					☐	☐		
CHORDATA / ACTINOPTERYGII	*Oreochromis spilurus*	☐	☐	☐	☐	☐	☐	☑	☐					☐	☐		
CHORDATA / ACTINOPTERYGII	*Pardiglanis tarabinii*	☐	☐	☐	☐	☐	☐	☑	☐					☐	☐		
ARTHROPODA / MALACOSTRACA	*Penaeus monodon*	☐	☐	☐	☐	☑	☐	☑	☐					☐	☐		
ARTHROPODA / MALACOSTRACA	*Penaeus semisulcatus*	☐	☐	☐	☐	☑	☐	☑	☐					☐	☐		
CHORDATA / ELASMOBRANCHII	*Pristis pectinata*	☑	☐	☐	☐	☐	☐	☐	☐				CR	☑	☐		
CHORDATA / ELASMOBRANCHII	*Pristis zijsron*	☑	☐	☐	☐	☐	☐	☑	☐				CR	☑	☑		
CHORDATA / ACTINOPTERYGII	*Synodontis manni*	☐	☐	☐	☐	☐	☐	☑	☐					☐	☐		
MOLLUSCA / GASTROPODA	*Terebralia palustris*	☐	☐	☐	☐	☑	☐	☐	☐					☐	☐		

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								
CHORDATA / ACTINOPTERYGII	*Valamugil buchanani*	☐	☐	☐	☐	☐	☐	☐	☑					☐	☐		
Birds																	
CHORDATA / AVES	*Acrocephalus griseldis*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☑		
CHORDATA / AVES	*Anastomus lamelligerus*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Historically a significant breeding site but in recent years flooding conditions have not been favorable
CHORDATA / AVES	*Anhinga rufa*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Historically a significant breeding site but in recent years flooding conditions have not been favorable
CHORDATA / AVES	*Ardea alba*	☐	☑	☑	☐	☐	☐	☐	☐	3000		1	LC	☐	☐		Historically a significant breeding site but in recent years flooding conditions have not been favorable
CHORDATA / AVES	*Ardea purpurea*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Historically a significant breeding site but in recent years flooding conditions have not been favorable
CHORDATA / AVES	*Ardeola ralloides*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Historically a significant breeding site but in recent years flooding conditions have not been favorable
CHORDATA	*Aves*	☐	☐	☐	☐	☐	☐	☐	☐					☐	☐		
CHORDATA / AVES	*Charadrius asiaticus*	☐	☐	☑	☐	☐	☐	☐	☐	2500		5	LC	☐	☐		
CHORDATA / AVES	*Charadrius marginatus*	☐	☐	☑	☐	☐	☐	☐	☐	300		1	LC	☐	☐		
CHORDATA / AVES	*Charadrius mongolus*	☐	☐	☑	☐	☐	☐	☐	☐	1500		1	LC	☐	☐		
CHORDATA / AVES	*Dendrocygna bicolor*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		The site is a feeding ground for this species
CHORDATA / AVES	*Dendrocygna viduata*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		The site is a feeding ground for this species
CHORDATA / AVES	*Egretta ardesiaca*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Historically a significant breeding site but in recent years flooding conditions have not been favorable
CHORDATA / AVES	*Egretta intermedia*	☐	☐	☑	☐	☐	☐	☐	☐	1000		1		☐	☐		
CHORDATA / AVES	*Ephippiorhynchus senegalensis*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		possibly one of the very few coastal breeding sites for this species
CHORDATA / AVES	*Gelochelidon nilotica*	☐	☐	☑	☐	☐	☐	☐	☐	1000		2	LC	☐	☐		
CHORDATA / AVES	*Glareola ocularis*	☑	☑	☑	☐	☐	☐	☐	☐	3000		40	VU	☐	☐		the site is an important wintering ground
CHORDATA / AVES	*Glareola pratincola*	☐	☐	☑	☐	☐	☐	☐	☐	3000		1	LC	☐	☐		
CHORDATA / AVES	*Gyps africanus*	☑	☐	☐	☐	☐	☐	☐	☐				CR	☐	☑		
CHORDATA / AVES	*Hydroprogne caspia*	☐	☐	☑	☐	☐	☐	☐	☐	200		2	LC	☐	☐		
CHORDATA / AVES	*Mycteria ibis*	☐	☑	☑	☐	☐	☐	☐	☐	1000		1	LC	☐	☐		one of the very few coastal breeding sites for this species
CHORDATA / AVES	*Nycticorax nycticorax*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		Historically a significant breeding site but in recent years flooding conditions have not been favorable
CHORDATA / AVES	*Pelecanus onocrotalus*	☑	☐	☑	☐	☐	☐	☐	☐	2000		1	LC	☐	☑		
CHORDATA / AVES	*Pelecanus rufescens*	☐	☐	☑	☐	☐	☐	☐	☐	1000		1	LC	☐	☐		

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								
CHORDATA / AVES	*Phalacrocorax lucidus*	☐	☑	☐	☐	☐	☐	☐	☐					☐	☐		one of the very few coastal breeding sites for this species
CHORDATA / AVES	*Phoenicopterus roseus*	☐	☐	☑	☐	☐	☐	☐	☐	500		1	LC	☐	☐		
CHORDATA / AVES	*Platalea alba*	☐	☑	☑	☐	☐	☐	☐	☐	1000		1	LC	☐	☐		Historically a significant breeding site but in recent years flooding conditions have not been favorable
CHORDATA / AVES	*Plectropterus gambensis*	☐	☐	☑	☐	☐	☐	☐	☐	2500		1	LC	☐	☐		
CHORDATA / AVES	*Plegadis falcinellus*	☐	☑	☑	☐	☐	☐	☐	☐	5000		5	LC	☐	☐		The site is a feeding ground for this species
CHORDATA / AVES	*Rynchops flavirostris*	☐	☐	☑	☐	☐	☐	☐	☐	100		1	NT	☐	☐		
CHORDATA / AVES	*Sternula saundersi*	☐	☐	☑	☐	☐	☐	☐	☐	1000		2	LC	☐	☐		
CHORDATA / AVES	*Thalasseus bengalensis*	☐	☐	☑	☐	☐	☐	☐	☐	1000		2	LC	☐	☐		
CHORDATA / AVES	*Threskiornis aethiopicus*	☐	☑	☐	☐	☐	☐	☐	☐				LC	☐	☐		The site is a feeding ground for this species
CHORDATA / AVES	*Torgos tracheliotus*	☑	☐	☐	☐	☐	☐	☐	☐				EN	☐	☐		
CHORDATA / AVES	*Tringa stagnatilis*	☐	☐	☑	☐	☐	☐	☐	☐	800		1	LC	☐	☐		

1) Percentage of the total biogeographic population at the site

The TRD is an important breeding, nursery and feeding ground for a number of coastal, estuarine and marine species, some of economic importance i.e. shrimps, prawns and fish species that make up the rich fishery of Ungwana Bay, in particular for Penaeid shrimp. These habitats provide shelter, food and protection. As one of the only estuarine staging posts on the West Asia - Eastern Africa coastal flyway it is a critical feeding ground for migratory waterbirds such as waders, gulls and terns.

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
Riverine Gallery Forest	☑	These forests characterized by Phoenix reclinata stems, Hyphaene compressa, Saba comorensis , Soreindeia madagascariensis, Drypetis natalensis, Keetia zanguebaricus, Harissonia abbysinica, Phoenix reclinata, Mimusops fruticosa, Baringtonia racemose,	The Tana River Mangabey Cercocebus galeritus (CR A3c), and Tana River Red Colobus Procolobus rufomitratus rufomitratus (CR, A3c), are only known to inhabit forests in lower Tana River- which include the Tana River Delta Ramsar Site. Their entire lif
Freshwater ecosystem (ox-lakes, River channel)	☑	These freshwater areas which include river flooding zones, host a diverse community of wetland birds and mammals which include Hippopotamus Hippopotamus amphibius (Vulnerable A4cd)	Water bird census survey carried out in 2021, documented 23,394 individual birds of 56 species with the surveyed freshwater ecosystem of Tana River Delta. This demonstrates the importance of this ecological community to support diverse species commun
Sandy Coastline (Dunes)	☑	The Sand Dunes allowing the coast line of Tana River Delta and Indian Ocean are turtle nesting area. These are: the Hawksbill Turtle Eretmochelys imbricata (Critically Endangered A2bd), the Green Turtle Chelonia mydas (Endangered A2bd), and the Olive	

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

4.1 - Ecological character

The Tana Delta has been accorded eco-regional importance under the East African Marine Eco-region (EAME) for being a system with diverse habitats such as wetlands, mangrove forest, savannah grassland, riverine forests and rangelands. It is home to rare, vulnerable, migratory and threatened species. It is also recognised as an important bird area (IBA). The riverine forests provide habitat for two endangered primates: the Tana River Red Colombus and the Tana River Crested Mangabey. The mosaic of riverine forests, grasslands, woodlands, lakes, mangroves, extensive pristine beaches, sand dunes and coastal waters creates a diversity of habitats, ecosystems and landscapes with a rich flora and fauna. The high diversity of ecosystems and associated species is the result of a dynamic equilibrium of hydrological conditions, soils, topography and coastal influences.
Shallow coastal waters: The coastal and marine waters of Tana delta, known as Ungwana bay, are highly productive. The bay is characterised by rich coral reef patches, seaweed and seagrass beds that provide important nursery and feeding ground for a variety of marine fauna.
Sandy beaches and sand dunes:Sandy beaches are found along the shorelines dominated by sediment derived from broken down coral skeletons, algae and shells. Sand of terrestrial origin deposited by the river Tana also constitutes a significant component of the sandy beaches. The sandy beaches and dunes support rich biodiversity and other natural resources. They are important nesting sites for the endangered sea turtles mainly the Green Turtle (Chelonia mydas) and the critically endangered Hawksbill Turtle (Eretmochelys imbricata). The beaches and mudflats at the river mouth are also important feeding and roosting sites for important shorebirds and other migratory birds of the Eastern African Flyway.
Coastal forest and mangroves: The lower Tana forests are characterised by five types of riverine forests: evergreen forests, mixed forest variant, Acacia forest, Garcinia forest and cultivation forest types. The forests contain many endemic tree species. The evergreen forest is dominated by Ficus Sycomorus, Diospyros Mespiliformis, Sorindeia Madagascariensis and Pachystela Msolo. Most of the tree species in the lower Tana forests are dependent on flooding regimes of Tana River and are disappearing due to the altered flooding regime and forest clearance for agriculture. Additionally, extensive damming upstream and encroachment of riparian land for farming have reduced the extent of these forests (NEMA 2004). All the mangrove species found in Kenya are present in the delta. They are: Avicenia Marina, Ceriops tagal, Sonneratia alba, Xylocarpus granatum, Rhizophora mueronata, Lumnitzera racemosa and Bruguiera gymnorrhiza. The mangrove forests in the delta play an important ecological as well as socio-economic role. Ecologically they serve as fish breeding areas and stabilise the shoreline through sediment accumulation thus countering impacts of sea level rise. The mangroves and intertidal flats also provide habitats for a number of coastal and marine prawns, shrimps, bivalves and fish.
Grassland: A big percentage of Tana delta is covered by floodplain grasslands. Seasonal flooding and poorly drained soils are important factors that maintain these ecosystems. The grasslands provide important dry season and drought fallback grazing areas for pastoral communities from Tana River, Lamu, Ijaara, and Malindi.
Freshwater wetlands: The Tana delta flood plain is characterized by several oxbow lakes and freshwater marshes. The main oxbow lakes found in the delta are: Lake Shakababo, Bilisa, Kongolola, Baratiro, Kitumbuini, Moa and Dide Waride. The emergent vegetation is dominated by aquatic grasses (Bothriochloa bladhii and Echinochloa haploclada) and sedges (Cyperus frerei and C. heterophylla). These wetlands including the river system support important fisheries resources and birdlife.

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

Marine or coastal wetlands

Wetland types (code and name)	Local name	Ranking of extent (1: greatest - 4: least)	Area (ha) of wetland type	Justification of Criterion 1
A: Permanent shallow marine waters		2		Rare
E: Sand, shingle or pebble shores				
F: Estuarine waters				
G: Intertidal mud, sand or salt flats	Ungwana Bay	1	23500	Representative
I: Intertidal forested wetlands	Chara	3	2000	Representative
J: Coastal brackish / saline lagoons				

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 >> M: Permanent rivers/ streams/ creeks	Tana River	1	1000	Representative
Fresh water > Flowing water >> N: Seasonal/ intermittent/ irregular rivers/ streams/ creeks				
Fresh water > Lakes and pools >> O: Permanent freshwater lakes	Lake Moa	3	500	Representative
Fresh water > Lakes and pools >> P: Seasonal/ intermittent freshwater lakes				
Fresh water > Lakes and pools >> Tp: Permanent freshwater marshes/ pools				
Fresh water > Marshes on inorganic soils >> Ts: Seasonal/ intermittent freshwater marshes/ pools on inorganic soils	Kithanga Wetland	1		Representative
Fresh water > Marshes on inorganic soils >> Xf: Freshwater, tree-dominated wetlands				

Human-made wetlands

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

Other non-wetland habitat

Other non-wetland habitats within the site	Area (ha) if known
Gallery riverine forest	43600
Coast line, sandy beaches and Dunes	10300
Wooded rangelands	66000
Settlements	1100

(ECD) Habitat connectivity: Tana River Delta Ramsar Site, connects the Tana river Upper catchment forests of Aberdare and Mt.Kenya forests and mid catchment dryland drainage basin with the Indian Ocean

4.3 - Biological components

4.3.1 - Plant species

Other noteworthy plant species

Phylum	Scientific name	Position in range / endemism / other
TRACHEOPHYTA/MAGNOLIOPSIDA	*Bruguiera gymnorhiza*	
TRACHEOPHYTA/CYCADOPSIDA	*Encephalartos hildebrandtii*	
TRACHEOPHYTA/MAGNOLIOPSIDA	*Euphorbia tanaensis*	Endemic
TRACHEOPHYTA/MAGNOLIOPSIDA	*Heritiera littoralis*	
TRACHEOPHYTA/MAGNOLIOPSIDA	*Xylocarpus granatum*	

Invasive alien plant species

Phylum	Scientific name	Impacts	Changes at RIS update
TRACHEOPHYTA/MAGNOLIOPSIDA	*Prosopis juliflora*	Actual (major impacts)	No change

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	*Acanthocercus atricollis*				exists in the Kimpini area

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
ARTHROPODA/INSECTA	*Acraea anemosa*				
ARTHROPODA/INSECTA	*Acraea braesia*				
ARTHROPODA/INSECTA	*Acraea satis*				
ARTHROPODA/INSECTA	*Aeolocoris turgidus*				
ARTHROPODA/INSECTA	*Ancala africana*				
CHORDATA/AMPHIBIA	*Boulengerula denhardti*				
CHORDATA/REPTILIA	*Chamaeleo dilepis*				
CHORDATA/REPTILIA	*Chamaeleo gracilis*				
ARTHROPODA/INSECTA	*Charaxes jahlusa kenyensis*				
ARTHROPODA/INSECTA	*Colotis amata*				
ARTHROPODA/INSECTA	*Colotis ione*				
ARTHROPODA/INSECTA	*Colotis protomedia*				
ARTHROPODA/INSECTA	*Crematogaster castanea*				
CHORDATA/REPTILIA	*Dipsadoboa flavida broadleyi*				
ARTHROPODA/INSECTA	*Dorylus affinis*				
ARTHROPODA/INSECTA	*Euphaedra neophron*				
ARTHROPODA/INSECTA	*Graphium angolanus*				
ARTHROPODA/INSECTA	*Graphium antheus*				
ARTHROPODA/INSECTA	*Graphium colonna*				
ARTHROPODA/INSECTA	*Helymaeus notaticollis*				
CHORDATA/REPTILIA	*Hemidactylus brookii*				
ARTHROPODA/INSECTA	*Heteracris coerulescens*				
ARTHROPODA/INSECTA	*Idactus bettoni*				
ARTHROPODA/INSECTA	*Idactus maculicornis*				
ARTHROPODA/INSECTA	*Lasiopezus variegator*				
CHORDATA/REPTILIA	*Mochlus mabuiiforme*				
CHORDATA/REPTILIA	*Mochlus tanae*				
ARTHROPODA/INSECTA	*Myrmeleon obscurus*				
ARTHROPODA/INSECTA	*Papilio constantinus*				
CHORDATA/REPTILIA	*Philothamnus hoplogaster*				restricted to coast
ARTHROPODA/INSECTA	*Polyrhachis schistacea*				
CHORDATA/REPTILIA	*Psammophis orientalis*				
CHORDATA/AMPHIBIA	*Ptychadena schillukorum*				
CHORDATA/AMPHIBIA	*Schistometopum gregorii*				
CHORDATA/MAMMALIA	*Syncerus caffer*				
ARTHROPODA/INSECTA	*Tabanus fraternus*				
ARTHROPODA/INSECTA	*Tabanus par*				
CHORDATA/MAMMALIA	*Tragelaphus imberbis*				

Phylum	Scientific name	Pop. size	Period of pop. est.	% occurrence	Position in range /endemism/other
CHORDATA/ACTINOPTERYGII	*Barbus paludinosus*				
CHORDATA/ACTINOPTERYGII	*Nothobranchius microlepis*				
CHORDATA/ACTINOPTERYGII	*Nothobranchius patrizii*				
CHORDATA/ACTINOPTERYGII	*Nothobranchius willerti*				
CHORDATA/AVES	*Batis soror*				
CHORDATA/AVES	*Cinnyris chalcomelas*				is in the coastal forest remnants and mangroves
CHORDATA/AVES	*Circaetus fasciolatus*				
CHORDATA/AVES	*Cyanomitra veroxii*				is in the coastal forest remnants and mangroves
CHORDATA/AVES	*Euplectes nigroventris*				is in the coastal forest remnants and mangroves
CHORDATA/AVES	*Halcyon senegaloides*				
CHORDATA/AVES	*Limosa limosa*				
CHORDATA/AVES	*Lybius melanopterus*				
CHORDATA/AVES	*Notopholia corrusca*				is in the coastal forest remnants and mangroves
CHORDATA/AVES	*Phyllastrephus fischeri*				
CHORDATA/AVES	*Telophorus quadricolor*				
CHORDATA/AVES	*Turdoides squamulata*				

Invasive alien animal species

Phylum	Scientific name	Impacts	Changes at RIS update
CHORDATA/AVES	*Corvus splendens*	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)

Rising sea levels: The Tana Delta is located on the coast, and as a result, it is vulnerable to rising sea levels caused by climate change (Verdone et al 2021). Increased frequency of droughts: Climate change is causing droughts to occur more frequently in the Tana Delta. This is particularly problematic for the people who live in the area, as the delta is an important source of water for agriculture and domestic use. When droughts occur, the water levels in the delta drop, which can lead to conflicts between different user groups (Field et al 2018).

4.4.2 - Geomorphic setting

a) Minimum elevation above sea level (in metres): 0

a) Maximum elevation above sea level (in metres): 37

- 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.

The Tana River Basin is a vital natural resource for Kenya, providing water, food, and habitat for a diverse range of flora and fauna. At the lower end of this basin lies the Tana Delta, which spans across Tana River and Lamu Counties, and flows into the Ungwana Bay, part of the Indian Ocean.
The Tana River is the most important river in Kenya and its basin covers about 132,000 km², which corresponds to 23% of the country. Originating from the peaks of Mount Kenya and the Aberdare Range, this river and its main tributaries wind their way through the landscape, providing vital water resources to people, animals, and plants along the way.

4.4.3 - Soil

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 soils in the Delta are heavy clays with numerous shallow depressions while the prominent forested levees are sandy. The soils are saline and alkaline, poorly drained and prone to cracking when dry. There are indications of shallow deposits of evaporites (Gypsum).

4.4.4 - Water regime

Water permanence

Presence?	Changes at RIS update
Usually permanent water present	decrease

Source of water that maintains character of the site

Presence?	Predominant water source	Changes at RIS update
Water inputs from surface water	☑	decrease

Water destination

Presence?	Changes at RIS update
Marine	unknown

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:

The flood regime in the Delta is bimodal, with a major flood in April-June, following rains over the catchments in March-May, and a minor flood in November to December. The flooding regime of the Tana River has been considerably modified since the 1980s as a consequence of upstream human activities, the construction of hydroelectric infrastructure and climate change. This has led to a decrease in the wet season floods and an increase in the dry season water flow resulting in degradation of the deltaic ecosystems.

4.4.5 - Sediment regime

Significant accretion or deposition of sediments occurs on the site ☑

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

Sediment regime unknown ☐

Please provide further information on sediment (optional):

Sediment loads (total suspended sediment concentration (TSSC) between 0.5 and 2 g/litre.

4.4.6 - Water pH

Circumneutral (pH: 5.5-7.4) ☑

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

Unknown ☐

Please provide further information on pH (optional):

The riverlinked fresh water systems are generally of a neutral pH with conductivities below 200 µS/cm.

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

Unknown ☑

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:

The land in the proposed Ramsar site is public land held by the county government in trust for the people resident in the area. Some areas are community land held by local communities identified on the basis of ethnicity and culture.
In the surrounding, water of the Tana River is used to generate electricity. There are seven dams located on the river course (upstream). These dams produce about 400 Mega Watts, the major source of electricity in the national grid. The water can also be used for water supply for domestic and large scale irrigation purposes. Crop cultivation in the Central Kenya highlands is common and extensive upstream in form of horticulture (fruits, vegetables and cereals) for export and to feed the local population. The areas of Witu and Moa have conducive floodplains for rice farming and agro-forestry.

4.5 - Ecosystem services

4.5.1 - Ecosystem services/benefits

Provisioning Services

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

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	High
Hazard reduction	Flood control, flood storage	Medium
Hazard reduction	Coastal shoreline and river bank stabilization and storm protection	High

Cultural Services

Ecosystem service	Examples	Importance/Extent/Significance
Recreation and tourism	Nature observation and nature-based tourism	Medium
Spiritual and inspirational	Spiritual and religious values	Medium
Spiritual and inspirational	Cultural heritage (historical and archaeological)	Medium
Scientific and educational	Important knowledge systems, importance for research (scientific reference area or site)	High
Scientific and educational	Long-term monitoring site	High
Scientific and educational	Type location for a taxon	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
Nutrient cycling	Carbon storage/sequestration	High
Nutrient cycling	Storage, recycling, processing and acquisition of nutrients	High
Pollination	Support for pollinators	High

Within the site: 60,000

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):

Ecosytem Services Assessment was carried out using methodology of Toolkit for Ecosystem Service Site-based Assessment (TESSA) protocols (Peh et al., 2013).
Ecosystem services provided by the Tana River Delta Ramsar Site have been documented (Field et al 2018). They include Harvested Wild Goods, Cultivated Goods, Climate Regulation Services, Water provision, Flood Regulation and Water Quality Regulation Services. Estimates of marketable services and values were done in Business As Usual Scenario (B), Conservation Scenario (Bns) & Hybrid Scenario {C}- which incorporates sustainable management practices of the Tana River Delta. The total value of harvested goods was estimated at over Ksh 2 billion in 2017 but at Ksh 1.13 billion, 1.75 billion, and 4.65 billion under Scenarios C, Bs and Bns, respectively. Livestock grazing was the most valuable harvested wild good valued at Ksh1.85 billion in 2017, Ksh 0.55 billion in scenarios C, about Ksh 1 billion in scenario Bs and Ksh 4 billion in scenario Bns. Other harvested wild goods included fuel (charcoal and firewood), honey and construction materials (building poles, thatching material and timber). All the residents in the Delta obtain water for their various uses from several sources within the Delta. Flooding was perceived to be a problem by about 62% of the residents due to disease outbreaks, crop destruction, livestock loss, damage to infrastructure including houses and other equipment, displacement, disruption of transport and education. However, the residents acknowledged flooding leads to improved food security through improved fisheries, livestock and agricultural production. Carbon stock in all scenarios decreases over the thirty-three years of the projection. The intensive land use scenarios Bs & Bns show the greatest declines in soil and vegetation carbon stocks, owing largely to the wholesale conversion of carbon-rich tree and shrub habitats (Field et al 2018).

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 ☑

Description if applicable

The Tana Delta wetland resources are essential for the socio-economic wellbeing of the local communities. The wetlands provide a range of services including fishing, livestock grazing, livestock watering, traditional flood-fed rice growing, harvesting of reeds, means of transport, sand harvesting, hunting and gathering, security, cultural ceremonies, and leisure. However, the importance attached to these socio-economic values varies from one community to another and depends on the type of wetland and the socio-economic activity that the community engages in. For instance, the river is the main source of water for domestic use, and it is also considered a significant security barrier against bandits and a means of transportation. The river is also valued for its ability to provide thatching materials, cultural practices, crop farming, and picnic sites. On the other hand, some villagers/farming communities prioritize oxbow lakes for fishing and rice growing. Oxbow lakes also provide reeds for thatching houses, wild food, water for irrigation, and livestock grazing areas. Thus, the importance of these wetland resources varies depending on their location and the specific needs of the local communities. It is crucial to recognize the different values placed on these resources by various communities and manage them sustainably to avoid overexploitation.

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

Description if applicable

The Tana River Delta is home to several historical sites, including the Fumo Liongo graves, Waungwana, Wanawali Saba, Shariff Twahib grave (a pilgrimage site), Makubani shrine, and Shaka ruins (all in Kipini). Additionally, the colonial District Commissioner house in Kilelengwani, the Old Swahili/Shirazi Village ruin in Kau, Anasa in Chara, and Nkozi shrine (in Ndera) also contribute to the rich cultural heritage of the region. Bilisa boasts of two historical cultural shrines, Sheik Abdalla's Grave and Ziwa wa Waku/Kijo shrine. In Salama, the Mudzi Uzunguni colonial site and Chamadho forest shrine are notable, while the Kone Ebba Shrine is located in Galili.
In traditional settings, the Pokomo council of Elders, known as the Gassa, and the Orma's council of Elders, known as Matadeda, are the recognized custodians of common use areas and protected areas. For a long time, the council of elders has been responsible for resource management and revered for their wisdom and conflict resolution abilities within and outside their communities. They also serve as custodians and managers of traditional sites and shrines. Historically, the council of elders, known as the "Wazee wa gassa," strictly regulated forest and water access and product utilization. However, since independence, the activities and powers of these councils have been restricted, leading to uncontrolled and unmanaged use of wetland resources, resulting in ecosystem degradation.

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 ☐

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
Provincial/region/state 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)	☐	☑

Other

Category	Within the Ramsar Site	In the surrounding area
Commoners/customary rights	☑	☐

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

The Tana River Delta Ramsar site is situated in the Tana River County and Lamu County, Kenya. A number of ministries and relevant state agencies are involved in the management of the site. They include Kenya Forest Service, Kenya Wildlife Service and National Environment Management Authority

5.1.2 - Management authority

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

County Government of Tana River
Lamu County Government
Tana and Athi River Development Authority
Kenya Wildlife Service
Kenya Forest Service

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

Directors

Postal address:

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	Medium impact	Medium impact	☑	increase	☑	increase
Commercial and industrial areas	Medium impact	High impact	☑	No change	☑	increase
Tourism and recreation areas	Low impact	Low 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	☑	increase
Salinisation	Low impact	Medium impact	☑	increase	☐	No change
Canalisation and river regulation	High 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	☑	increase	☑	No change
Livestock farming and ranching	Low impact	High impact	☑	increase	☐	increase
Non specified			☑		☐	

Energy production and mining

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
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	☑	No change
Utility and service lines (e.g., pipelines)	unknown 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	Medium impact	High impact	☑	No change	☑	No change
Gathering terrestrial plants	Low impact	Medium impact	☑	No change	☐	No change
Logging and wood harvesting	Medium impact	High impact	☑	increase	☑	unknown
Fishing and harvesting aquatic resources	Medium impact	High impact	☑	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	Low impact	☑	No change	☑	No change
(Para)military activities	Low impact	Low impact	☐	No change	☑	increase

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	High impact	High impact	☑	No change	☑	increase
Vegetation clearance/ land conversion	High impact	High impact	☑	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	High impact	High impact	☑	increase	☑	increase

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	Changes	In the surrounding area	Changes
Household sewage, urban waste water	Low impact	Medium impact	☑	No change	☑	No change
Garbage and solid waste	Medium 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
Droughts	High impact	High impact	☑	No change	☑	No change
Storms and flooding	High impact	High impact	☑	No change	☑	No change

5.2.2 - Legal conservation status

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
National Forest Reserve	Chara		whole
National Forest Reserve	Kilelengwani		whole
National Forest Reserve	Kipini Forest		whole
National Forest Reserve	Ozi Forest		whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Tana River Delta	http://datazone.birdlife.org/site/factsheet/tana-river-delta-iba -kenya	whole
Other non-statutory designation	Indigenous Community Conservation Area		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	Partially implemented

Habitat

Measures	Status
Catchment management initiatives/controls	Implemented
Habitat manipulation/enhancement	Implemented
Hydrology management/restoration	Implemented
Improvement of water quality	Implemented
Faunal corridors/passage	Proposed

Species

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

Human Activities

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

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
Animal species (please specify)	Implemented
Birds	Implemented

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

Edward Njagi, Joseph Gathua (2021) Conservation Status, diversity and relative abundance on Tana River Delta fish. GEF-TRI, Nature Kenya

Fatma Manyenze, Cosmas N. Munga, Chrisestom Mwatete, Hamadi Mwamlavya, Johan C. Groeneveld (2021). Small-scale fisheries of the Tana Estuary in Kenya. WIO Journal of Marine Science Special Issue 1: 93-114

Field, R., Muoria P., Gacheru, P., Magin, C., Matiku. P., Munguti, S., Odera, G., Odeny, D., Makhanu,R. (2018) Ecosystem Service Assessment of the implementation of a Community Conserved Area in the lower Tana Delta. Nature Kenya/RSPB. Nairobi.

Githui, F.K., Mugo, R.M., Gichuki, J., & Nyamweya, C.S. (2020). Fish species composition, diversity, and abundance in the Tana River Delta, Kenya. Environmental Biology of Fishes, 103(10): 1203-1214.
Government of Kenya (2017). Tana Delta Integrated Management Plan, 2017- 2017. NEMA, PP 130.

Ireene Madindou, Alice Bett, Fleur Ng'weno, Colin Jackson, David Kimiti, Paul Gacheru, Solomon Kyalo, Titus Imboma, Eunice Kamau, Lennox Kirao (2021). The National Waterbird Census For Kenya; January 2021- Waterbird Count Results in the Rift Valley, Nairobi, Central, Eastern, and Coastal Kenya. NMK.

Kivai, S.M., Fundi. P., Kivasu, C. M. (2020) Trigger endemic primate species Survey: Balancing water services for development and biodiversity in the Tana-Delta Project. Nature Kenya/National Museums of Kenya

Matiku Paul and Makhanu Rudolf (2021) Sustainable Living in Rural Villages: A Guide for Village Resource Managers, Nature Kenya, Nairobi.

Odhengo P., Matiku P., Waweru P., Guda D., Kinara T., Kathike S., Mmyamwezi E., Munguti S., Nelson P., and Koyier G. (2014). Tana River Delta Land Use Plan.

Odhengo P., Matiku P., Nyangena J., Wahome K., Opaa B., Munguti, S., Koyier G., Nelson, P., Mnyamwezi, E. (2014a). Tana River Delta Strategic Environmental Assessment.
Verdone, M., Chazdon, R., Muoria, P., Odeny, D., Gacheru, P., Makhanu, R., Matiku, P. (2021) Forest and Landscape Restoration Opportunities in Tana River Delta. Nature Kenya.

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)
<8 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
<1 file(s) uploaded>

vi. other published literature
<4 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

Please provide at least one photograph of the site:

X (*c, 1-1-1970*)

Hyphaene palm grove at Shakako, Tana Delta by Peter Usher (*C Peter Usher, 2014*)

Livestock grazing Dide Waride, Tana Delta by John Mwacharo (*C John Mwacharo, 2019*)

Tana River banks with mangroves at Kipini by Peter Usher (*C Peter Usher, 2014*)

6.1.4 - Designation letter and related data

Designation letter
<1 file(s) uploaded>

Date of Designation: 2012-07-09