Ramsar Information Sheet

Published on 31 October 2022

India

Thane Creek

Designation date	13 April 2022
Site number	2490
Coordinates	19°06'31"N 72°57'54"E
Area	6 521,08 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

Thane Creek is located in Maharashtra, India. There are several sources of fresh water to the creek, of which Ulhas River is the largest, followed by many drainage channels from various suburban areas of Mumbai, Navi Mumbai & Thane. It has been declared as Thane Creek Flamingo Sanctuary. Thane creek is fringed by mangroves on both banks & comprises around 20% of the total Indian mangrove species. The mangrove forest acts as a natural shelter belt & protects the land from cyclones, tidal surges, seawater seepage & intrusions. The mangrove serves as a nursery for several fishes & sustains the local fishery. The area is an important part of the wetland complex of the Central Asian Flyway of the birds and has been categorized as an Important Bird Area (IBA). Other than 202 avifaunal species, the creek also houses 18 species of fishes, crustaceans & molluscs, 59 species of butterflies, 67 species of Insects, and 35 species of phytoplankton, and 24 species of zooplankton & 23 species of Benthos.

2 - Data & location

2.1 - Formal data

2.1.1 - Name and address of the compiler of this RIS

Responsible compiler

Institution/agency: Mangrove Cell of Maharashtra Forest Department

Postal address: Office of Additional Principal Chief Conservator Of Forests, 301, Ballard Estate, Abv Britannia Restaurant, Mumbai 400001

National Ramsar Administrative Authority

Institution/agency: Ministry of Environment, Forest and Climate Change, Government of India

Postal address: Office of the Secretary
Ministry of Environment, Forest and Climate Change
Indira Paryavaran Bhawan
Jorbagh Road
New Delhi - 110 003 - INDIA

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

From year: 2016

To year: 2021

2.1.3 - Name of the Ramsar Site

Official name (in English, French or Spanish): Thane Creek

Unofficial name (optional): Thane Creek

2.2 - Site location

2.2.1 - Defining the Site boundaries

b) Digital map/image
<1 file(s) uploaded>

Former maps: 0

Boundaries description

The Eastern boundary is between Thane & Mumbai Suburban districts. The Southern & Northern boundaries of the creek lie in the marshy land. The Western boundary is on the marshy land. The Creek is said to extend from the river to the Vashi bridge about 12 km's to its South, beyond which the waters are said to be part of the Panvel and Dharamtar Creeks. It is narrower and shallow at the riverine end and is broader and deeper towards the sea and its boundary is divided by saltpans and stretches of mangroves.

2.2.2 - General location

a) In which large administrative region does the site lie? The site lies in the Thane, Mumbai and Mumbai Suburban district of Maharashtra State

b) What is the nearest town or population centre? Thane City, Mumbai City and Navi Mumbai City

2.2.3 - For wetlands on national boundaries only

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

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

2.2.4 - Area of the Site

Official area, in hectares (ha): 6521.08

Area, in hectares (ha) as calculated from GIS boundaries: 6569.009

2.2.5 - Biogeography

Biogeographic regions

Regionalisation scheme(s)	Biogeographic region
Other scheme (provide name below)	Coasts Zone
Marine Ecoregions of the World (MEOW)	103 Western India

Other biogeographic regionalisation scheme

It comes under the “Coasts” zone in the zonation of the different biogeographic zones of India as classified by Rodgers et.al., (2002) and under the biogeographic province of the Coastal zone (8). The Thane Creek Flamingo Sanctuary comes in the “humid category” under the classification of the bioclimatic zones of India.

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 wetland is rare and is highly representative of the biodiversity of the Western Ghats. It is a part of the Central Asian Flyway and caters to a large number of ecosystem services and hydrological functions. Some of the major functions of Thane Creek include: 1. Source of water for agriculture 2. Water for Domestic use 3. Buffering communities from extreme events such as floods and storms 4. Groundwater recharge 5. Water purification 6. Acts as a sink for sediments
Other ecosystem services provided	The wetland provides the following ecosystem services: 1. Source of water for agriculture 2. Water for Domestic use 3. Buffering communities from extreme events such as floods and storms 4. Groundwater recharge 5. Water purification 6. Acts as a sink for sediments
Other reasons	This is an unique creek with relatively shallow depth but has significantly large extent of area coverage under water which supports in maintaining local climate resiliency. The creek houses many avian species, local flora and terrestrial fauna . This wetland enables enhancement of the landscape aesthetics. This wetland is basis of agricultural practices in this area which is participatory and being near to urban sprawl has significantly encouraged locals to continue community agriculture which is unique reason for need for the preservation of this creek as wetland.

☑ Criterion 2 : Rare species and threatened ecological communities

Optional text box to provide further information	The wetland supports the following IUCN globally conservational significant species like Acerodon celebensis, Oreochromis mossambicus, Calidris tenuirostris, and Sterna aurantia.

☑ Criterion 3 : Biological diversity

Justification

Thane Creek sustains a spectacular congregation of mammals, waterbirds, waders, reptiles, fishes and lower organisms within the Western Ghats Biodiversity Hotspot. The wetland supports significant populations of floral species like Acanthus albus, Avicennia marina, Avicennia marina marina, Ceriops tagal, Derris trifoliata, Excoecaria agallocha, Rhizophora apiculate, Rhizophora mucronate, Salvadora persica, Sonneratia alba, Sonneratia apetala, and Volkameria inermis and faunal species like Acerodon celebensis, Acrochordus granulatus, Archelaphe bella, Calotes emma, Canis aureus, Gerarda prevostiana, Herpestes javanicus auropunctatus, Lanthanotus borneensis, Naja naja, Sus celebensis, Aratus pisonii, Cerastoderma edule, Enigmonia aenigmatica, Mugil cephalus, Placuna placenta, Siluriformes parallelus, Thalassina anomala, Actitis hypoleucos, Anas acuta, Anas clypeata, Anas crecca, Anas poecilorhyncha zonorhyncha, Anas querquedula, Ardea alba, Ardeola grayii, Arenaria interpres, Calidris alpina, Calidris ferruginea, Calidris minuta, Calidris temminckii, Calidris tenuirostris, Charadrius alexandrines, Charadrius dubius, Charadrius leschenaultia, Charadrius mongolus, Chlidonias hybrida, Chroicocephalus brunnicephalus, Chroicocephalus genei, Dendrocygna javanica, Egretta garzetta, Egretta gularis, Egretta intermedia, Gelochelidon nilotica, Himantopus Himantopus, Ichthyaetus ichthyaetus, Larus fuscus heuglini, Limicola falcinellus, Limosa limosa, Microcarbo niger, Milvus migrans, Numenius arquata, Phoeniconaias minor, Phoenicopterus roseus, Pluvialis fulva, Pluvialis squatarola, Recurvirostra avosetta, Sterna hirundo, Sternula albifrons, Threskiornis melanocephalus, Tringa nebularia, Tringa stagnatilis, Tringa tetanus, and Xenus cinereus. These species are representative and significantly helps in maintaining the biodiversity of the region owing to the large variety of ecological functions performed by the above-mentioned diverse range of species.

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

Optional text box to provide further information

Thane Creek has a diverse habitat with a number of inlets and surrounding forests which serve as good nesting and foraging habitats for birds. The diversity of habitats enables the wetland to act as an important breeding site for many species of birds and other fauna, where the following species nest in large numbers: Acerodon celebensis, Acrochordus granulatus, Canis aureus, Gerarda prevostiana, Herpestes javanicus auropunctatus, Sus celebensis, Alcedo atthis, Amaurornis phoenicurus, Anas Penelope, Anas querquedula, Anas strepera, Aquila clanga, Ardea cinerea, Ardea purpurea, Bubulcus ibis, Butorides striata, Ceryle rudis, Charadrius dubius, Charadrius leschenaultia, Ciconia Ciconia, Circus aeruginosus, Fulica atra, Halcyon pileate, Haliastur indus, Larus cachinnans, Larus fuscus barabensis, Limosa lapponica, Limosa limosa, Milvus migrans, Numenius arquata, Pandion haliaetus, Phalacrocorax fuscicollis, Philomachus pugnax, Plegadis falcinellus, Tachybaptus ruficollis, Tadorna ferruginea, Tadorna tadorna, Tringa glareola, Tringa ochropus, and Vanellus indicus. Thus, the site provides support to the species listed above during critical stages of their life-cycles.

☑ Criterion 5 : >20,000 waterbirds

Overall waterbird numbers	244099
Start year	2019
End year	2022
Source of data:	State Forest Department Data

Optional text box to provide further information

Many species of waterbirds contribute to his criteria. 244099 is the annual average of the bird counts of the last three years. The significant avian species with their population count above 20, 000 annual average are Actitis hypoleucos, Alcedo atthis, Amaurornis phoenicurus, Anas acuta, Anas crecca, Anas Penelope, Anas poecilorhyncha, Anas querquedula, Anas strepera, Aquila clanga, Ardea cinerea, Ardea purpurea, Ardeola grayii, Arenaria interpres, Bubulcus ibis, Butorides striata, Calidris alpina, Calidris ferruginea, Calidris minuta, Calidris temminckii, Calidris tenuirostris, Casmerodius albus, Ceryle rudis, Charadrius alexandrines, Charadrius dubius, Charadrius leschenaultia, Charadrius mongolus, Chlidonias hybrida, Chroicocephalus brunnicephalus, Chroicocephalus genei, Ciconia Ciconia, Circus aeruginosus, Dendrocygna javanica, Egretta garzetta, Egretta gularis, Fulica atra, Gelochelidon nilotica, Halcyon pileate, Halcyon smyrnensis, Heliastur indus, Himantopus Himantopus, Hydroprogne caspia, Ichthyaetus ichthyaetus, Larus cachinnans, Larus fuscus barabensis, Larus heuglini, Limicola falcinellus, Limosa lapponica, Limosa limosa, Mesophoyx intermedia, Milvus migrans, Milvus migrans lineatus, Mycteria leucocephala, Numenius arquata, Numenius phaeopus, Pandion haliaetus, Phalacrocorax fuscicollis, Phalacrocorax niger, Philomachus pugnax, Phoeniconaias minor, Phoenicopterus roseus, Platalea leucorodia, Plegadis falcinellus, Pluvialis fulva, Pluvialis squatarola, Recurvirostra avosetta, Spatula clypeata, Sterna aurantia, Sterna hirundo, Sternula albifronst, Tachybaptus ruficollis, Tadorna ferruginea, Tadorna tadorna, Threskiornis melanocephalus, Tringa glareola, Tringa nebularia, Tringa ochropus, Tringa stagnatilis, Tringa tetanus, Vanellus indicus, and Xenus cinereus.

☑ Criterion 6 : >1% waterbird population

Optional text box to provide further information

The site supports more than 1% threshold population of waterbird species like Calidris alpina, Calidris ferruginea, Calidris minuta, Charadrius mongolus, Chlidonias hybrida, Chroicocephalus brunnicephalus, Chroicocephalus genei, Limicola falcinellus, Limosa limosa, Phoeniconaias minor, Phoenicopterus roseus, Recurvirostra avosetta, and Tringa tetanus.

☑ Criterion 7 : Significant and representative fish

Justification

Many species of fishes are known to use this site for feeding, breeding, and migration purposes from adjoining water bodies and vice-versa. Many of these fishes are exclusively restricted to this region. Some of these fishes are identified as local migrants while others are long-distance migrants. The species include AAratus pisonii, Cerastoderma edule, Enigmonia aenigmatica, Mugil cephalus, Oreochromis mossambicus, Placuna placenta, Siluriformes parallelus, and Thalassina anomala.

☑ Criterion 8 : Fish spawning grounds, etc.

Justification

Thane Creek serves as feeding and spawning grounds for several fish species such as Aratus pisonii, Cerastoderma edule, Enigmonia aenigmatica, Mugil cephalus, Oreochromis mossambicus, Placuna placenta, Siluriformes parallelus, and Thalassina anomala, which periodically use the site throughout the year to complete their life cycles.

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	*Acanthus albus*	☐	☑	☐		☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.

Phylum	Scientific name	Criterion 2	Criterion 3	Criterion 4	IUCN Red List	CITES Appendix I	Other status	Justification
TRACHEOPHYTA / MAGNOLIOPSIDA	*Avicennia marina*	☐	☑	☐	LC	☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Avicennia marina marina*	☐	☑	☐		☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Ceriops tagal*	☐	☑	☐	LC	☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Derris trifoliata*	☐	☑	☐		☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Excoecaria agallocha*	☐	☑	☐	LC	☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Rhizophora apiculata*	☐	☑	☐	LC	☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Rhizophora mucronata*	☐	☑	☐	LC	☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Salvadora persica*	☐	☑	☐	LC	☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Sonneratia alba*	☐	☑	☐	LC	☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Sonneratia apetala*	☐	☑	☐	LC	☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.
TRACHEOPHYTA / MAGNOLIOPSIDA	*Volkameria inermis*	☐	☑	☐		☐		The wetland supports significant population of this species, which is representative and significantly helps to maintain the biodiversity of the region.

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 / MAMMALIA	*Acerodon celebensis*	☑	☑	☐	☐	☑	☐	☐	☐				VU	☐	☐		Vulnerable species, contributes to biodiversity of the wetland.
CHORDATA / REPTILIA	*Acrochordus granulatus*	☐	☑	☐	☐	☑	☐	☐	☐				LC	☐	☐		Contributes to biodiversity of the wetland.
CHORDATA / REPTILIA	*Archelaphe bella*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Contributes to biodiversity of the wetland.
CHORDATA / REPTILIA	*Calotes emma*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Contributes to biodiversity of the wetland.
CHORDATA / MAMMALIA	*Canis aureus*	☐	☑	☐	☐	☑	☐	☐	☐				LC	☐	☐		Contributes to biodiversity of the wetland.
CHORDATA / REPTILIA	*Gerarda prevostiana*	☐	☑	☐	☐	☑	☐	☐	☐				LC	☐	☐		Contributes to biodiversity of the wetland.
CHORDATA / MAMMALIA	*Herpestes javanicus auropunctatus*	☐	☑	☐	☐	☑	☐	☐	☐					☐	☐		Contributes to biodiversity of the wetland.
CHORDATA / REPTILIA	*Lanthanotus borneensis*	☐	☐	☐	☐	☑	☐	☐	☐				EN	☐	☐		Contributes to biodiversity of the wetland.
CHORDATA / REPTILIA	*Naja naja*	☐	☐	☐	☐	☑	☐	☐	☐				LC	☐	☐		Contributes to biodiversity of the wetland.
CHORDATA / MAMMALIA	*Sus celebensis*	☐	☑	☐	☐	☑	☐	☐	☐				NT	☐	☐		Contributes to biodiversity of the wetland.
Fish, Mollusc and Crustacea																	
ARTHROPODA / MALACOSTRACA	*Aratus pisonii*	☐	☐	☐	☐	☑	☐	☑	☑					☐	☐		Contributes to biodiversity of the wetland. Uses the site as a breeding and spawning ground.
MOLLUSCA / BIVALVIA	*Cerastoderma edule*	☐	☐	☐	☐	☑	☐	☑	☑					☐	☐		Contributes to biodiversity of the wetland. Uses the site as a breeding and spawning ground.
MOLLUSCA / BIVALVIA	*Enigmonia aenigmatica*	☐	☐	☐	☐	☑	☐	☑	☑					☐	☐		Contributes to biodiversity of the wetland. Uses the site as a breeding and spawning ground.
CHORDATA / ACTINOPTERYGII	*Mugil cephalus*	☐	☐	☐	☐	☑	☐	☑	☑				LC	☐	☐		Contributes to biodiversity of the wetland. Uses the site as a breeding and spawning ground.
CHORDATA / ACTINOPTERYGII	*Oreochromis mossambicus*	☑	☐	☐	☐	☐	☐	☑	☑				VU	☐	☐		The creek supports significant population of this vulnerable species in important life stages. Uses the wetland as a spawning ground.
MOLLUSCA / BIVALVIA	*Placuna placenta*	☐	☐	☐	☐	☑	☐	☑	☑					☐	☐		Contributes to biodiversity of the wetland. Uses the site as a breeding and spawning ground.
CHORDATA / ACTINOPTERYGII	*Siluriformes parallelus*	☐	☐	☐	☐	☑	☐	☑	☑					☐	☐		Contributes to biodiversity of the wetland. Uses the site as a breeding and spawning ground.
ARTHROPODA / MALACOSTRACA	*Thalassina anomala*	☐	☐	☐	☐	☑	☐	☑	☑					☐	☐		Contributes to biodiversity of the wetland. Uses the site as a breeding and spawning ground.
Birds																	
CHORDATA / AVES	*Actitis hypoleucos*	☐	☐	☐	☐	☑	☑	☐	☐	413	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.

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	*Alcedo atthis*	☐	☑	☐	☐	☐	☑	☐	☐	3	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Amaurornis phoenicurus*	☐	☑	☐	☐	☐	☑	☐	☐	3	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Anas acuta*	☐	☐	☐	☐	☑	☑	☐	☐	320	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Anas clypeata*	☐	☐	☐	☐	☑	☑	☐	☐	2614	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Anas crecca*	☐	☐	☐	☐	☑	☑	☐	☐	1364	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Anas penelope*	☐	☑	☐	☐	☐	☑	☐	☐	1	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Anas poecilorhyncha zonorhyncha*	☐	☐	☐	☐	☑	☑	☐	☐	116	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Anas querquedula*	☐	☑	☐	☐	☑	☑	☐	☐	111	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Anas strepera*	☐	☑	☐	☐	☐	☑	☐	☐	88	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Aquila clanga*	☐	☑	☐	☐	☐	☑	☐	☐	1	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Ardea alba*	☐	☐	☐	☐	☑	☑	☐	☐	181	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Ardea cinerea*	☐	☑	☐	☐	☐	☑	☐	☐	97	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Ardea purpurea*	☐	☑	☐	☐	☐	☑	☐	☐	3	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Ardeola grayii*	☐	☐	☐	☐	☑	☑	☐	☐	260	2019 -		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Arenaria interpres*	☐	☐	☐	☐	☑	☑	☐	☐	206	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.

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	*Bubulcus ibis*	☐	☑	☐	☐	☐	☑	☐	☐	13	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Butorides striata*	☐	☑	☐	☐	☐	☑	☐	☐	4	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Calidris alpina*	☐	☐	☑	☐	☑	☑	☐	☐	2153	2019 - 2022	2.15	LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Calidris ferruginea*	☐	☐	☑	☐	☑	☑	☐	☐	16256	2019 - 2022	16.26	NT	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Calidris minuta*	☐	☐	☑	☐	☑	☑	☐	☐	47553	2019 - 2022	23.78	LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Calidris temminckii*	☐	☐	☐	☐	☑	☑	☐	☐	669	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Calidris tenuirostris*	☑	☐	☐	☐	☑	☑	☐	☐	5	2019 - 2022		EN	☐	☑		This endangered species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Ceryle rudis*	☐	☑	☐	☐	☐	☑	☐	☐	2	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Charadrius alexandrinus*	☐	☐	☐	☐	☑	☑	☐	☐	440	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Charadrius dubius*	☐	☑	☐	☐	☑	☑	☐	☐	131	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Charadrius leschenaultii*	☐	☑	☐	☐	☑	☑	☐	☐	178	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Charadrius mongolus*	☐	☐	☑	☐	☑	☑	☐	☐	18787	2019 - 2022	6.96	LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Chlidonias hybrida*	☐	☐	☑	☐	☑	☑	☐	☐	2061	2019 - 2022	2.06	LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Chroicocephalus brunnicephalus*	☐	☐	☑	☐	☑	☑	☐	☐	4993	2019 - 2022	3.57		☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.

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	*Chroicocephalus genei*	☐	☐	☑	☐	☑	☑	☐	☐	3580	2019 - 2022	2.39		☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Ciconia ciconia*	☐	☑	☐	☐	☐	☑	☐	☐	1	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Circus aeruginosus*	☐	☑	☐	☐	☐	☑	☐	☐	4	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Dendrocygna javanica*	☐	☐	☐	☐	☑	☑	☐	☐	572	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Egretta garzetta*	☐	☐	☐	☐	☑	☑	☐	☐	388	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Egretta gularis*	☐	☐	☐	☐	☑	☑	☐	☐	61	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Egretta intermedia*	☐	☐	☐	☐	☑	☑	☐	☐	638	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Fulica atra*	☐	☑	☐	☐	☐	☑	☐	☐	3	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Gelochelidon nilotica*	☐	☐	☐	☐	☑	☑	☐	☐	792	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Halcyon pileata*	☐	☑	☐	☐	☐	☑	☐	☐	1	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Halcyon smyrnensis*	☐	☐	☐	☐	☐	☑	☐	☐	9	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Haliastur indus*	☐	☑	☐	☐	☐	☑	☐	☐	8	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Himantopus himantopus*	☐	☐	☐	☐	☑	☑	☐	☐	568	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Hydroprogne caspia*	☐	☐	☐	☐	☐	☑	☐	☐	51	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Ichthyaetus ichthyaetus*	☐	☐	☐	☐	☑	☑	☐	☐	150	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.

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	*Larus cachinnans*	☐	☑	☐	☐	☐	☑	☐	☐	4	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Larus fuscus barabensis*	☐	☑	☐	☐	☐	☑	☐	☐	37	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Larus fuscus heuglini*	☐	☐	☐	☐	☑	☑	☐	☐	202	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Limicola falcinellus*	☐	☐	☑	☐	☑	☑	☐	☐	2252	2019 - 2022	2.75		☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Limosa lapponica*	☐	☑	☐	☐	☐	☑	☐	☐	1	2019 - 2022		NT	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Limosa limosa*	☐	☑	☑	☐	☑	☑	☐	☐	4871	2019 - 2022	3.25	NT	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Microcarbo niger*	☐	☐	☐	☐	☑	☑	☐	☐	112	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Milvus migrans*	☐	☑	☐	☐	☑	☑	☐	☐	453	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Milvus migrans lineatus*	☐	☐	☐	☐	☐	☑	☐	☐	3	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Mycteria leucocephala*	☐	☐	☐	☐	☐	☑	☐	☐	92	2019 - 2022		NT	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Numenius arquata*	☐	☑	☐	☐	☑	☑	☐	☐	117	2019 - 2022		NT	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Numenius phaeopus*	☐	☐	☐	☐	☐	☑	☐	☐	20	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Pandion haliaetus*	☐	☑	☐	☐	☐	☑	☐	☐	5	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Phalacrocorax fuscicollis*	☐	☑	☐	☐	☐	☑	☐	☐	6	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.

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	*Philomachus pugnax*	☐	☑	☐	☐	☐	☑	☐	☐	5	2019 - 2022			☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Phoeniconaias minor*	☐	☐	☑	☐	☑	☑	☐	☐	94187	2019 - 2022	62.49	NT	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Phoenicopterus roseus*	☐	☐	☑	☐	☑	☑	☐	☐	26943	2019 - 2022	8.42	LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Platalea leucorodia*	☐	☐	☐	☐	☐	☑	☐	☐	12	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Plegadis falcinellus*	☐	☑	☐	☐	☐	☑	☐	☐	10	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Pluvialis fulva*	☐	☐	☐	☐	☑	☑	☐	☐	104	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Pluvialis squatarola*	☐	☐	☐	☐	☑	☑	☐	☐	641	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Recurvirostra avosetta*	☐	☐	☑	☐	☑	☑	☐	☐	1055	2019 - 2022	1.06	LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Sterna aurantia*	☑	☐	☐	☐	☐	☑	☐	☐	11	2019 - 2022		VU	☐	☐		This vulnerable species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Sterna hirundo*	☐	☐	☐	☐	☑	☑	☐	☐	140	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Sternula albifrons*	☐	☐	☐	☐	☑	☑	☐	☐	241	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Tachybaptus ruficollis*	☐	☑	☐	☐	☐	☑	☐	☐	4	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Tadorna ferruginea*	☐	☑	☐	☐	☐	☑	☐	☐	3	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Tadorna tadorna*	☐	☑	☐	☐	☐	☑	☐	☐	6	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Threskiornis melanocephalus*	☐	☐	☐	☐	☑	☑	☐	☐	187	2019 - 2022		NT	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.

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	*Tringa glareola*	☐	☑	☐	☐	☐	☑	☐	☐	55	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Tringa nebularia*	☐	☐	☐	☐	☑	☑	☐	☐	261	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Tringa ochropus*	☐	☑	☐	☐	☐	☑	☐	☐	36	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Tringa stagnatilis*	☐	☐	☐	☐	☑	☑	☐	☐	681	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Tringa totanus*	☐	☐	☑	☐	☑	☑	☐	☐	5099	2019 - 2022	5.1	LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Vanellus indicus*	☐	☑	☐	☐	☐	☑	☐	☐	4	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.
CHORDATA / AVES	*Xenus cinereus*	☐	☐	☐	☐	☑	☑	☐	☐	385	2019 - 2022		LC	☐	☐		This species uses the site for breeding and nesting and is a significant representative of the biodiversity of the Western Ghats.

1) Percentage of the total biogeographic population at the site

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

Spreading across 6569 ha, Thane creek is one of the largest creek in Asia. The wetland is named after the adjoining city/ taluka/ district Thane on its North where it meets the Ulhas River through a small connection to link it to the Mumbai harbour about 26 km Southwards. However, the Creek is said to extend from the river to the Vashi bridge about 12 km's to its South, beyond which the waters are said to be part of the Panvel and Dharamtar Creeks. It is narrower and shallow at the riverine end and is broader and deeper towards the sea and its boundary is divided by saltpans and stretches of mangroves.
The Thane creek falls under sub-group 4B Tidal Swamp forests with sub-divisions mentioned below: -
1. Mangrove Type - 4B/TS1- Ceriops, Avicennia alba, Acgialitis- Along the edge of tidal ways and sheltered muddy coast.
2. Mangrove Type- 4B/TS2- Rhizophora, Kandelia, Avicennia – Along the edge of tidal waterways and sheltered muddy cast at a slightly higher level.
3. Brackish Type – 4B/TS4 – Heritiera fomes minor, Sonneratia apetala, Acanthus ilicifolius – In the larger deltas, notably of the Ganges.
The wetland comprises 13 true mangrove species and 36 associate mangrove species, Avicennia marina was the dominant mangrove and most abundant species throughout the creek. Two variants of Avicennia marina namely Avicennia marina var marina and Avicennia marina var accutissima. Similarly, other species that were reported during the study comprised A. officinalis, Sonneratia apetala, Sonneratia alba, Bruguiera cylindrica Ceriops tagal, Excoecaria agallocha, Aegeiceras corniculatum, Rhizhophora mucronata. Associate mangrove species, namely Acanthus illicifolius and Salvadora persica were also found abundantly in some patches along the creek. The Thane creek ranks among the most important bird habitats in the region and is an interesting dividing line between the Mumbai and Mumbai suburbs, Thane and the city of Navi Mumbai. Around 202 species of birds have been recorded, 18 species of fishes, 59 species of butterflies, 67 species of Insects 35 species of Phytoplankton, 24 species of Zooplankton and 23 species of Benthos which together make this place an important area representing the marine biodiversity of the region. The mangrove forests provide ecosystem services to the city of Mumbai, including disaster protection and pollution abatement services.

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
I: Intertidal forested wetlands		1	6521	Unique

(ECD) Habitat connectivity: The creek becomes an important connecting habitat for passage migrants' birds during migration period

4.3 - Biological components

4.3.1 - Plant species

<no data available>

4.3.2 - Animal species

Optional text box to provide further information

4.4 - Physical components

4.4.1 - Climate

Climatic region	Subregion
A: Tropical humid climate	Am: Tropical monsoonal (Short dry season; heavy monsoonal rains in other months)

The climate in Thane creek shows temperature ranges from 19° C to 40 °C and the rainfall is extremely high during the months of June to September. So, the weather is humid. The creek receives a good amount of rainfall and is humid for most parts of the year. the summer (Premonsoon) extends from March to May end.

4.4.2 - Geomorphic setting

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

a) Maximum elevation above sea level (in metres): 5

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.

Freshwater comes from the Ulhas River and the creek joins the Arabian Sea.

4.4.3 - Soil

Mineral ☐
Organic ☑
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)

Due to its association with mangroves, these sediments receive nutrients through mangrove litter. They also receive nutrients through terrestrial runoff and estuarine outflow. The sediments in creeks and estuaries thus become highly nutrient-rich and productive. The moisture content of the sediment is more towards the seaward side. Overall sediment is silty with insignificant sand content except the riverine ends having marginally higher clay content.

4.4.4 - Water regime

Water permanence

Presence?	
Usually permanent water present	No change

Source of water that maintains character of the site

Presence?	Predominant water source	
Water inputs from precipitation	☑	No change
Water inputs from surface water	☑	No change
Water inputs from groundwater	☑	No change
Marine water	☑	No change

Water destination

Presence?	
Marine	No change

Stability of water regime

Presence?	
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:

Thane creek receives brackish water which is formed due to the mixing of fresh water from the Ulhas River estuary and saline water from the Arabian sea during diurnal tidal influence. Apart from that creek receives numerous other freshwater sources from the terrestrial runoff and drain channels of STP and effluents discharge. Thus, the creek receives a considerable amount of local drainage.

(ECD) Connectivity of surface waters and of groundwater	Receives surface water from Ulhas River, and run off waters from the three cities and effluents. There is no direct recharge of the groundwater from the precipitation of that area.
(ECD) Stratification and mixing regime	During the Spring tides, the intermixing of fresh water received from the river and saline water from the sea.

4.4.5 - Sediment regime

Significant erosion of sediments occurs on the site ☐
Significant accretion or deposition of sediments occurs on the site ☑
Significant transportation of sediments occurs on or through the site ☑
Sediment regime is highly variable, either seasonally or inter-annually ☐
Sediment regime unknown ☐

Please provide further information on sediment (optional):

Thane Creek is one of the largest creeks in Asia. The region is underlain by basaltic rocks. Basalt flow forms the predominant formation capped at a few places by laterite at higher levels. The sediment found in this area is majorly alluvial soil and coastal saline soil. Alluvial soil is formed due to the deposition of clay and silt. Coastal saline soil has a very large amount of salt that is harmful to the growth of any economically important plant which is why only halophytes can grow in this region.

(ECD) Water turbidity and colour	The highest turbidity at upper stretch of Thane creek was 150 NTU.
(ECD) Light - reaching wetland	Average light penetration was up to 42.28 cm. Light penetration towards riverine end was less up to 24 cm and towards s
(ECD) Water temperature	Average surface water temperature recorded was 22°C to 24 °C

4.4.6 - Water pH

- Acid (pH<5.5) ☐
- Circumneutral (pH: 5.5-7.4) ☐
- Alkaline (pH>7.4) ☑
- Unknown ☐

Please provide further information on pH (optional):

The pH for Thane creek ranged from 6.88 to 7.46. The pH of the water body regulates the important process of decomposition, respiration and photosynthesis in water. Changes in pH changes cause the reshuffling of ionic properties of suspended particles and metals, leading sometimes to their precipitation; they also govern the leaching of nutrients and other chemicals from the sediments. In freshwaters, the dissolved carbon dioxide makes the pH slightly acidic, whereas in marine waters, along with dissolved carbon dioxide there are other weakly ionizing chemicals and salts, which make the pH slightly alkaline around 8 (Levinton 1982).

4.4.7 - Water salinity

- Fresh (<0.5 g/l) ☐
- Mixohaline (brackish)/Mixosaline (0.5-30 g/l) ☑
- Euhaline/Eusaline (30-40 g/l) ☑
- Hyperhaline/Hypersaline (>40 g/l) ☐
- Unknown ☐

Please provide further information on salinity (optional):

Thane creek exhibits a wide range of salinity from 5.77 to 34.48 ppt showing seasonal variations as in Monsoon (Mixohaline), Post Monsoon (EUsalline), Pre-monsoon (Eusaline). Salinity is high toward the sea during both tidal phases. Salinity is largely influenced by the influx of freshwater and intrusion of seawater (Anirudhan & Nambissan 1990) Depending on the magnitudes of these, a salinity gradient is formed from the riverine end to the seaward end of an estuary, thus providing a variety of environments for different types of organisms. These changes in salinity present significant physiological challenges to the organisms affecting their occurrence and distribution (Levinton 1982)

(ECD) Dissolved gases in water

The Dissolved oxygen of Thane creek varied between 0.41 to 10.06 mg/L and showed an increasing trend toward the sea. Despite the wide fluctuations in DO, the values in the creek were mostly around 2 mg/l indicating hypoxic conditions in the creek. Taylor and Eggleston (2000), considered DO below 3 mg/l as hypoxic, Zimmerman & Canuel (2000) reported DO below 2 mg/l as hypoxic, whereas Laponite and Clark (1992) considered DO < 2.5 mg/ l as hypoxic in nutrient-enriched aquatic system. Thane creek being highly nutrient-rich (description ahead), DO values below 2.5 mg/l were considered to be hypoxic (Quadros, 1995). Dissolved oxygen (DO) is of paramount importance to maintaining the aerobic metabolism in marine organisms, reduced DO values become critical in determining the quality of tropical marine waters and their ability to sustain biologically diverse habitats (Laponite & Clark, 1992).

4.4.8 - Dissolved or suspended nutrients in water

- Eutrophic ☑
- Mesotrophic ☑
- Oligotrophic ☐
- Dystrophic ☐
- Unknown ☐

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

The PO4-P ranged from 0.25 to 13.54 (µg/l) with a decreasing trend towards the sea. The values were higher during the Spring tide while during the neap the values were much lower near the seaward end.

The NO3-N ranged from 0.001 to 2.593 µg/l, showing a reducing trend towards the sea. The fluctuations in the nitrate content can be attributed to the influence of anthropogenic sources on the creek.

The silicates showed an increasing trend towards the sea with higher values during the neap tide. The available literature on the creek insinuates the silica content to the increased anthropogenic activities around the creek.

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:

Thane creek is surrounded by urbanization and a high human population density which is changing the surrounding landscape. Thane creek being a marshy area humans cannot inhabit therefore is protected.

The surrounding area of Thane creek also has Sanjay Gandhi National Park which harbours diverse flora and fauna. The region provides an interface for passage migrants providing a habitat for terrestrial and wetland birds.

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

Regulating Services

Ecosystem service	Examples	Importance/Extent/Significance
Maintenance of hydrological regimes	Groundwater recharge and discharge	High
Erosion protection	Soil, sediment and nutrient retention	High
Pollution control and detoxification	Water purification/waste treatment or dilution	High
Climate regulation	Local climate regulation/buffering of change	High
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
Scientific and educational	Major scientific study site	High

Supporting Services

Ecosystem service	Examples	Importance/Extent/Significance
Biodiversity	Supports a variety of all life forms including plants, animals and microorganizms, the genes they contain, and the ecosystems of which they form a part	High
Soil formation	Accumulation of organic matter	High
Nutrient cycling	Carbon storage/sequestration	High
Pollination	Support for pollinators	High

Within the site: 100s

Outside the site: 1000000s

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 ☑

Description if applicable

During the spawning time fishing is totally discontinued by the local communities to allow the sustainable growth of fish and is resumed again with the veneration of the sea by observing the Narali Poornima festival. Thereby culturally protecting the waters and the juvenile fish population.

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 ☑

Description if applicable

Sacred sites like small temples, mosques and other religious institutions exist within and around Thane creek which affects the ecological character of the wetland and has little role in the maintenance of the ecological character.

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	☑	☑

Private ownership

Category	Within the Ramsar Site	In the surrounding area
Commercial (company)	☑	☐

Other

Category	Within the Ramsar Site	In the surrounding area
Unspecified mixed ownership	☑	☐

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

The total area covers 6521.08 hectares. Out of which 1690.53 hectares of Thane Creek are declared as Thane Creek Flamingo Sanctuary and the remaining 4830.55 hectares are proposed as Eco-Sensitive zone of the sanctuary. From the total area, 1951.1935 hectares of forested land are notified as Reserved Forest under Section 4 and 896.0385 hectares are notified as Reserved Forest under section 20 of the Indian Forest Act 1927.

5.1.2 - Management authority

Please list the local office / offices of any agency or organization responsible for managing the site: Mangrove Cell of Forest Department of Maharashtra

Provide the name and/or title of the person or people with responsibility for the wetland: Adarsh Reddy, IFS, Divisional Forest Officer, Mumbai Mangrove Conservation Unit, Mangrove Cell

Postal address: Office of Additional Principal Chief Conservator Of Forests, 301, Ballard Estate, Abv Britannia Restaurant, Mumbai 400001

E-mail address: ccfmmumbai@gmail.com

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	In the surrounding area
Tourism and recreation areas	Low impact		☑	☑
Housing and urban areas	Medium impact		☐	☑
Commercial and industrial areas	Medium impact		☐	☑
Unspecified development	Low impact		☑	☑

Water regulation

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Drainage	High impact		☑	☑
Water abstraction	Low impact		☑	☐
Salinisation	Low impact		☑	☐
Water releases	High impact		☑	☑

Agriculture and aquaculture

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Marine and freshwater aquaculture	Low impact		☑	☐

Transportation and service corridors

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Roads and railroads	High impact		☑	☑
Shipping lanes	Low impact		☑	☑
Aircraft flight paths	Low impact		☑	☑
Utility and service lines (e.g., pipelines)	Medium impact		☑	☑

Biological resource use

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Fishing and harvesting aquatic resources	Medium impact		☑	☐

Human intrusions and disturbance

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Recreational and tourism activities	Low impact		☑	☑

Natural system modifications

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Vegetation clearance/ land conversion	Low impact		☑	☑

Invasive and other problematic species and genes

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Invasive non-native/ alien species	Medium impact		☑	☑

Pollution

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Household sewage, urban waste water	High impact		☑	☑
Industrial and military effluents	Low impact		☑	☑
Garbage and solid waste	High impact		☑	☑

Geological events

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Unspecified	Low impact		☑	☑

Climate change and severe weather

Factors adversely affecting site	Actual threat	Potential threat	Within the site	In the surrounding area
Storms and flooding	Low impact		☑	☑
Habitat shifting and alteration	Low impact		☑	☑

Please describe any other threats (optional):

Changing rainfall patterns has resulted in a longer infestation of the moth Hyblaea puera that totally affects the major mangrove species i.e. Avicennia marina.

5.2.2 - Legal conservation status

Global legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Other global designation	Thane Creek	Thane Creek http://datazone.birdlife.org/index.php/site/factsheet/thane-creek-iba-india	whole

National legal designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Thane Creek Flamingo Sanctuary and Reserved Forest	Thane Creek	https://mangroves.maharashtra.gov.in/	whole

Non-statutory designations

Designation type	Name of area	Online information url	Overlap with Ramsar Site
Important Bird Area	Thane Creek	http://datazone.birdlife.org/index.php/site/factsheet/thane-creek-iba-india	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

Legal protection

Measures	Status
Legal protection	Implemented

Habitat

Measures	Status
Improvement of water quality	Proposed
Habitat manipulation/enhancement	Partially implemented
Re-vegetation	Partially implemented
Land conversion controls	Implemented
Faunal corridors/passage	Partially implemented

Species

Measures	Status
Threatened/rare species management programmes	Partially implemented

Human Activities

Measures	Status
Fisheries management/regulation	Partially implemented
Harvest controls/poaching enforcement	Implemented
Regulation/management of recreational activities	Partially implemented
Communication, education, and participation and awareness activities	Implemented
Research	Partially implemented

5.2.5 - Management planning

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

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

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

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

Yes.

5.2.6 - Planning for restoration

Is there a site-specific restoration plan? No need identified

5.2.7 - Monitoring implemented or proposed

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

6 - Additional material

6.1 - Additional reports and documents

6.1.1 - Bibliographical references

1. Management Plan of Thane creek Flamingo sanctuary 2021-2030;
2. Conducting Baseline studies for Thane Creek, 2016
3. Monitoring and mitigating the impacts of Mumbai Trans-Harbor Link on flamingos and other avifauna and formulating a conservation blueprint for the Sewri–Nhava seascape, Third Annual Report, 2019-2020
4. Water quality assessment of creeks and coast in Mumbai, India: a spatial and temporal analysis. National Environmental Engineering Research Institute, 2010

6.1.2 - Additional reports and documents

i. taxonomic lists of plant and animal species occurring in the site (see section 4.3)
<5 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
<2 file(s) uploaded>

iv. relevant Article 3.2 reports
<5 file(s) uploaded>

v. site management plan
<1 file(s) uploaded>

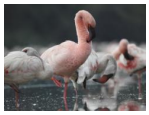
vi. other published literature
<5 file(s) uploaded>

6.1.3 - Photograph(s) of the Site

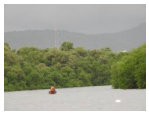
Please provide at least one photograph of the site:

Mangroves and City (*Mangrove Cell, 19-06-2021*)

congregation of Lesser flamingoes (*Mangrove Cell, 04-02-2021*)



Closeup view (*Mangrove Cell, 21-12-2021*)



Mangroves of Thane creek (*Mangrove Cell, 19-06-2021*)

Flamingoes in Thane creek (*Mangrove Cell, 01-03-2022*)

6.1.4 - Designation letter and related data

Designation letter
<1 file(s) uploaded>

Date of Designation	2022-04-13