

**BEFORE THE NATIONAL GREEN TRIBUNAL SOUTHERN ZONE AT
CHENNAI**

(Under Sections 16(h) read with 18(1) of the National Green Tribunal Act, 2010)

Appeal No. 77 of 2025

K. Saravanan

...Appellant

Vs.

The Tamil Nadu Coastal Zone Management Authority & Ors. ...Respondents

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PRELIMINARY REJOINDER**

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//Certified to be True Copies of the respective originals//

Dated this the 18th June, 2026 at Chennai



Through

A.Yogeshwaran

Counsel for the Applicant

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To the authorities of the National Green Tribunal

Sir/Madam

I write to the Tamil Nadu authorities that the Kovalam-Nemmeli backwaters in South Chennai are a critical and complex coastal wetland ecosystem that spans more than 8,000 acres. This landscape is hydro-ecologically connected to the Buckingham Canal, the Muttukadu backwaters, and the Bay of Bengal through daily tidal exchange and seasonal drainage. Such hydrological connectivity supports nutrient cycling, salinity gradients, sediment transport, and the maintenance of estuarine ecological functions, making the area a biologically productive ecotonal zone. The presence of the tidal exchange is essential to the livelihoods of local communities and high biodiversity. These wetlands host tens of thousands of migratory birds during winter.

The Mamallan Reservoir project proposed by the state government aims to convert approximately 5000 acres of this complex coastal wetland into an impounded freshwater reservoir. Phase I of this project spans 65% on marsh land and 35% on salt pans. The project also violates CRZ rules as the habitat as it falls within the CRZ-I zone – since they are biologically active mudflats, mangrove and sea grass habitats. It claims that the reservoir would mitigate floods, seawater intrusion, and provide drinking water; but it ignores the larger social and ecological disasters that would unfurl should this project come to fruition.

Contrary to what the project suggests are the benefits of the reservoir, the tidal marsh ecotone here already provides flood mitigation, and protects inland regions from storm surges. The seawater exchange maintains a delicate balance of salinity that allows for the mangrove, salt marsh, and estuaries to survive. These habitats also act as crucial breeding grounds for prawn and fish that support local communities' livelihoods.

Estuaries:

The Kovalam backwaters and associated brackish-water ecosystems function as nursery grounds and feeding habitats for estuarine and commercially important fish, shellfish, and other aquatic fauna. Hundreds of species of fish, bivalves, gastropods, and crustaceans breed in and migrate through the Muttukadu–Kovalam backwater complex. During the monsoon, the excess freshwater pushes out the seawater from the estuarine channels, thereby naturally preventing groundwater salinization.

Mangroves:

The project area hosts extensive swathes of ecologically crucial coastal vegetation, including several salt marsh and halophytic species adapted to saline and waterlogged conditions. They protect against natural disasters such as cyclones and tsunamis, alongside providing a refuge for small fish that are preyed upon by larger fish. Species such as *Avicennia sp*, *Suaeda maritima*, *Salicornia brachiata*, and *Sesuvium portulacastrum* (Rao et al., 2019) play a vital role in shoreline stabilization, prevention of erosion, carbon sequestration, and nutrient filtration – while serving as ideal habitats for aquatic invertebrates and avifauna.

Salt marshes:

The saltwater marshes provide significant ecosystem function by mitigating floods. During excess monsoon showers or high tides, these marshes allow the excess water to be stored, preventing flood damage to the inland regions, essentially acting as a natural catchment region, or as termed by Care Earth Trust as NUS (Nature Utility Spaces), in addition to hosting a plethora of benthic fauna, which in turn attract diverse avifauna supporting incredible biodiversity. Tamil Nadu's own wetland action plan highlights the importance of coastal wetlands for carbon capture and cyclonic buffer in a city like Chennai, acutely affected by the climate crisis.

The estuaries, salt marshes, and mangroves function together as channels for water movement and as catchment regions for excess water.

Biodiversity aspects

- The project site and its surrounding ecological zone serve as a critical habitat for a wide diversity of resident and migratory avifauna – especially waterbirds, shorebirds, waders, raptors, and several other marsh-dependent species. The landscape extending from Pallikaranai Marsh and Kelambakkam Backwaters up to Mahabalipuram – including the Great Salt Lake/Kelambakkam-Nemmeli Salt Pans area – falls within the Central Asian Flyway and serves as a resting and feeding habitat for over 15,000 wetland birds during peak winter (September-March).
- The Muttukadu Kovalam backwaters have been designated as an important coastal and marine biodiversity area (ICMBA) by the Wildlife Institute of India. It has also been listed as a priority wetland for conservation by the Salim Ali Centre for Ornithology and Natural History (SACON). These designations are due to the high biodiversity found here and are meant to inform government decisions and policy-making.
- These backwaters have among the highest waterfowl and migratory bird diversity of any wetland in north Tamil Nadu. Records from citizen-science databases such as eBird show that 261 species of birds have been sighted in the said wetland system till mid-February 2026 – including 104 migratory species, 2 *Endangered* species, 8 *Vulnerable* species, and 17 *Near Threatened* species. Among the migratory species, Garganey, Northern Shoveler, Northern Pintail and small waders are consistently recorded in tens of thousands. 5 species - Spot-billed Pelican, Oriental Darter, Painted Stork and Black-headed Ibis, Eurasian Spoonbill, especially found in large numbers here, are listed as *Threatened* under the IUCN Red List. 20 species are under Schedule 1 of Wildlife Protection Act. All these waterbirds are dependent on shallow estuarine mudflats, establishing a freshwater reservoir here would prove ecologically disastrous.
- The sandy beach and nearshore coastal stretch adjoining the backwater complex may also form part of the nesting grounds of the Olive Ridley Turtle (*Lepidochelys olivacea*), which is protected under Schedule I of the Wildlife (Protection) Act, 1972, and listed as *Vulnerable* under the IUCN Red List. The East Coast of Tamil Nadu, including stretches between Chennai and Mamallapuram, has documented seasonal Olive Ridley movement and nesting activity, and any alteration of associated coastal habitats may pose a serious threat to the turtles that come ashore year after year to nest on our beaches.

Environmental and social impacts

The ecological and social impacts of the project are multi-fold. Primarily, the evident abruption of tidal exchanges between the brackish, marsh habitats and the sea through embankment will result in the complete loss of these habitats, and greatly affect the species that inhabit them. Any conversion of these habitats by way of bunding, excavation, freshwater impoundment, or altering the hydroscape is likely to result in the loss of foraging grounds for avifauna and seriously disrupt their migratory pathways. Lack of a tidal exchange will allow organic matter to settle to the bottom, creating massive algal blooms that choke the rest of the species.

Destroying these brackish-water systems by establishing a singular freshwater reservoir would lead to the collapse of the intricate microhabitats here that have evolved over decades, alongside robbing local communities of livelihood. For local communities that do not have access to boats and other tools, the breeding grounds of prawns and fish are their only source of income at no cost. They can earn an average of 500 - 1000 per day, and during monsoons, they earn up to a few lakhs, which allows them to sustain during low-performing/low-yield seasons. The reservoir could also hugely reduce the catchment capacity of the region by removing access to drainage systems. During monsoons, when there is excess water, the lack of drainage could end up flooding the 16 villages situated in the region. Furthermore, the lack of a tidal exchange will encourage saltwater intrusion into the reservoir, and not the other way round. Freshwater reservoirs in TN are historically situated within river catchments and not coastal wetlands. Existing reservoirs can be widened and deepened to meet the city's water needs, and new ones can be sighted closer to rivers.

Considering the ecological, social, hydrological and environmental importance of Kovalam-Nemmeli backwaters, I request the NGT to stop the Mamallan Reservoir project, and save Kovalam-Nemmeli backwaters.



Asad R. Rahmani, PhD.

Former Director, Bombay Natural History Society

Former Chairman, Department of Wildlife Sciences, Aligarh Muslim University,

Scientific Advisor, The Corbett Foundation

Global Council Member (2006-2013) BirdLife International

Chairman, BirdLife Asia Council for four years

Member of many Indian government committees

Email: rahmani1.asad@gmail.com

Dated: 28 April, 2026

Brief CV of Asad R. Rahmani, PhD

Asad R. Rahmani, PhD. was the Director of Bombay Natural History Society (BNHS) for 18 years from 1997 to 2015 till his retirement. Before that he was Chairman, Department of Wildlife Sciences for six years. He was Senior Scientific Adviser to BNHS from August 2015 to July 2017. He is Scientific Consultant to The Corbett Foundation and Hem Chandra Mahindra Trust and in the Board of Wetlands International South Asia (WISA) and Bombay Natural History Society. He was in various MoEF committees for 18 years till he retired.

Dr. Rahmani has published 26 books, nearly 180 peer-reviewed scientific papers, 90 book reviews, nearly 75 editorials, and more than 300 popular articles on nature conservation. He was the Global Council member of BirdLife International, UK (2006-2013), and Chairman, BirdLife Asia Council (2006-2013). Dr Rahmani was the Executive Editor of Journal of BNHS, and was Editor of *Hornbill*, *Mistnet* and *Buceros*, popular magazines of BNHS.

Dr Rahmani's main interest is in grassland and wetland birds, and to highlight the plight of lesser known species and habitats. He has executed nearly 35 major and numerous minor projects of BNHS in a career spanning 40 years. He has also guided 11 students for PhD. He has been awarded Lifetime Achievement Award by Vasundhara, Pune, and Member of Honour by BirdLife International, UK. He has travelled all over India many times, and to nearly 42 countries. His hobbies are reading, writing, teaching and traveling. His other interest are women's empowerment and freedom, and girl child education.

Present address

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Uttar Pradesh, India



To: Whomsoever it May Concern

25th April 2026

National Green Tribunal

Subject: Concerns Regarding the Mamallan Reservoir Project

Dear Madam/Sir,

I write to you with full acknowledgement of the acute water crisis facing Chennai, and the urgent responsibility that rests on the state government to address it. I recognise, too, that the Chief Minister has personally engaged with this challenge, during a prior visit to Singapore in his capacity as the city's mayor, which demonstrated a commitment to learning from international best practice. Singapore's success in water management draws on a genuinely diversified approach: reclaimed water, groundwater recharge through extensive tree planting, and the careful maintenance of hydrological systems including its network of rivers.

It is precisely this spirit of diversification that the Mamallan Reservoir Project appears to lack, and it is on this basis that I urge you to reconsider it. The proposed site is acutely vulnerable to storm surges, sea level rise, and related coastal impacts; factors that would render it unsuitable for reliable freshwater storage. More troublingly, the project risks worsening these very impacts for residents along the East Coast Road. Tamil Nadu's own Wetland Action Plan recognises the vital role that coastal wetlands play in carbon capture and as a buffer against cyclonic events, a function of particular importance for a city as exposed to the climate crisis as Chennai.

The project would also cause irreversible damage to the Muttukadu–Kovalam backwater complex, disrupting its natural ecological cycles. It provides habitat for 20 species listed under Schedule 1 of the Wildlife Protection Act and supports a documented diversity of at least 156 fish species, making it a resource of enormous importance to local fishing communities.

Chennai's water future deserves solutions that are resilient, ecologically sound, and genuinely diversified. I respectfully request that the court pause this project and request the government pursue alternatives that reflect those principles. Many of these alternatives, such as increasing the green cover of the city using native plants, could be more economical and longer lasting, bringing not only water but other health benefits to citizens. Considering the deep ecological, social and longer-term economic crises that could be caused by this project, I request the court to recommend that this project be set aside and more eco-friendly alternatives be pursued.

Yours sincerely,

Divya Karnad

Associate Professor, Ashoka University

Co-Founder InSeason Fish

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More than 16,000 migratory ducks spotted at Nemmeli waterbody, region’s biggest

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Chennai: Nemmeli's usually quiet wetland has come alive this winter with over 16,000 migratory ducks flocking to the water body. Birders said this is the region's biggest bird gathering in years and that the site has turned into the hottest birding spot.

The sheer volume of birds, rare even for TN's well-known wetlands, has sparked excitement among experts and nature enthusiasts alike. According to ornithologists, the visiting flocks comprise five long-distance winter migrants: garganey, northern pintail, Eurasian wigeon, northern shoveler, and common teal. These ducks undertake an arduous journey from Russia and neighbouring colder regions, flying over the Himalayas before descending into the Indian subcontinent to escape extreme winter conditions. Their arrival marks the beginning of the vibrant wintering season around Chennai's wetlands.

Chennai Headlines Today — The Biggest Updates You Need to Know.

Chennai district forest officer V A Saravanan said such large congregations are unique to Nemmeli. "This scale of sighting is possible only in Nemmeli. Even in the Pallikaranai marsh, not many ducks have arrived this season when compared to Nemmeli," he said. Despite the challenges posed by heavy vehicular movement around the area and the frequent entry of fishermen into the water, the birds continue to favour this wetland.

Their persistence, he said, underscores the significance of Nemmeli as an undisturbed and resource-rich feeding and resting ground. Conservationist K V R K Thirunaranan, who tracks bird populations across Chennai's wetlands, said his team recorded nearly 35,000 birds in Nemmeli last week, including local migrants such as spot-billed pelicans. He attributes the overwhelming presence of birds to plentiful food availability and relatively low levels of disturbance .

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Among the migratory ducks, the Garganey population is the highest at around 6,000, followed by more than 4,000 Eurasian Wigeons. Members of the Madras Naturalists' Society said the surge in bird numbers has also led to a steady rise in the number of birders visiting Nemmeli, resulting in more frequent sightings of rare and unusual species in recent years.

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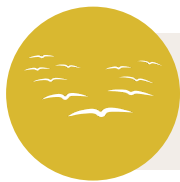

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SPECIES DETAILS



Total
236

Total number of species reported from this region



Migratory
91

Total number of migratory bird species reported from this region



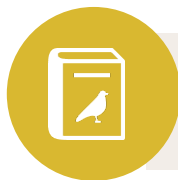
Threatened
8

Number of bird species that are listed as globally threatened as per [IUCN](#)



High Priority
50

Number of bird species that are listed as High Conservation Priority in [State of India's Birds](#)



Schedule I
31

Number of bird species that are listed in Schedule 1 of the [Wild Life \(Protection\) Amendment Act \(WLPA\)](#)



Endemic
0

Number of bird species that are endemic to India

SolB Conservation Priority Species

High Priority	50
Moderate Priority	40

CITES Appendix Species

Appendix I	2
Appendix II	24

CMS Appendix Species

Appendix I	2
Appendix II	97

IUCN RED LIST



Critically Endangered
0



Endangered
1



Vulnerable
7



Near Threatened
17

SOIB HIGH CONSERVATION PRIORITY SPECIES		
Species	Frequency of Reporting	Year of Latest Report
Ruddy Shelduck <i>Tadorna ferruginea</i>	<1%	2024
Garganey <i>Spatula querquedula</i>	9%	2026
Northern Shoveler <i>Spatula clypeata</i>	11%	2026
Northern Pintail <i>Anas acuta</i>	13%	2026
Common Teal <i>Anas crecca</i>	<1%	2026
Common Pochard <i>Aythya ferina</i>	<1%	2025
Great Thick-knee <i>Esacus recurvirostris</i>	6%	2026
Pied Avocet <i>Recurvirostra avosetta</i>	2%	2026
Eurasian Oystercatcher <i>Haematopus ostralegus</i>	<1%	2025
Grey Plover <i>Pluvialis squatarola</i>	8%	2026
Little Ringed Plover <i>Thinornis dubius</i>	20%	2026
Tibetan Sand-Plover <i>Anarhynchus atrifrons</i>	12%	2026
Kentish Plover <i>Anarhynchus alexandrinus</i>	11%	2026

SOIB HIGH CONSERVATION PRIORITY SPECIES		
Species	Frequency of Reporting	Year of Latest Report
Eurasian Curlew <i>Numenius arquata</i>	30%	2026
Black-tailed Godwit <i>Limosa limosa</i>	17%	2026
Pin-tailed Snipe <i>Gallinago stenura</i>	1%	2026
Terek Sandpiper <i>Xenus cinereus</i>	2%	2026
Marsh Sandpiper <i>Tringa stagnatilis</i>	27%	2026
Common Redshank <i>Tringa totanus</i>	41%	2026
Spotted Redshank <i>Tringa erythropus</i>	2%	2026
Common Greenshank <i>Tringa nebularia</i>	31%	2026
Great Knot <i>Calidris tenuirostris</i>	<1%	2024
Ruff <i>Calidris pugnax</i>	4%	2026
Curlew Sandpiper <i>Calidris ferruginea</i>	6%	2026
Sanderling <i>Calidris alba</i>	1%	2026
Dunlin <i>Calidris alpina</i>	<1%	2025

SOIB HIGH CONSERVATION PRIORITY SPECIES		
Species	Frequency of Reporting	Year of Latest Report
Little Stint <i>Calidris minuta</i>	22%	2026
Indian Courser <i>Cursorius coromandelicus</i>	<1%	2024
Slender-billed Gull <i>Chroicocephalus genei</i>	3%	2026
Black-headed Gull <i>Chroicocephalus ridibundus</i>	13%	2026
Brown-headed Gull <i>Chroicocephalus brunnicephalus</i>	31%	2026
Little Tern <i>Sternula albifrons</i>	20%	2026
Gull-billed Tern <i>Gelochelidon nilotica</i>	35%	2026
Caspian Tern <i>Hydroprogne caspia</i>	55%	2026
Whiskered Tern <i>Chlidonias hybrida</i>	51%	2026
Common Tern <i>Sterna hirundo</i>	11%	2026
Sandwich Tern <i>Thalasseus sandvicensis</i>	1%	2025
Greater Flamingo <i>Phoenicopterus roseus</i>	21%	2026
Eurasian Spoonbill <i>Platalea leucorodia</i>	23%	2026

SOIB HIGH CONSERVATION PRIORITY SPECIES		
Species	Frequency of Reporting	Year of Latest Report
Western Reef-Egret <i>Egretta gularis</i>	<1%	2025
Osprey <i>Pandion haliaetus</i>	12%	2026
Short-toed Snake-Eagle <i>Circaetus gallicus</i>	<1%	2026
Western Marsh Harrier <i>Circus aeruginosus</i>	6%	2026
Pallid Harrier <i>Circus macrourus</i>	<1%	2026
Montagu's Harrier <i>Circus pygargus</i>	2%	2026
Black-capped Kingfisher <i>Halcyon pileata</i>	<1%	2016
Common Kestrel <i>Falco tinnunculus</i>	2%	2026
Rufous-tailed Lark <i>Ammomanes phoenicura</i>	<1%	2019
Oriental Skylark <i>Alauda gulgula</i>	4%	2026
Tawny Pipit <i>Anthus campestris</i>	<1%	2024

IUCN RED LIST SPECIES			
Species	IUCN Status	Frequency of Reporting	Year of Latest Report
Great Knot <i>Calidris tenuirostris</i>	Endangered	<1%	2024
Common Pochard <i>Aythya ferina</i>	Vulnerable	<1%	2025
Grey Plover <i>Pluvialis squatarola</i>	Vulnerable	8%	2026
Broad-billed Sandpiper <i>Calidris falcinellus</i>	Vulnerable	<1%	2021
Curlew Sandpiper <i>Calidris ferruginea</i>	Vulnerable	6%	2026
River Tern <i>Sterna aurantia</i>	Vulnerable	<1%	2026
Greater Spotted Eagle <i>Clanga clanga</i>	Vulnerable	<1%	2026
Black-capped Kingfisher <i>Halcyon pileata</i>	Vulnerable	<1%	2016
Great Thick-knee <i>Esacus recurvirostris</i>	Near Threatened	6%	2026
Eurasian Oystercatcher <i>Haematopus ostralegus</i>	Near Threatened	<1%	2025
Eurasian Curlew <i>Numenius arquata</i>	Near Threatened	30%	2026
Bar-tailed Godwit <i>Limosa lapponica</i>	Near Threatened	<1%	2025
Black-tailed Godwit <i>Limosa limosa</i>	Near Threatened	17%	2026

IUCN RED LIST SPECIES			
Species	IUCN Status	Frequency of Reporting	Year of Latest Report
Asian Dowitcher <i>Limnodromus semipalmatus</i>	Near Threatened	<1%	2023
Ruddy Turnstone <i>Arenaria interpres</i>	Near Threatened	1%	2024
Dunlin <i>Calidris alpina</i>	Near Threatened	<1%	2025
Indian Courser <i>Cursorius coromandelicus</i>	Near Threatened	<1%	2024
Lesser Flamingo <i>Phoeniconaias minor</i>	Near Threatened	<1%	2024
Asian Woolly-necked Stork <i>Ciconia episcopus</i>	Near Threatened	1%	2026
Spot-billed Pelican <i>Pelecanus philippensis</i>	Near Threatened	74%	2026
Indian Spotted Eagle <i>Clanga hastata</i>	Near Threatened	<1%	2023
Pallid Harrier <i>Circus macrourus</i>	Near Threatened	<1%	2026
Indian Roller <i>Coracias benghalensis</i>	Near Threatened	24%	2026
Red-necked Falcon <i>Falco chicquera</i>	Near Threatened	1%	2026
Rufous-tailed Lark <i>Ammomanes phoenicura</i>	Near Threatened	<1%	2019

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BIRDS OF NEMMELI COASTAL WETLAND COMPLEX

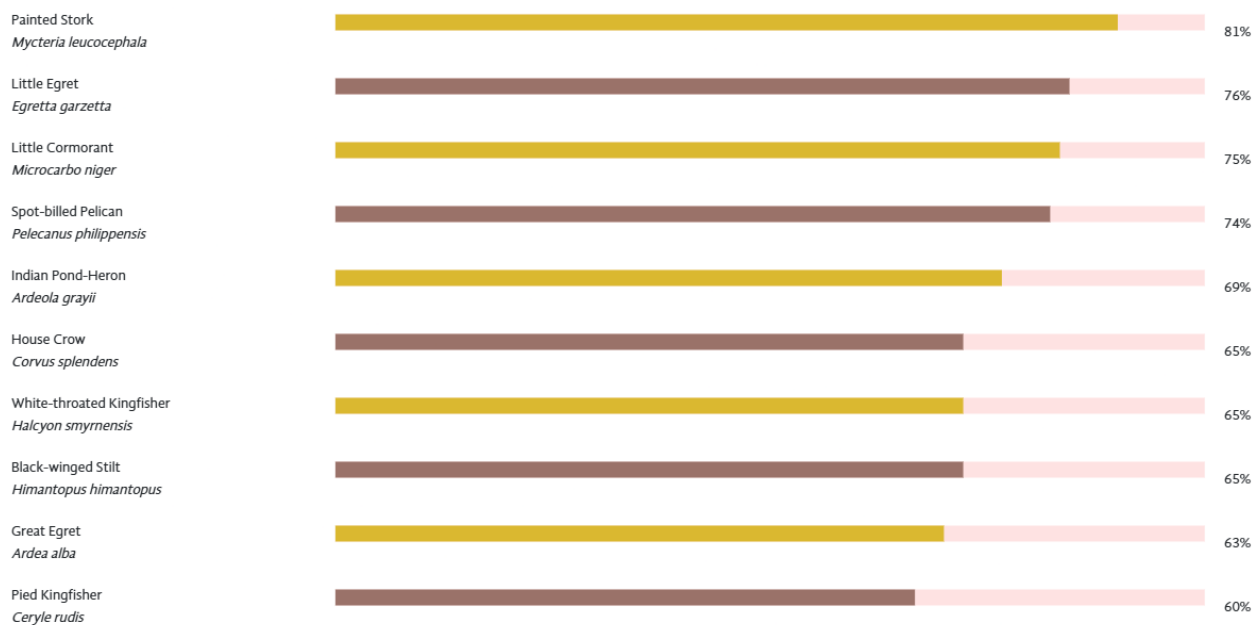
Dates: 01/01/1900 – 31/03/2026

ENDEMIC SPECIES			
Species	Endemic Region	Frequency of Reporting	Year of Latest Report
Indian Peafowl <i>Pavo cristatus</i>	Indian Subcontinent	4%	2026
Blue-faced Malkoha <i>Phaenicophaeus viridirostris</i>	Indian Subcontinent	1%	2026
Grey-bellied Cuckoo <i>Cacomantis passerinus</i>	Indian Subcontinent	<1%	2025
Common Hawk-Cuckoo <i>Hierococyx varius</i>	Indian Subcontinent	3%	2026
Yellow-wattled Lapwing <i>Vanellus malabaricus</i>	Indian Subcontinent	2%	2026
Indian Courser <i>Cursorius coromandelicus</i>	Indian Subcontinent	<1%	2024
Black-rumped Flameback <i>Dinopium benghalense</i>	Indian Subcontinent	2%	2026
Indian Pitta <i>Pitta brachyura</i>	Indian Subcontinent	<1%	2025
Black-headed Cuckooshrike <i>Lalage melanoptera</i>	Indian Subcontinent	<1%	2023
Rufous-tailed Lark <i>Ammomanes phoenicura</i>	Indian Subcontinent	<1%	2019
Ashy-crowned Sparrow-Lark <i>Eremopterix griseus</i>	Indian Subcontinent	4%	2026
Jerdon's Bushlark <i>Plocealauda affinis</i>	Indian Subcontinent	17%	2026
Jungle Prinia <i>Prinia sylvatica</i>	Indian Subcontinent	2%	2026

ENDEMIC SPECIES			
Species	Endemic Region	Frequency of Reporting	Year of Latest Report
Ashy Prinia <i>Prinia socialis</i>	Indian Subcontinent	32%	2026
White-browed Bulbul <i>Pycnonotus luteolus</i>	Indian Subcontinent	8%	2026
Yellow-billed Babbler <i>Argya affinis</i>	Indian Subcontinent	17%	2026
Indian Robin <i>Copsychus fulicatus</i>	Indian Subcontinent	5%	2026
Pale-billed Flowerpecker <i>Dicaeum erythrorhynchos</i>	Indian Subcontinent	1%	2026
Purple-rumped Sunbird <i>Leptocoma zeylonica</i>	Indian Subcontinent	21%	2026
Loten's Sunbird <i>Cinnyris lotenius</i>	Indian Subcontinent	2%	2026
Tricoloured Munia <i>Lonchura malacca</i>	Indian Subcontinent	2%	2026
White-browed Wagtail <i>Motacilla maderaspatensis</i>	Indian Subcontinent	16%	2026

WATERBIRD CONGREGATIONS			
Species	Highest Count	1% of Biogeographic Population	Year of Report
Painted Stork <i>Mycteria leucocephala</i>	500 (2%)	250	2023
Black-headed Ibis <i>Threskiornis melanocephalus</i>	600 (2%)	250	2023
Spot-billed Pelican <i>Pelecanus philippensis</i>	800 (8%)	100	2015

MOST COMMON SPECIES

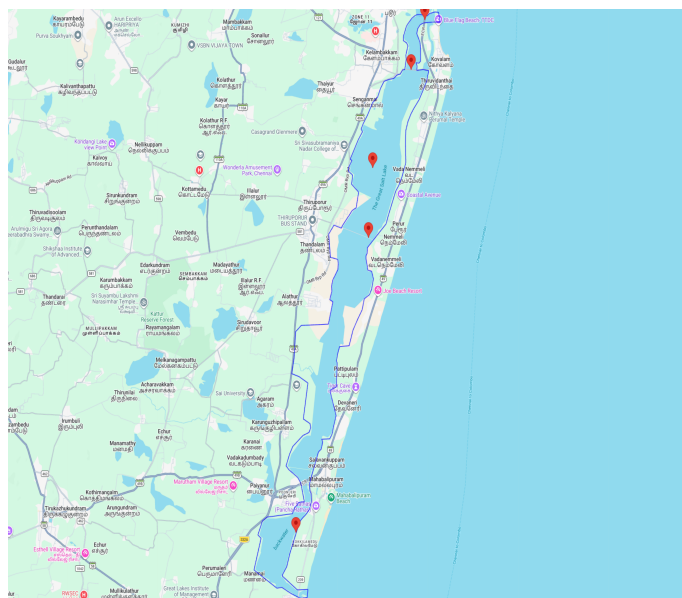


SEASONAL CHART



20 BIRDS OF NEMMELI COASTAL WETLAND COMPLEX

Dates: 01/01/1900 – 31/03/2026

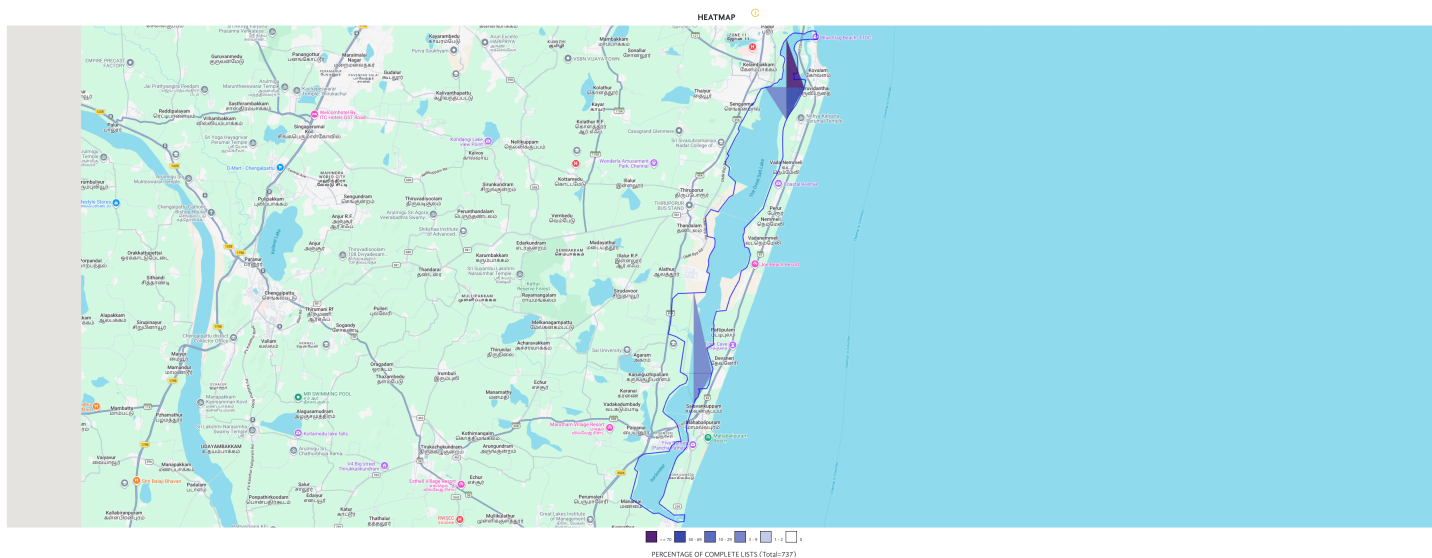


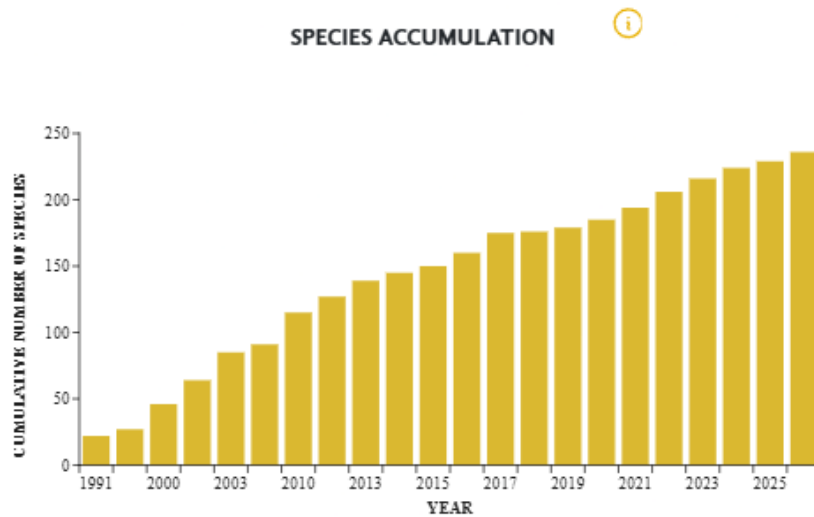
Area: 45.19 square kilometers

Top Hotspots

No of Species

Nemmeli Salt Pans	207
Kelambakkam Backwaters	204
Muttukadu Backwaters	179
Mahabalipuram Backwaters	117
Great Salt Lake (opp. SSN college)	111





COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Fulvous Whistling-Duck <i>Dendrocygna bicolor</i>	Low	Least Concern	None	Schedule-I
Lesser Whistling-Duck <i>Dendrocygna javanica</i>	Low	Least Concern	None	Schedule-II
Bar-headed Goose <i>Anser indicus</i>	Moderate	Least Concern	None	Schedule-II
Knob-billed Duck <i>Sarkidiornis melanotos</i>	Low	Least Concern	None	Schedule-II
Ruddy Shelduck <i>Tadorna ferruginea</i>	High	Least Concern	None	Schedule-II
Cotton Pygmy-Goose <i>Nettapus coromandelianus</i>	Moderate	Least Concern	None	Schedule-I
Garganey <i>Spatula querquedula</i>	High	Least Concern	None	Schedule-II
Northern Shoveler <i>Spatula clypeata</i>	High	Least Concern	None	Schedule-II
Eurasian Wigeon <i>Mareca penelope</i>	Moderate	Least Concern	None	Schedule-II
Indian Spot-billed Duck <i>Anas poecilorhyncha</i>	Low	Least Concern	None	Schedule-II
Northern Pintail <i>Anas acuta</i>	High	Least Concern	None	Schedule-II
Common Teal <i>Anas crecca</i>	High	Least Concern	None	Schedule-II
Common Pochard <i>Aythya ferina</i>	High	Vulnerable	None	Schedule-I
Indian Peafowl <i>Pavo cristatus</i>	Low	Least Concern	Indian Subcontinent	Schedule-I
Grey Francolin <i>Ortygornis pondicerianus</i>	Low	Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Rock Pigeon <i>Columba livia</i>	Low	Least Concern	None	
Eurasian Collared-Dove <i>Streptopelia decaocto</i>	Low	Least Concern	None	Schedule-II
Red Collared-Dove <i>Streptopelia tranquebarica</i>	Low	Least Concern	None	Schedule-II
Spotted Dove <i>Spilopelia chinensis</i>	Low	Least Concern	None	Schedule-II
Laughing Dove <i>Spilopelia senegalensis</i>	Low	Least Concern	None	Schedule-II
Greater Coucal <i>Centropus sinensis</i>	Low	Least Concern	None	Schedule-II
Blue-faced Malkoha <i>Phaenicophaeus viridirostris</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Chestnut-winged Cuckoo <i>Clamator coromandus</i>	Moderate	Least Concern	None	Schedule-II
Pied Cuckoo <i>Clamator jacobinus</i>	Low	Least Concern	None	Schedule-II
Asian Koel <i>Eudynamys scolopaceus</i>	Low	Least Concern	None	Schedule-II
Grey-bellied Cuckoo <i>Cacomantis passerinus</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Common Hawk-Cuckoo <i>Hierococcyx varius</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Little Swift <i>Apus affinis</i>	Low	Least Concern	None	Schedule-II
Asian Palm Swift <i>Cypsiurus balasiensis</i>	Low	Least Concern	None	Schedule-II
Common Moorhen <i>Gallinula chloropus</i>	Low	Least Concern	None	Schedule-II

25 BIRDS OF NEMMELI COASTAL WETLAND COMPLEX

Dates: 01/01/1900 – 31/03/2026

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Eurasian Coot <i>Fulica atra</i>	Low	Least Concern	None	Schedule-II
Grey-headed Swamphe <i>Porphyrio poliocephalus</i>	Low		None	Schedule-II
Watercock <i>Gallicrex cinerea</i>	Low	Least Concern	None	Schedule-II
White-breasted Waterhen <i>Amaurornis phoenicurus</i>	Low	Least Concern	None	Schedule-II
Great Thick-knee <i>Esacus recurvirostris</i>	High	Near Threatened	None	Schedule-II
Indian Thick-knee <i>Burhinus indicus</i>	Low	Least Concern	None	Schedule-II
Black-winged Stilt <i>Himantopus himantopus</i>	Low	Least Concern	None	Schedule-II
Pied Avocet <i>Recurvirostra avosetta</i>	High	Least Concern	None	Schedule-II
Eurasian Oystercatcher <i>Haematopus ostralegus</i>	High	Near Threatened	None	Schedule-II
Grey Plover <i>Pluvialis squatarola</i>	High	Vulnerable	None	Schedule-II
Pacific Golden-Plover <i>Pluvialis fulva</i>	Moderate	Least Concern	None	Schedule-I
Common Ringed Plover <i>Charadrius hiaticula</i>		Least Concern	None	Schedule-II
Little Ringed Plover <i>Thinornis dubius</i>	High	Least Concern	None	Schedule-II
Yellow-wattled Lapwing <i>Vanellus malabaricus</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Grey-headed Lapwing <i>Vanellus cinereus</i>	Low	Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Red-wattled Lapwing <i>Vanellus indicus</i>	Low	Least Concern	None	Schedule-II
Tibetan Sand-Plover <i>Anarhynchus atrifrons</i>	High	Least Concern	None	Schedule-II
Greater Sand-Plover <i>Anarhynchus leschenaultii</i>		Least Concern	None	Schedule-II
Kentish Plover <i>Anarhynchus alexandrinus</i>	High	Least Concern	None	Schedule-II
Greater Painted-Snipe <i>Rostratula benghalensis</i>	Low	Least Concern	None	Schedule-II
Pheasant-tailed Jacana <i>Hydrophasianus chirurgus</i>	Moderate	Least Concern	None	Schedule-II
Bronze-winged Jacana <i>Metopidius indicus</i>	Low	Least Concern	None	Schedule-II
Whimbrel <i>Numenius phaeopus</i>	Moderate	Least Concern	None	Schedule-II
Eurasian Curlew <i>Numenius arquata</i>	High	Near Threatened	None	Schedule-II
Bar-tailed Godwit <i>Limosa lapponica</i>	Moderate	Near Threatened	None	Schedule-II
Black-tailed Godwit <i>Limosa limosa</i>	High	Near Threatened	None	Schedule-II
Asian Dowitcher <i>Limnodromus semipalmatus</i>		Near Threatened	None	Schedule-II
Pin-tailed Snipe <i>Gallinago stenura</i>	High	Least Concern	None	Schedule-II
Common Snipe <i>Gallinago gallinago</i>	Low	Least Concern	None	Schedule-II
Terek Sandpiper <i>Xenus cinereus</i>	High	Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Common Sandpiper <i>Actitis hypoleucos</i>	Moderate	Least Concern	None	Schedule-II
Green Sandpiper <i>Tringa ochropus</i>	Low	Least Concern	None	Schedule-II
Marsh Sandpiper <i>Tringa stagnatilis</i>	High	Least Concern	None	Schedule-II
Wood Sandpiper <i>Tringa glareola</i>	Moderate	Least Concern	None	Schedule-II
Common Redshank <i>Tringa totanus</i>	High	Least Concern	None	Schedule-II
Spotted Redshank <i>Tringa erythropus</i>	High	Least Concern	None	Schedule-II
Common Greenshank <i>Tringa nebularia</i>	High	Least Concern	None	Schedule-I
Ruddy Turnstone <i>Arenaria interpres</i>	Moderate	Near Threatened	None	Schedule-II
Great Knot <i>Calidris tenuirostris</i>	High	Endangered	None	Schedule-I
Ruff <i>Calidris pugnax</i>	High	Least Concern	None	Schedule-II
Broad-billed Sandpiper <i>Calidris falcinellus</i>	Moderate	Vulnerable	None	Schedule-II
Curlew Sandpiper <i>Calidris ferruginea</i>	High	Vulnerable	None	Schedule-II
Temminck's Stint <i>Calidris temminckii</i>	Moderate	Least Concern	None	Schedule-II
Long-toed Stint <i>Calidris subminuta</i>		Least Concern	None	Schedule-II
Sanderling <i>Calidris alba</i>	High	Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Dunlin <i>Calidris alpina</i>	High	Near Threatened	None	Schedule-II
Little Stint <i>Calidris minuta</i>	High	Least Concern	None	Schedule-II
Indian Courser <i>Cursorius coromandelicus</i>	High	Near Threatened	Indian Subcontinent	Schedule-I
Small Pratincole <i>Glareola lactea</i>	Moderate	Least Concern	None	Schedule-II
Oriental Pratincole <i>Glareola maldivarum</i>	Low	Least Concern	None	Schedule-II
Arctic Skua <i>Stercorarius parasiticus</i>		Least Concern	None	Schedule-II
Slender-billed Gull <i>Chroicocephalus genei</i>	High	Least Concern	None	Schedule-II
Black-headed Gull <i>Chroicocephalus ridibundus</i>	High	Least Concern	None	Schedule-II
Brown-headed Gull <i>Chroicocephalus brunnicephalus</i>	High	Least Concern	None	Schedule-II
Pallas's Gull <i>Ichthyaelus ichthyaelus</i>	Moderate	Least Concern	None	Schedule-II
Lesser Black-backed Gull <i>Larus fuscus</i>	Moderate	Least Concern	None	Schedule-II
Brown Noddy <i>Anous stolidus</i>		Least Concern	None	Schedule-II
Lesser Noddy <i>Anous tenuirostris</i>		Least Concern	None	Schedule-II
Sooty Tern <i>Onychoprion fuscatus</i>		Least Concern	None	Schedule-II
Bridled Tern <i>Onychoprion anaethetus</i>		Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Little Tern <i>Sternula albifrons</i>	High	Least Concern	None	Schedule-II
Gull-billed Tern <i>Gelochelidon nilotica</i>	High	Least Concern	None	Schedule-I
Caspian Tern <i>Hydroprogne caspia</i>	High	Least Concern	None	Schedule-II
Whiskered Tern <i>Chlidonias hybrida</i>	High	Least Concern	None	Schedule-II
White-winged Tern <i>Chlidonias leucopterus</i>		Least Concern	None	Schedule-II
River Tern <i>Sterna aurantia</i>	Moderate	Vulnerable	None	Schedule-I
Common Tern <i>Sterna hirundo</i>	High	Least Concern	None	Schedule-II
Sandwich Tern <i>Thalasseus sandvicensis</i>	High	Least Concern	None	Schedule-II
Lesser Crested Tern <i>Thalasseus bengalensis</i>	Moderate	Least Concern	None	Schedule-II
Great Crested Tern <i>Thalasseus bergii</i>	Low	Least Concern	None	Schedule-II
Greater Flamingo <i>Phoenicopterus roseus</i>	High	Least Concern	None	Schedule-II
Lesser Flamingo <i>Phoeniconaias minor</i>	Moderate	Near Threatened	None	Schedule-II
Little Grebe <i>Tachybaptus ruficollis</i>	Low	Least Concern	None	Schedule-II
Asian Openbill <i>Anastomus oscitans</i>	Low	Least Concern	None	Schedule-II
Black Stork <i>Ciconia nigra</i>	Moderate	Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Asian Woolly-necked Stork <i>Ciconia episcopus</i>	Moderate	Near Threatened	None	Schedule-II
White Stork <i>Ciconia ciconia</i>		Least Concern	None	Schedule-I
Painted Stork <i>Mycteria leucocephala</i>	Low	Least Concern	None	Schedule-II
Lesser Frigatebird <i>Fregata ariel</i>		Least Concern	None	Schedule-II
Oriental Darter <i>Anhinga melanogaster</i>	Low	Least Concern	None	Schedule-II
Little Cormorant <i>Microcarbo niger</i>	Low	Least Concern	None	Schedule-II
Great Cormorant <i>Phalacrocorax carbo</i>	Low	Least Concern	None	Schedule-II
Indian Cormorant <i>Phalacrocorax fuscicollis</i>	Low	Least Concern	None	Schedule-II
Glossy Ibis <i>Plegadis falcinellus</i>	Low	Least Concern	None	Schedule-II
Black-headed Ibis <i>Threskiornis melanocephalus</i>	Low	Least Concern	None	Schedule-II
Eurasian Spoonbill <i>Platalea leucorodia</i>	High	Least Concern	None	Schedule-I
Black Bittern <i>Botaurus flavicollis</i>	Low	Least Concern	None	Schedule-II
Cinnamon Bittern <i>Botaurus cinnamomeus</i>	Low	Least Concern	None	Schedule-I
Yellow Bittern <i>Botaurus sinensis</i>	Low	Least Concern	None	Schedule-II
Black-crowned Night Heron <i>Nycticorax nycticorax</i>	Low	Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SolB Priority	IUCN	Endemic Region	WLPA
Little Egret <i>Egretta garzetta</i>	Low	Least Concern	None	Schedule-II
Western Reef-Egret <i>Egretta gularis</i>	High	Least Concern	None	Schedule-II
Indian Pond-Heron <i>Ardeola grayii</i>	Low	Least Concern	None	Schedule-II
Chinese Pond-Heron <i>Ardeola bacchus</i>		Least Concern	None	Schedule-II
Eastern Cattle-Egret <i>Ardea coromanda</i>	Low		None	Schedule-II
Great Egret <i>Ardea alba</i>	Low	Least Concern	None	Schedule-II
Intermediate Egret <i>Ardea intermedia</i>	Low	Least Concern	None	Schedule-II
Grey Heron <i>Ardea cinerea</i>	Low	Least Concern	None	Schedule-II
Purple Heron <i>Ardea purpurea</i>	Low	Least Concern	None	Schedule-II
Spot-billed Pelican <i>Pelecanus philippensis</i>	Moderate	Near Threatened	None	Schedule-II
Osprey <i>Pandion haliaetus</i>	High	Least Concern	None	Schedule-I
Black-winged Kite <i>Elanus caeruleus</i>	Moderate	Least Concern	None	Schedule-II
Oriental Honey-buzzard <i>Pernis ptilorhynchus</i>	Low	Least Concern	None	Schedule-II
Short-toed Snake-Eagle <i>Circaetus gallicus</i>	High	Least Concern	None	Schedule-I
Indian Spotted Eagle <i>Clanga hastata</i>	Moderate	Near Threatened	None	Schedule-I

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Greater Spotted Eagle <i>Clanga clanga</i>	Low	Vulnerable	None	Schedule-I
Booted Eagle <i>Hieraaetus pennatus</i>	Low	Least Concern	None	Schedule-I
Shikra <i>Tachypiza badia</i>	Low	Least Concern	None	Schedule-I
Western Marsh Harrier <i>Circus aeruginosus</i>	High	Least Concern	None	Schedule-I
Eastern Marsh Harrier <i>Circus spilonotus</i>		Least Concern	None	Schedule-I
Pallid Harrier <i>Circus macrourus</i>	High	Near Threatened	None	Schedule-I
Montagu's Harrier <i>Circus pygargus</i>	High	Least Concern	None	Schedule-I
Black Kite <i>Milvus migrans</i>	Low	Least Concern	None	Schedule-II
Brahminy Kite <i>Haliastur indus</i>	Low	Least Concern	None	Schedule-I
White-bellied Sea-Eagle <i>Ichthyophaga leucogaster</i>	Moderate	Least Concern	None	Schedule-I
White-eyed Buzzard <i>Butastur teesa</i>	Moderate	Least Concern	None	Schedule-I
Eastern Barn Owl <i>Tyto javanica</i>		Least Concern	None	Schedule-I
Spotted Owlet <i>Athene brama</i>		Least Concern	None	Schedule-II
Eurasian Hoopoe <i>Upupa epops</i>	Moderate	Least Concern	None	Schedule-II
Asian Green Bee-eater <i>Merops orientalis</i>	Low	Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Blue-tailed Bee-eater <i>Merops philippinus</i>	Low	Least Concern	None	Schedule-II
Common Kingfisher <i>Alcedo atthis</i>	Low	Least Concern	None	Schedule-II
White-throated Kingfisher <i>Halcyon smyrnensis</i>	Low	Least Concern	None	Schedule-II
Black-capped Kingfisher <i>Halcyon pileata</i>	High	Vulnerable	None	Schedule-II
Pied Kingfisher <i>Ceryle rudis</i>	Moderate	Least Concern	None	Schedule-II
Indian Roller <i>Coracias benghalensis</i>	Moderate	Near Threatened	None	Schedule-II
Coppersmith Barbet <i>Psilopogon haemacephalus</i>	Low	Least Concern	None	Schedule-II
Eurasian Wryneck <i>Jynx torquilla</i>	Low	Least Concern	None	Schedule-II
Black-rumped Flameback <i>Dinopium benghalense</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Common Kestrel <i>Falco tinnunculus</i>	High	Least Concern	None	Schedule-II
Red-necked Falcon <i>Falco chicquera</i>	Moderate	Near Threatened	None	Schedule-I
Amur Falcon <i>Falco amurensis</i>	Moderate	Least Concern	None	Schedule-I
Peregrine Falcon <i>Falco peregrinus</i>	Low	Least Concern	None	Schedule-I
Rose-ringed Parakeet <i>Psittacula krameri</i>	Low	Least Concern	None	Schedule-II
Indian Pitta <i>Pitta brachyura</i>	Low	Least Concern	Indian Subcontinent	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SolB Priority	IUCN	Endemic Region	WLPA
Small Minivet <i>Pericrocotus cinnamomeus</i>	Low	Least Concern	None	Schedule-I
Black-headed Cuckooshrike <i>Lalage melanoptera</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Indian Golden Oriole <i>Oriolus kundoo</i>	Low	Least Concern	None	Schedule-II
Ashy Woodswallow <i>Artamus fuscus</i>	Low	Least Concern	None	Schedule-II
Common Woodshrike <i>Tephrodornis pondicerianus</i>	Moderate	Least Concern	None	Schedule-II
Common Iora <i>Aegithina tiphia</i>	Low	Least Concern	None	Schedule-II
Black Drongo <i>Dicrurus macrocercus</i>	Low	Least Concern	None	Schedule-II
Ashy Drongo <i>Dicrurus leucophaeus</i>	Low	Least Concern	None	Schedule-II
Indian Paradise-Flycatcher <i>Terpsiphone paradisi</i>	Low	Least Concern	None	Schedule-II
Brown Shrike <i>Lanius cristatus</i>	Low	Least Concern	None	Schedule-II
Bay-backed Shrike <i>Lanius vittatus</i>	Low	Least Concern	None	Schedule-II
Rufous Treepie <i>Dendrocitta vagabunda</i>	Low	Least Concern	None	Schedule-II
House Crow <i>Corvus splendens</i>	Low	Least Concern	None	
Large-billed Crow <i>Corvus macrorhynchos</i>	Low	Least Concern	None	Schedule-II
Rufous-tailed Lark <i>Ammomanes phoenicura</i>	High	Near Threatened	Indian Subcontinent	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Ashy-crowned Sparrow-Lark <i>Eremopterix griseus</i>	Moderate	Least Concern	Indian Subcontinent	Schedule-II
Jerdon's Bushlark <i>Plocealauda affinis</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Oriental Skylark <i>Alauda gulgula</i>	High	Least Concern	None	Schedule-II
Mongolian Short-toed Lark <i>Calandrella dukhunensis</i>		Least Concern	None	Schedule-II
Common Tailorbird <i>Orthotomus sutorius</i>	Low	Least Concern	None	Schedule-II
Jungle Prinia <i>Prinia sylvatica</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Ashy Prinia <i>Prinia socialis</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Plain Prinia <i>Prinia inornata</i>	Low	Least Concern	None	Schedule-II
Zitting Cisticola <i>Cisticola juncidis</i>	Low	Least Concern	None	Schedule-II
Booted Warbler <i>Iduna caligata</i>	Low	Least Concern	None	Schedule-II
Sykes's Warbler <i>Iduna rama</i>		Least Concern	None	Schedule-II
Blyth's Reed Warbler <i>Acrocephalus dumetorum</i>	Low	Least Concern	None	Schedule-II
Clamorous Reed Warbler <i>Acrocephalus stentoreus</i>	Low	Least Concern	None	Schedule-II
Barn Swallow <i>Hirundo rustica</i>	Moderate	Least Concern	None	Schedule-II
Eastern Red-rumped Swallow <i>Cecropis daurica</i>	Low	Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Streak-throated Swallow <i>Petrochelidon fluvicola</i>	Low	Least Concern	None	Schedule-II
White-browed Bulbul <i>Pycnonotus luteolus</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Red-whiskered Bulbul <i>Pycnonotus jocosus</i>	Low	Least Concern	None	Schedule-II
Red-vented Bulbul <i>Pycnonotus cafer</i>	Low	Least Concern	None	Schedule-II
Greenish Warbler <i>Phylloscopus trochiloides</i>	Low	Least Concern	None	Schedule-II
Yellow-eyed Babbler <i>Chrysomma sinense</i>	Low	Least Concern	None	Schedule-II
Yellow-billed Babbler <i>Argya affinis</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Rosy Starling <i>Pastor roseus</i>	Moderate	Least Concern	None	Schedule-II
Indian Pied Starling <i>Gracupica contra</i>	Low	Least Concern	None	Schedule-II
Brahminy Starling <i>Sturnia pagodarum</i>	Low	Least Concern	None	Schedule-II
Chestnut-tailed Starling <i>Sturnia malabarica</i>	Low	Least Concern	None	Schedule-II
Common Myna <i>Acridotheres tristis</i>	Low	Least Concern	None	Schedule-II
Orange-headed Thrush <i>Geokichla citrina</i>	Moderate	Least Concern	None	Schedule-II
Asian Brown Flycatcher <i>Muscicapa dauurica</i>	Low	Least Concern	None	Schedule-II
Indian Robin <i>Copsychus fulicatus</i>	Low	Least Concern	Indian Subcontinent	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Oriental Magpie-Robin <i>Copsychus saularis</i>	Low	Least Concern	None	Schedule-II
Siberian Stonechat <i>Saxicola maurus</i>	Low		None	Schedule-II
Pied Bushchat <i>Saxicola caprata</i>	Low	Least Concern	None	Schedule-II
Pale-billed Flowerpecker <i>Dicaeum erythrorhynchos</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Purple-rumped Sunbird <i>Leptocoma zeylonica</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Purple Sunbird <i>Cinnyris asiaticus</i>	Low	Least Concern	None	Schedule-II
Loten's Sunbird <i>Cinnyris lotenius</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Baya Weaver <i>Ploceus philippinus</i>	Low	Least Concern	None	Schedule-II
Indian Silverbill <i>Euodice malabarica</i>	Low	Least Concern	None	Schedule-II
Scaly-breasted Munia <i>Lonchura punctulata</i>	Low	Least Concern	None	Schedule-II
White-rumped Munia <i>Lonchura striata</i>	Low	Least Concern	None	Schedule-II
Tricoloured Munia <i>Lonchura malacca</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
Red Munia <i>Amandava amandava</i>	Low	Least Concern	None	Schedule-II
House Sparrow <i>Passer domesticus</i>	Moderate	Least Concern	None	Schedule-II
Yellow-throated Sparrow <i>Gymnoris xanthocollis</i>	Low	Least Concern	None	Schedule-II

COMPLETE LIST OF SPECIES				
Species	SoIB Priority	IUCN	Endemic Region	WLPA
Western Yellow Wagtail <i>Motacilla flava</i>	Moderate	Least Concern	None	Schedule-II
Eastern Yellow Wagtail <i>Motacilla tschutschensis</i>		Least Concern	None	Schedule-II
Citrine Wagtail <i>Motacilla citreola</i>	Moderate	Least Concern	None	Schedule-II
White-browed Wagtail <i>Motacilla maderaspatensis</i>	Low	Least Concern	Indian Subcontinent	Schedule-II
White Wagtail <i>Motacilla alba</i>	Moderate	Least Concern	None	Schedule-II
Richard's Pipit <i>Anthus richardi</i>	Low	Least Concern	None	Schedule-II
Paddyfield Pipit <i>Anthus rufulus</i>	Low	Least Concern	None	Schedule-II
Blyth's Pipit <i>Anthus godlewskii</i>	Low	Least Concern	None	Schedule-II
Tawny Pipit <i>Anthus campestris</i>	High	Least Concern	None	Schedule-II

DATA CONTRIBUTIONS	
Number of Observations	80103
Number of Lists	2668
Number of Unique Lists	1797
Number of Hours of Birding	1830
Number of Observers	619

Criteria for wetland prioritization and frame work for wetland monitoring in the state of Tamil Nadu

Submitted to
Tamil Nadu Forest Department



Funded by
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Tamil Nadu State Land Use Research Board
Ezhilagam, Chepauk, Chennai 600 005

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Division of Wetland Ecology & SACON ENVIS Resource Partner on Wetland Ecosystems

Final Report

March, 2019



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(A Centre of Excellence under the Ministry of Environment, Forest and Climate
Change, Govt. of India)
Anaikatty Post, Coimbatore, Tamil Nadu - 641 108

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Great Salt Lake

The Great Salt Lake is between Nemmeli and Kovalam

Lake Survey Number: 170, 171, 172, 250/1A1, 154/1

Section I ; Identification, Location and Jurisdiction

- 1.1 Commonly known as Great Salt Lake (Plate 18).
- 1.2 Villages that surround the wetland include Nemalikuppam, Perur, Nendi, Kalpakkam, Vadandmeli, Therkupattu, Thiruvadanthari, Semancherikappam, Kovalam.
- 1.3 & 1.4 The lake is based in Kancheepuram District of Tamil Nadu state.
- 1.5 The geographic coordinates are Latitude: 12° 37'10.3" N; 12° 39'24.4" N; 12° 42'12.1" N; 12° 44'53.6" N; 12° 47'01.3" N; and Longitude: 080° 11'06.5" E; 080° 11'44.7" E; 080° 12'54.9" E; 080° 13'51.1" E; 080° 14'14.6" E
- 1.6 The wetland is not a Protected Area.
- 1.7 The wetland comes under the jurisdiction of PWD Chennai Region.

Section II: Site Characteristics

- 2.1 Area of the wetland- Based on the GPS coordinates we estimated the area of the wetland as 4122 hectares (Map9.6).
- 2.2 The Wetland type - the wetland belongs to the Natural (inland) category in the sub category Permanent lakes.
- 2.3 Based on the secondary information the average depth is 1.5 meters for the wetland.
- 2.4 The elevation of the wetland is 5 meters (asl).
- 2.5 Water regimes
 - a) The main source of water for the wetland is rainfall, the surrounding runoff form the catchment area.
 - b) The water in the wetland is mostly of permanent nature.
 - c) The water from the wetlands forms a main source for the agriculture lands in the surrounding area. The water also helps in replenishing the groundwater and the overflow goes to the river.
 - d) The pH of the water was observed to be alkaline and recorded up to 8.4.
 - e) The lake has estuarine waters with the salinity recorded at 16.9 ppt at the time of sampling.
 - f) The wetland was observed to be Mesotrophic as the wetland had floating, submergent and emergent vegetation. The wetland does receive domestic sewage form the surrounding villages.
- 2.6 Climatic setting
 - a) Rainfallfor the month of December in Kancheepuram was 68.2 mm.
 - b) The atmospheric temperature was 27.5 °C and the humidity was 64%.
- 2.7 The area of zone of influence is 18990.7 hectares with a fixed buffer area of 2 kms around the wetland (Map 9.7).
- 2.8 The major land use around the wetland comprised of

Grassland 10 %;	Agriculture 5%;
Settlements (rural) 25%;	Urban Settlements 35%;
Industrial 15%;	Forest 0%
- 2.9. The comparison map of the wetland for the years 2003 and 2017 is given in Map 9.6& 9.7.

Section III- Biodiversity

- 3.1 List of Plant species: 54 species of plants were recorded around the wetland during our visit (Table 9.7).
- 3.2 List of animal species: 138 faunal species excluding 4 domestic species were recorded during the survey (Table 9.8a-i).
- 3.3 Species of Conservation importance: Migratory and Common species of birds were observed during the survey with five threatened category birds recorded during our survey (Table 9.8a-i).
- 3.4 Major Plant invasive alien species and extent of invasion: 12 invasive plant species including *Enteromorpha* sp. algae was found along the banks formed nearly 5 % of the vegetation cover in the waters.

- 3.5 Major animal invasive alien species and extent of invasion: no invasive species were recorded. Although there are introduced common carps in the lake the extent of their invasion is not documented and needs a detailed study.

Section IV Ecosystem services

- 4.1 The water from the wetland is marine and used for salt preparation.
- 4.2 Agriculture is undertaken around the wetland in very few locations mostly the area around is used for salt generation.
- 4.3 Fishing is undertaken in the wetland and is a traditional community right.
- 4.4 The wetland is not used for any aquatic food cultivation.
- 4.5 The plants around the wetland are not used for any medicinal purpose.
- 4.6 The wetland is not a site for recreation and is not frequented by nature enthusiast for bird watching.
- 4.7 The wetland plays the primary role of buffering by acting as a sponge during events of floods and extreme rainfall.
- 4.8 It is a major source of ground water recharge.
- 4.9 The wetland acts as a sink for sediments.
- 4.10 The major cultural and religious activities associated with the fisher folk community are performed in the wetland.
- 4.11 The bird enthusiast visit the wetland.
- 4.12 There are no agriculture or plantation activities within the wetland but there are instances of capture culture of fish.
- 4.13 The wetland provides a suitable habitat for birds as we also recorded the local and migratory bird species during our survey.
- 4.14 The wetland supports a fishery.
- 4.15 There was no mining for sand or silt undertaken.

Section V Pre-existing rights and privileges

- 5.1 There is commercial fishing activity and some recreational fishery is undertaken.
- 5.2 Major portion of the water is utilized for salt preparation.
- 5.3 Agriculture is undertaken sporadically around the wetland and not within the wetland.
- 5.4 Grazing by the cattle was observed. Bovines do not use the wetland for drinking the water.
- 5.5 The water is not used for domestic purposes washing of fishing crafts and gears is only undertaken.
- 5.6 The wetland is not used for bathing by live stock.
- 5.7 Religious and cultural functions are performed along the banks of the wetland.

Section VI Present and potential threats

- 6.1 The wetland does not show a major change in the pattern of water inflow and outflow.
- 6.2 There is release of sewage, effluents and solidwaste dumping along the banks of the wetland.
- 6.3 There are agricultural activities around the wetland although at a very low scale.
- 6.4 There are no invasive plant species but the plantation of terrestrial species along the banks is changing the habitat of the wetland.
- 6.5 The wetland has idol immersion while solid waste dumping and encroachment activities are observed to increase.

Section VII Notification Category

The wetland is not included in any of the protection and conservation categories and is below 2500m below Sea level.

Section VIII Activities proposed to be prohibited under Wetlands Rules 2010.

There are developmental activities that are taking place around the wetland that include setting up of new industries, encroachment and agriculture. Moreover, the release of effluents and sewage has to be regulated and treated before it can spoil the wetland.

Section IX Activities proposed to be regulated under Wetlands Rules 2010.

The water from the wetland is majorly used for irrigation by the surrounding wetlands. The cattle also use the wetland for grazing. There is increase in the release of effluents and sewage into the wetland.

Section X Listing of available scientific Resources Reports pertaining to the wetland

Literature available for Great Salt Lake

Dubey D.P. (1996) Rays and ways of Indian Culture. Published by Vijay K Gupta, M.D. Publications Pvt. Ltd, New Delhi. pp. 241.

Mariappan N. and Richard L. (2006) Studies on freshwater prawns of family Atyidae and Palaemonidae from Kanchipuram and Thiruvallur districts, Tamilnadu, India, including one new species of the Genus *Caridina* H. Milne Edwards, 1837. Rec. zool. Surv. India, Occ. Paper No. 243 : 1-80, (Published by the Director, Zool. Surv. India, Kolkata)

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Vikas P.A., Sajeshkumar N.K., Thomas P.C. Kajal Chakraborty and Vijayan K. K. (2012) Aquaculture related invasion of the exotic *Artemia franciscana* and displacement of the autochthonous *Artemia* populations from the hypersaline habitats of India Hydrobiologia 684: 129. <https://doi.org/10.1007/s10750-011-0976-x>

Table 9.7: List of Plant species recorded along the Great Salt Lake

S. No	Scientific Name	Common English Name	Local Tamil Name	Family	Native / Alien / Invasive / Exotic	IUCN Category
1	<i>Argemone mexicana</i>	Mexican Prickly Poppy	Kudiyotti	Papaveraceae	Invasive	NA
2	<i>Abelmoschus angulosus</i>	---	KattuSemparuthi	Malvaceae	Native	NA
3	<i>Abutilon indicum</i>	Indian Mallow	Paniyaratutti	Malvaceae	Native	NA
4	<i>Thespesia populnea</i>	Indian tulip tree	Puvarasumaram	Malvaceae	Native	LC
5	<i>Muntingia calabura</i>	Jamaica Cherry	Thenpazham	Muntingiaceae	Exotic	NA
6	<i>Tribulus terrestris</i>	Puncture Vine	Nerunchil	Zygophyllaceae	Invasive	NA
7	<i>Azadirachta indica</i>	Neem tree	Veppamaram	Meliaceae	Native	NA
8	<i>Ziziphus oenoplia</i>	Jackal Jujube	Suraimullu	Rhamnaceae	Native	LC
9	<i>Cissus quadrangularis</i>	Devil's Backbone	Pirandai	Vitaceae	Native	NA
10	<i>Cardiospermum halicacabum</i>	Balloon Vine	Kottavan	Sapindaceae	Native	NA
11	<i>Lannea coromandelica</i>	Indian Ash Tree	Oti	Anacardiaceae	Native	NA
12	<i>Albizia lebbek</i>	Siris Tree, Women's tongue	Siridam	Fabaceae	Native	NA
13	<i>Bauhinia purpurea</i>	Purple orchid tree	Nilattiruvatti	Fabaceae	Native	LC
14	<i>Clitoria ternatea</i>	Butterfly Pea	SanguKannikkodi	Fabaceae	Native	NA
15	<i>Delonix elata</i>	White Gulmohar, White Poincian	Perungondrai, Vadanarayanan	Fabaceae	Native	LC
16	<i>Leucaena leucocephala</i>	Wild Tamarind	Kattupullimaram	Fabaceae	Invasive	NA
17	<i>Pithecellobium dulce</i>	Manilla Tamarind	Kodukkappuli	Fabaceae	Exotic	NA
18	<i>Prosopis juliflora</i>	Algaroba	Seemaikaruvil	Fabaceae	Invasive	NA
19	<i>Senna auriculata</i>	Tanner's Cassia	Avaram	Fabaceae	Native	NA
20	<i>Senna occidentalis</i>	Coffee senna	Nattamtakarai,	Fabaceae	Native	NA
21	<i>Tamarindus indica</i>	Tamarind Tree	Puliyamaram	Fabaceae	Exotic	LC
22	<i>Vachellia nilotica</i>	Gum Arabic	Karuvellaimaram	Fabaceae	Invasive	NA
23	<i>Vigna trilobata</i>	Wild gram, Three lobe leaf		Fabaceae	Native	NA

		cowpea				
24	<i>Terminalia catappa</i>	Indian Almond	Nattuvadumai, Vadumai	Combretaceae	Native	NA
25	<i>Turnerasa bulata</i>	White Alder		Turneraceae	Invasive	NA
26	<i>Cucumis dipsaceus</i>	Hedgehog Cucumber		Cucurbitaceae	Exotic	NA
27	<i>Cucurbita pepo</i>	Pumpkin, Field pumpkin	Poosani	Cucurbitaceae	Native	NA
28	<i>Sesuvium portulacastrum</i>	Sea pursland, Shore pursland	Vankaravacci	Aizoaceae	Native	NA
29	<i>Morinda citrifolia</i>	Great Morinda	Nunamaram	Rubiaceae	Native	NA
30	<i>Eclipta alba</i>	False Daisy		Asteraceae	Native	LC
31	<i>Xanthium strumarium</i>	Common Cocklebur	Marulumattai, Ottarachedi	Asteraceae	Native	NA
32	<i>Calotropis gigantea</i>	Crown Flower	Erukkenchedi	Apocynaceae	Native	NA
33	<i>Nerium oleander</i>	Oleander	Arali	Apocynaceae	Native	LC
34	<i>Pergularia daemia</i>	Pergularia	Uttamani, Seendhalkodi	Apocynaceae	Native	NA
35	<i>Ipomoea carnea</i>	Bush Morning Glory	---	Convolvulaceae	Invasive	NA
36	<i>Merremia marginata</i>	Kidney leaf morning glory	Elikkadhukeerai	Convolvulaceae	Native	LC
37	<i>Datura metel</i>	Datura metel	Devil's Trumpet	Solanaceae	Invasive	NA
38	<i>Datura stramonium</i>	Common Thorn apple	Oomathai	Solanaceae	Native	NA
39	<i>Andrographis echinoides</i>	False waterwillow	Gopuram tangi	Acanthaceae	Native	NA
40	<i>Asystasia gangetica</i>	Ganges Primrose	Mitikirai	Acanthaceae	Native	NA
41	<i>Avicennia marina</i>	Indian Mangrove, White Mangrove	Venkantai	Acanthaceae	Native	LC
42	<i>Boerhavia diffusa</i>	Red hogweed	MukaratteKirai	Nyctaginaceae	Native	NA
43	<i>Achyranthes aspera</i>	Prickly Chaff Flower	Aakatam / Nayuruvi	Amaranthaceae	Native	NA
44	<i>Alternanthera ficoidea</i>	Calico Plant		Amaranthaceae	Introduced	
45	<i>Alternanthera pungens</i>	Khaki Weed	Seppunerungi	Amaranthaceae	Invasive	NA
46	<i>Amaranthus viridis</i>	Green Amaranth	Kuppakkeerai	Amaranthaceae	Exotic	NA
47	<i>Ricinus communis</i>	Castor Oil	Aamanakku	Euphorbiaceae	Native	NA
48	<i>Ficus religiosa</i>	Peepal	Arasamaram	Moraceae	Native	NA
49	<i>Eichhornia crassipes</i>	Water Hyacinth	Venkayattamarai	Pontederiaceae	Invasive	NA
50	<i>Borassus flabellifer</i>	Polmyra Palm	Pannaimaram, Thalam	Arecaceae	Native	NA
51	<i>Cocos nucifera</i>	Coconut Tree	Thennamaram	Arecaceae	Native	NA
52	<i>Arundo donax</i>	Giant Reed		Poaceae	Invasive	LC
53	<i>Cynodon dactylon</i>	Bermuda grass, Couch grass		Poaceae	Invasive	NA
54	<i>Setaria verticillata</i>	Bristly Foxtail	Amarippul	Poaceae	Alien	NA

VU - Vulnerable, NT-Near Threatened, LC- Least Concern, NA -Not Assessed

Table 9.8a: List of Insects recorded along the Great Salt Lake

S. No	Common Name	Scientific Name	Family
1	Brown-spotted locust Grasshopper	<i>Cyrtacantha cristatarica</i>	Acrididae
2	Toothpick Grasshopper	<i>Leptysma marginicollis</i>	Acrididae
3	Common Field Grasshopper	<i>Chorthippus brunneus</i>	Acrididae
4	Mantis Egg	Ootheca	Mantodeae
5	Spittle bug	<i>Cloviea sp.</i>	Aphrophoridae
6	Water Strider	<i>Gerris sp.</i>	Gerridae
7	Red Cotton Stainer	<i>Dysdercus cingulatus</i>	Pyrrhocoridae
8	Jewel bug	<i>Chrysocoris stollii</i>	Scutelleridae
9	Transverse lady beetle	<i>Coccinella transversalis</i>	Coccinellidae
10	Blister Beetle	<i>Hycleus sp.</i>	Meloidae
11	Small Dung Beetle	<i>Onthophagus sp.</i>	Scarabaeidae
12	Carpenter Bee	<i>Xylo copalatypes</i>	Apidae
13	Arboreal Bicoloured Ant	<i>Tetraponera rufonigra</i>	Formicidae
14	Golden backed Ant	<i>Camponotus sericeus</i>	Formicidae
15	Bicolour Ant	<i>Meranoplus bicolor</i>	Formicidae
16	Common Godzilla Ant	<i>Camponotus compressus</i>	Formicidae
17	Black and Yellow Mud Dauber Wasp	<i>Sceliphron caementarium</i>	Sphecidae
18	Potter Wasp	<i>Ancistrocerus sp.</i>	Vespidae
19	House fly	<i>Musca domestica</i>	Muscidae

Table 9.8b: List of Diplopoda recorded along the Great Salt Lake

S. No	Common Name	Scientific Name	Family
1	Yellow Spotted Millipede	<i>Harpaphe haydeniana</i>	Xystodesmidae

Table 9.8c: List of Butterflies recorded along the Great Salt Lake

S. No	Common Name	Scientific Name	Family	Status
1	Common Rose	<i>Pachliopta aristolochiae</i>	Papilioninae	Common
2	Crimson Rose	<i>Pachliopta hector</i>	Papilioninae	Common
3	Lime Butterfly	<i>Papilio demoleus</i>	Papilioninae	Common
4	Small Grass Yellow	<i>Eurema brigitta</i>	Coliadinae	Common
5	Common Grass Yellow	<i>Eurema hecabe</i>	Coliadinae	Common
6	Common Emigrant	<i>Catopsilia pomona</i>	Coliadinae	Common
7	Mottled Emigrant	<i>Catopsilia pyranthe</i>	Coliadinae	Common
8	Crimson Tip	<i>Colotis danae</i>	Pierinae	Uncommon
9	Small Orange Tip	<i>Colotis etrida</i>	Pierinae	Common
10	Common Wanderer	<i>Pareronia hippia</i>	Pierinae	Common
11	Pioneer	<i>Belenois aurota</i>	Pierinae	Common
12	Common Cerulean	<i>Jamides celeno</i>	Polyommatainae	Common
13	Forget-Me-Not	<i>Catochrysops strabo</i>	Polyommatainae	Common
14	Gram Blue	<i>Euchrysops cnejus</i>	Polyommatainae	Common
15	Blue Tiger	<i>Tirumala limniace</i>	Danainae	Common
16	Striped Tiger	<i>Danaus genutia</i>	Danainae	Common
17	Plain Tiger	<i>Danaus chrysippus</i>	Danainae	Common
18	Common Crow	<i>Euploea core</i>	Danainae	Common
19	Common Evening Brown	<i>Melanitis leda</i>	Satyrinae	Common
20	Tawny Coster	<i>Acraea violae</i>	Acraeinae	Common
21	Joker	<i>Byblia ilithyia</i>	Biblidinae	Common
22	Angled Castor	<i>Ariadne ariadne</i>	Biblidinae	Uncommon
23	Lemon Pansy	<i>Junonia lemonias</i>	Nymphalinae	Common
24	Danaid Eggfly	<i>Hypolimnas misippus</i>	Nymphalinae	Common

Table 9.8d: List of Dragonflies and Damselflies recorded along the Great Salt Lake

S. No	Common Name	Scientific Name	Family	Status
1	Golden Dartlet	<i>Ischnura aurora</i>	Coenagrionidae	Common
2	Senegal Golden Dartlet	<i>Ischnura senegalensis</i>	Coenagrionidae	Common
3	Pigmy Dartlet	<i>Agriocnemis pygmaea</i>	Coenagrionidae	Common
4	Coromandel Marsh Dart	<i>Ceragrion coromandelianum</i>	Coenagrionidae	Common
5	Ditch Jewel	<i>Brachythemis contaminata</i>	Libellulidae	Common
6	Ruddy Marsh Skimmer	<i>Crocothemis servilia</i>	Libellulidae	Common
7	Ground Skimmer	<i>Diplacodes trivialis</i>	Libellulidae	Common
8	Green Marsh Hawk	<i>Orthetrum sabina</i>	Libellulidae	Common
9	Wandering Glider	<i>Pantala flavescens</i>	Libellulidae	Common

Table 9.8e: List of Arachnida recorded along the Great Salt Lake

S. No	Common Name	Scientific Name	Family
1	Indian Funnel Web Spider	<i>Agelenopsis sp.</i>	Agelenidae
2	Signature Spider	<i>Argiope anasuja</i>	Arandidae

Table 9.8f: List of Fishes recorded from the Great Salt Lake

S. No	Scientific Name	Common Name	Local Name	Family	Category
1	<i>Cyprinus carpio</i>	Common Carp	Kendai (ValarpuKendai)	Cyprinidae	VU
2	<i>Hypophthalmichthys molitrix</i>	Silver Carp	Vella Kendai	Cyprinidae	NT
3	<i>Channa striata</i>	Striped Snakehead, Butterfish	Viral meen	Channidae	LC
4	<i>Channa punctata</i>	Spotted snakehead	Kuravaimeen	Channidae	LC
5	<i>Etroplus suratensis</i>	Green chromide	Karimeen, Sethameen	Cichlidae	LC
6	<i>Heteropneustes fossilis</i>	Stinging catfish	Thellimeen	Cichlida	LC
7	<i>Macrobrachium rosenbergii</i>	Giant River Prawn	Nanderiraal	Palaemonidae	LC
8	<i>Hyporhamphus limbatus</i>	Half beak	Cola meen	Hemiramphidae	LC
9	<i>Glossogobius giuris</i>	Tank goby	Uluvaimeen	Gobiidae	LC
10	<i>Catla catla</i>	Catla	Korakendai, Catla	Cyprinidae	LC

11	<i>Labeo rohita</i>	Rohu	Rohu, Kannadikendai	Cyprinidae	LC
12	<i>Mystus gulio</i>	Long whiskers catfish	Uppang-keluththi	Bagridae	LC
13	<i>Puntius dorsalis</i>	Long snouted barb	Sal kendai	Cyprinidae	LC
14	<i>Sardinella albella</i>	White Sardinella	Choodai	Clupeidae	LC
15	<i>Uca annulipes</i>	Fiddler crab	Nandu	Ocypodidae	
16	<i>Uca perplexa</i>	Fiddler crab	Nandu	Ocypodidae	
17	<i>Uca pugnax</i>	Atlantic marsh fiddler crab	Nandu	Ocypodidae	

VU - Vulnerable, NT-Near Threatened, LC- Least Concern, NA -Not Assessed

Table 9.8g: List of Reptiles recorded along the Great Salt Lake

S. No	Common Name	Scientific Name	Family	IUCN Status
1	Common Garden Lizard	<i>Calotes versicolor</i>	Agamidae	Least Concern
2	Common Skink	<i>Mabuya carinata</i>	Scincidae	Least Concern
3	Snake	<i>Xenochrophis sp.</i>	Colubridae	-

Table 9.8h: List of Birds recorded along the Great Salt Lake

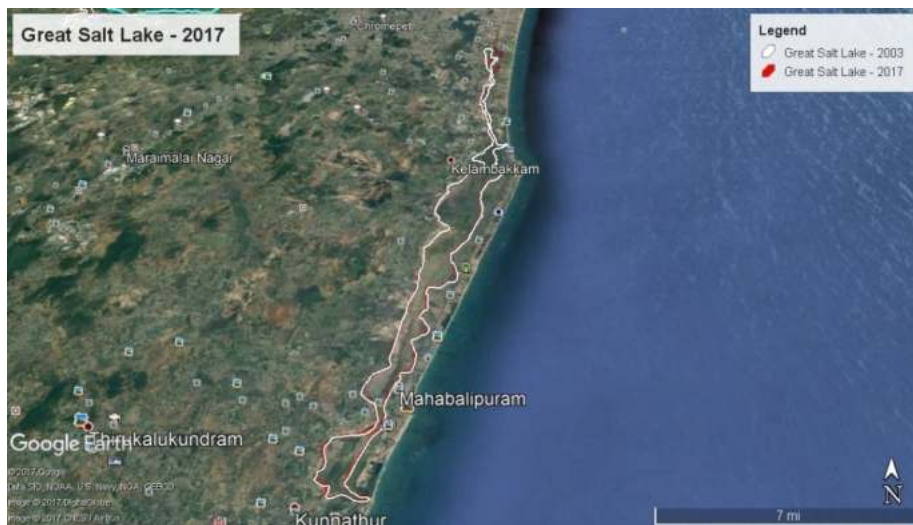
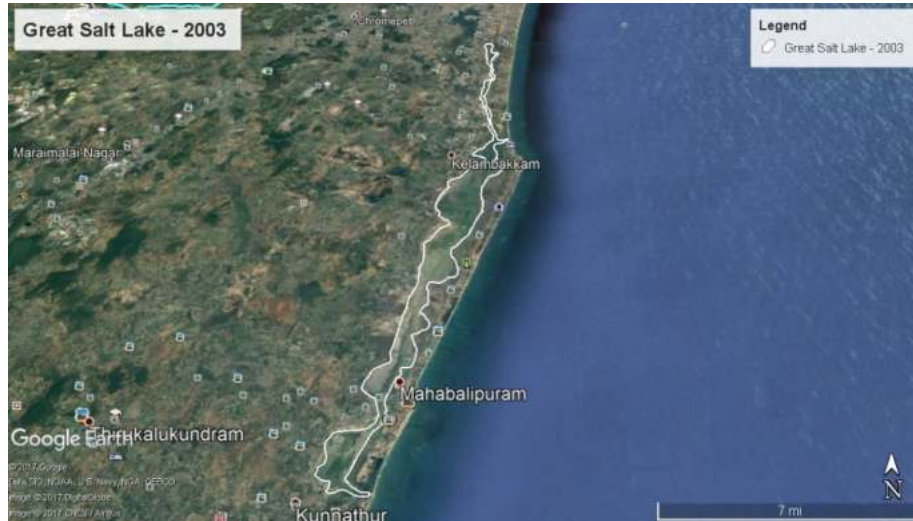
S. No	Common Name	Scientific Name	Family	Category
1	Grey Francolin	<i>Francolinus pondicerianus</i>	Phasianidae	Least Concern
2	Lesser Whistling-duck	<i>Dendrocygna javanica</i>	Anatidae	Least Concern
3	Indian Spot-billed Duck	<i>Anas poecilorhyncha</i>	Anatidae	Least Concern
4	Little Grebe	<i>Tachybaptus ruficollis</i>	Podicipedidae	Least Concern
5	Painted Stork	<i>Mycteria leucocephala</i>	Ciconiidae	Near Threatened
6	Asian Openbill	<i>Anastomus oscitans</i>	Ciconiidae	Least Concern
7	Black-headed Ibis	<i>Threskiornis melanocephalus</i>	Threskiornithidae	Near Threatened
8	Glossy Ibis	<i>Plegadis falcinellus</i>	Threskiornithidae	Least Concern
9	Eurasian Spoonbill	<i>Platalea leucorodia</i>	Threskiornithidae	Least Concern
10	Striated Heron	<i>Butorides striata</i>	Ardeidae	Least Concern
11	Indian Pond Heron	<i>Ardeola grayii</i>	Ardeidae	Least Concern
12	Grey Heron	<i>Ardea cinerea</i>	Ardeidae	Least Concern
13	Purple Heron	<i>Ardea purpurea</i>	Ardeidae	Least Concern
14	Cattle Egret	<i>Bubulcus ibis</i>	Ardeidae	Least Concern
15	Great Egret	<i>Casmerodius albus</i>	Ardeidae	Least Concern
16	Intermediate Egret	<i>Mesophoyx intermedia</i>	Ardeidae	Least Concern
17	Little Egret	<i>Egretta garzetta</i>	Ardeidae	Least Concern
18	Spot-billed Pelican	<i>Pelecanus philippensis</i>	Pelecanidae	Near Threatened
19	Darter	<i>Anhinga melanogaster</i>	Anhingidae	Near Threatened
20	Little Cormorant	<i>Phalacrocorax niger</i>	Phalacrocoracidae	Least Concern
21	Indian Cormorant	<i>Phalacrocorax fuscicollis</i>	Phalacrocoracidae	Least Concern
22	Black Kite	<i>Milvus migrans</i>	Accipitridae	Least Concern
23	Shikra	<i>Accipiter badius</i>	Accipitridae	Least Concern
24	White-breasted Waterhen	<i>Amaurornis phoenicurus</i>	Rallidae	Least Concern
25	Purple Swampphen	<i>Porphyrio porphyrio</i>	Rallidae	Least Concern
26	Eurasian Coot	<i>Fulica atra</i>	Rallidae	Least Concern
27	Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	Jacanidae	Least Concern
28	Red-wattled Lapwing	<i>Vandllus indicus</i>	Charadriidae	Least Concern
29	Little Ringed Plover	<i>Charadrius dubius</i>	Charadriidae	Least Concern
30	Eurasian Curlew	<i>Numenius arquata</i>	Scolopacidae	Near Threatened
31	Common Redshank	<i>Tringa totanus</i>	Scolopacidae	Least Concern
32	Marsh Sandpiper	<i>Tringa stagnatilis</i>	Scolopacidae	Least Concern
33	Green Sandpiper	<i>Tringa ochropus</i>	Scolopacidae	Least Concern
34	Wood Sandpiper	<i>Tringa glareola</i>	Scolopacidae	Least Concern
35	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	Laridae	Least Concern
36	Caspian Tern	<i>Hydroprogne caspia</i>	Laridae	Least Concern
37	Gull-billed Tern	<i>Gelochelidon nilotica</i>	Laridae	Least Concern
38	Rose-ringed Parakeet	<i>Psittacula krameri</i>	Psittacidae	Least Concern
39	Asian Koel	<i>Eudynamis scolopaceus</i>	Cuculidae	Least Concern
40	Southern Coucal	<i>Centropus (sinensis) parroti</i>	Cuculidae	Least Concern
41	Asian Palm Swift	<i>Cypsiurus balasiensis</i>	Apodidae	Least Concern
42	Indian Roller	<i>Coracias benghalensis</i>	Coraciidae	Least Concern
43	White-throated Kingfisher	<i>Halcyon smyrnensis</i>	Alcedinidae	Least Concern
44	Common Kingfisher	<i>Alcedo atthis</i>	Alcedinidae	Least Concern
45	Pied Kingfisher	<i>Ceryle rudis</i>	Alcedinidae	Least Concern

46	Blue-tailed Bee eater	<i>Merops philippinus</i>	Meropidae	Least Concern
47	Green Bee-eater	<i>Merops orientalis</i>	Meropidae	Least Concern
48	House Crow	<i>Corvus splendens</i>	Corvidae	Least Concern
49	Barn Swallow	<i>Hirundo rustica</i>	Hirundinidae	Least Concern
50	Ashy Prinia	<i>Prinia socialis</i>	Cisticolidae	Least Concern
51	Common Tailorbird	<i>Orthotomus sutorius</i>	Cisticolidae	Least Concern
52	Blyth's Reed Warbler	<i>Acrocephalus dumetorum</i>	Acrocephalidae	Least Concern
53	Yellow-billed Babbler	<i>Turdoides affinis</i>	Timaliinae	Least Concern
54	Common Myna	<i>Acridotheres tristis</i>	Sturnidae	Least Concern
55	Purple-rumped Sunbird	<i>Leptocoma zeylonica</i>	Nectariniidae	Least Concern
56	Scaly-breasted Munia	<i>Lonchura punctulata</i>	Estrildidae	Least Concern
57	White-browed Wagtail	<i>Motacilla maderaspatensis</i>	Motacillidae	Least Concern
58	Paddyfield Pipit	<i>Anthus rufulus</i>	Motacillidae	Least Concern

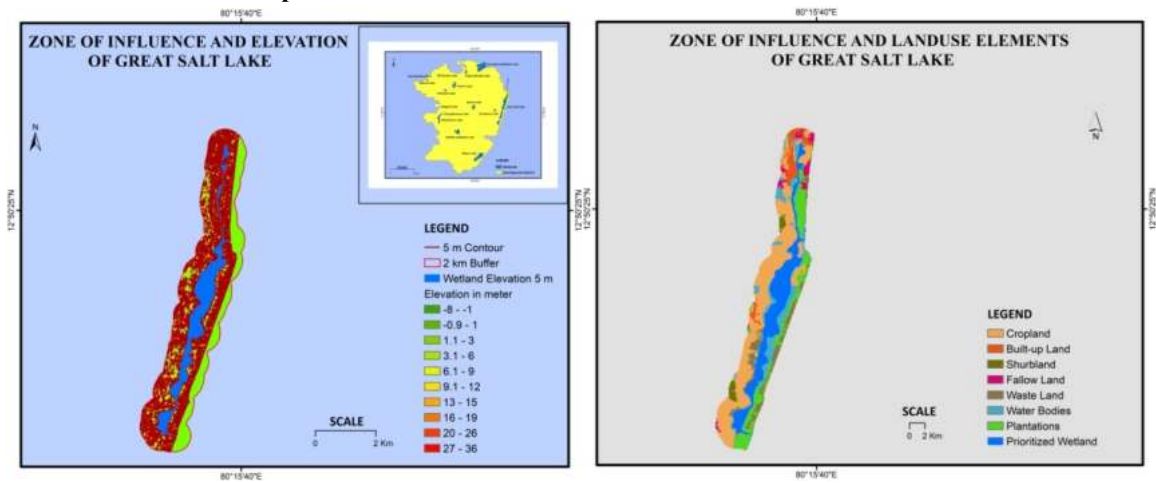
Table 9.8i: List of Mammals recorded along the Great Salt Lake

S. No	Common Name	Scientific Name	Family	Category
1	Dog	<i>Canis lupus familiaris</i>	Canidae	Domestic
2	Cattle	<i>Bos taurus</i>	Bovidae	Domestic
3	Goat	<i>Capra aegagrus hircus</i>	Bovidae	Domestic
4	Water Buffalo	<i>Bubalus bubalis</i>	Bovidae	Domestic
5	Indian Palm Squirrel	<i>Funambulus palmarum</i>	Sciuridae	Least Concern

Map 9.6: Comparative Google imagery for Great Salt Lake



Map 9.7: The zone of influence around the Great Salt Lake.



Nemmeli Coastal Wetland — Qualification Against Ramsar Site Criteria (Sites of International Importance for Conserving Biological Diversity)

Criterion 1 — *A wetland should be considered internationally important if it contains a representative, rare, or unique example of a natural or near-natural wetland type found within the appropriate biogeographic region.*

Nemmeli meets this criterion. The Nemmeli Coastal Wetland is an outstanding representative example of a **tidally influenced brackish coastal ecotone** - one of the rarest and most ecologically complex wetland types along India's eastern coastline. It simultaneously integrates estuarine waters (Ramsar Type F), intertidal mudflats and salt flats (Type G), intertidal marshes (Type H), intertidal mangrove systems (Type I), seasonal freshwater marshes fed by 69 upstream lakes and tanks, and human-made salt pans (Type 5) - all within a continuous 25 km corridor. This multi-type configuration, shaped by dual tidal influx from the Muttukadu and Kokilamedu estuaries and sustained by the combined Kovalam and Mahabalipuram coastal watersheds, is largely irreplaceable within the South Asian biogeographical region. No comparable example of this specific ecotone type exists in proximity to Chennai. The loss of Nemmeli would constitute the permanent elimination of a near-natural wetland type with no substitute within the biogeographic zone, satisfying the Ramsar standard for representativeness under Criterion 1.

Criterion 2 — *A wetland should be considered internationally important if it supports vulnerable, endangered, or critically endangered species or threatened ecological communities.*

Nemmeli meets this criterion. The wetland provides essential habitat for **1 Endangered species** - the Great Knot (*Calidris tenuirostris*, IUCN 2024–2025) and **7 Vulnerable species** including Common Pochard, Curlew Sandpiper, River Tern, Greater Spotted Eagle, and Black-capped Kingfisher. Additionally, the site supports **17 IUCN Near Threatened species**. Moreover the wetland hosts **50 species of High Conservation Priority** as defined by the State of India's Birds (SoIB) Report 2023, including species experiencing population declines exceeding 80% over the past 30 years. The broader wetland community itself a rare tidally influenced coastal ecotone supporting brackish, freshwater, and marine habitat types simultaneously constitutes a threatened ecological community of exceptional regional significance.

Criterion 4 — *A wetland should be considered internationally important if it supports plant and/or animal species at a critical stage in their life cycles, or provides refuge during adverse conditions.*

Nemmeli meets this criterion. The wetland serves as a critical **wintering and staging ground** for 88 recorded migratory species travelling along the Central Asian Flyway (CAF) Species such as Bar-tailed Godwit, Great Knot, Curlew Sandpiper, and Little Stint depend on sites like Nemmeli to rest and replenish energy reserves during their long-distance migrations - a stage in their life cycle where access to undisturbed, food-rich shallow mudflats is critical to survival. The wetland also functions as a **breeding and nursery ground** for prawn species and marine fish, making it critical to the life cycles of commercially important aquatic species. During adverse conditions such as drought or habitat loss elsewhere along the flyway, Nemmeli's dual-estuary system and habitat diversity make it a refuge of last resort for large concentrations of waterbirds. The recent first documented record of the Demoiselle Crane in the Chennai region (March 2026) at this site further demonstrates its role as a refuge for rare and displaced migratory species.

Criterion 5 — *A wetland should be considered internationally important if it regularly supports 20,000 or more waterbirds*

Nemmeli meets this criterion. Field surveys during the 2025–2026 winter season documented a **peak count of approximately 45,000 birds** across the 25 km wetland corridor, well exceeding the 20,000-bird threshold. This included over 16,000 migratory ducks alone Garganey, Northern Pintail, and Eurasian Wigeon representing the largest duck congregation recorded in the South Chennai region during the 2025 - 2026 migratory season. The site has been consistently surveyed as part of the Tamil Nadu Synchronized State Level Wetland Survey since 2023 and contributes data to the Asian Waterbird Census (AWC) coordinated by Wetlands International South Asia.

Criterion 6 — *A wetland should be considered internationally important if it regularly supports 1% or more of the individuals in a population of one species or subspecies of waterbird.*

Nemmeli meets this criterion for at least two species:

- **Spot-billed Pelican:** Hosts up to 600 individuals, accounting for **6% of its global** population.ⁱ
- **Painted Stork:** Hosts up to 500 individuals, accounting for **2% of its global** population.ⁱⁱ
- **Black-headed Ibis:** Hosts up to 600 individuals, also representing **2% of its global** population.ⁱⁱⁱ

Either species record independently satisfies Criterion 6 and is sufficient, in itself, to qualify Nemmeli for designation as a Ramsar Site of International Importance. Together, they constitute a compelling, multi-species case for immediate nomination under the Wetlands (Conservation and Management) Rules, 2017.

ⁱ <https://wpp.wetlands.org/explore/3793/1984>

ⁱⁱ <https://wpp.wetlands.org/explore/3808/2000>

ⁱⁱⁱ <https://wpp.wetlands.org/explore/3776/1939>

Other Conservation Mapping Data: (Not related to Ramsar)

India's National Action Plan for Conservation of Migratory Birds and their Habitats along Central Asian Flyway (2018-2023)

APPENDIX 1. LIST OF INDIAN CAF MIGRATORY BIRD SPECIES AND THEIR 1% BIOGEOGRAPHIC POPULATION ESTIMATE (At Nemmeli)

S.No	Common Name	Scientific Name	CAF NAP 1% Pop. Estimate	IUCN Status (NAP)
1	Northern Pintail	<i>Anas acuta</i>	20,000	Least Concern
2	Garganey	<i>Spatula querquedula</i>	3,500	Least Concern
3	Northern Shoveler	<i>Spatula clypeata</i>	7,100	Least Concern
4	Eurasian Wigeon	<i>Mareca penelope</i>	2,500	Least Concern
5	Common Teal	<i>Anas crecca</i>	4,000	Least Concern
6	Common Pochard	<i>Aythya ferina</i>	800	Vulnerable
7	Ruddy Shelduck	<i>Tadorna ferruginea</i>	500	Least Concern
8	Bar-headed Goose	<i>Anser indicus</i>	560	Least Concern
9	Greater Flamingo	<i>Phoenicopterus roseus</i>	2,400	Least Concern
10	Eurasian Curlew	<i>Numenius arquata</i>	300	Near Threatened
11	Black-tailed Godwit	<i>Limosa limosa</i>	1,500	Near Threatened

12	Bar-tailed Godwit	<i>Limosa lapponica</i>	500	Near Threatened
13	Whimbrel	<i>Numenius phaeopus</i>	500	Least Concern
14	Pied Avocet	<i>Recurvirostra avosetta</i>	600	Least Concern
15	Grey Plover	<i>Pluvialis squatarola</i>	300	Least Concern
16	Little Stint	<i>Calidris minuta</i>	2,400	Least Concern
17	Curlew Sandpiper	<i>Calidris ferruginea</i>	2,400	Near Threatened
18	Dunlin	<i>Calidris alpina</i>	1,000	Least Concern
19	Ruff	<i>Calidris pugnax</i>	1,000	Least Concern
20	Marsh Sandpiper	<i>Tringa stagnatilis</i>	1,000	Least Concern
21	Common Redshank	<i>Tringa totanus</i>	1,000	Least Concern
22	Common Greenshank	<i>Tringa nebularia</i>	710	Least Concern
23	Wood Sandpiper	<i>Tringa glareola</i>	1,400	Least Concern
24	Terek Sandpiper	<i>Xenus cinereus</i>	1,000	Least Concern
25	Brown-headed Gull	<i>Chroicocephalus brunnicephalus</i>	1,400	Least Concern
26	Black-headed Gull	<i>Chroicocephalus ridibundus</i>	7,000	Least Concern
27	Gull-billed Tern	<i>Gelochelidon nilotica</i>	770	Least Concern
28	Caspian Tern	<i>Hydroprogne caspia</i>	1,500	Least Concern
30	Whiskered Tern	<i>Chlidonias hybrida</i>	2,000	Least Concern

APPENDIX 4. LIST OF SPECIES SHORTLISTED FOR FORMULATION OF SINGLE SPECIES ACTION PLAN (At Nemmeli)

S.No	Species	Scientific Name	Justification for SSAP (from NAP)	Nemmeli Latest Report
1	Eurasian Curlew	<i>Numenius arquata</i>	Near Threatened; global population on the decline due to habitat disturbances.	2026
2	Black-tailed Godwit	<i>Limosa limosa</i>	Near Threatened; global population on the decline.	2026
3	Bar-tailed Godwit	<i>Limosa lapponica</i>	Near Threatened; overall population on the decline.	2025
4	Greater Flamingo	<i>Phoenicopterus roseus</i>	Suffers from low reproductive success if exposed to disturbance; mortality from power line collisions.	2026
5	Curlew Sandpiper	<i>Calidris ferruginea</i>	Near Threatened; suspected to be declining. India supports its largest wintering population.	2025
6	Little Stint	<i>Calidris minuta</i>	India supports its largest wintering population; decline due to illegal hunting and habitat degradation.	2026
7	Great Knot	<i>Calidris tenuirostris</i>	Endangered; undergoing very rapid population decline caused by reclamation of stopover grounds.	2024
8	Common Pochard	<i>Aythya ferina</i>	Vulnerable; population has declined rapidly across the majority of the range.	2025

End Note

This report is issued by Suzhal Arivom, a grassroots volunteer-based research organization committed to local ecosystem conservation, climate change literacy, and mitigation. All data and insights presented herein have undergone peer review, with references duly cited in accordance with accepted academic and legal standards of documentation. By releasing this report, Suzhal Arivom affirms its role in exercising the right to information and the duty of care toward the environment, while urging compliance with substantive and procedural safeguards under environmental law.

For further communication, we may be reached at: suzhalarivom@gmail.com.

Kovalam - Nemmeli Wetland

An Ecological Marvel

Birds of Kovalam - Nemmeli Wetland Complex



Kovalam - Nemmeli Wetland Complex Protection Matters

கூழல் அறிவோம்

Habitat Diversity at Kovalam - Nemmeli Wetland Complex

Image Credits: Photo are a combination of original photography, curated sources, and citizen science platforms, utilized only for conservation purposes.

Mangroves



Mud Flats



Brackish Marshland



Shallow Waters / Abandoned salt pans



Grassland

61

Salt Marsh

Open waters

22.02.2024 07:38



Seasonal Marshland / Mudflat / Grassland



Marshland



Buckingham Canal



Fishing Grounds

சூழல் அறிவேம் - Suzhal Arivom

Birds of Kovalam - Nemmeli Wetland Complex

Number of Bird Species → 236

Migratory Species → 91



IUCN Red List Species →

25

EN 1

Endangered

VU 7

Vulnerable

NT 17

Near Threatened



SoIB Priority Species →

90



High Conservation Priority →

50



Moderate Conservation Priority →

40

Kovalam - Nemmeli Wetland Complex host around **1 lakh birds** in peak Migratory period

Species under the Wild Life (Protection) Act, 1972	Species under the Convention on International Trade in Endangered Species of Wild Fauna & Flora (CITES)	Species under the Convention on the Conservation of Migratory Species of Wild Animals (CMS)
Schedule I species - 31	Appendix I species - 2	Appendix I species - 2
	Appendix II species - 24	Appendix II species - 97

State of India's Birds report 2023



High



Moderate



Low

NA

Not Available

Conservation Priority Status

IUCN RED LIST

Extinct



Extinct

in Wild

Threatened



Critically Endangered

Endangered

Vulnerable

Least Concern



New Threatened

Least Concern

Illustration credit : birdsoftheworld.org

Birds flocks
Kovalam - Nemmeli Wetland





Shore Birds



Gulls & Shore Birds



Pelican, Painted Stork & Egrets





Ducks

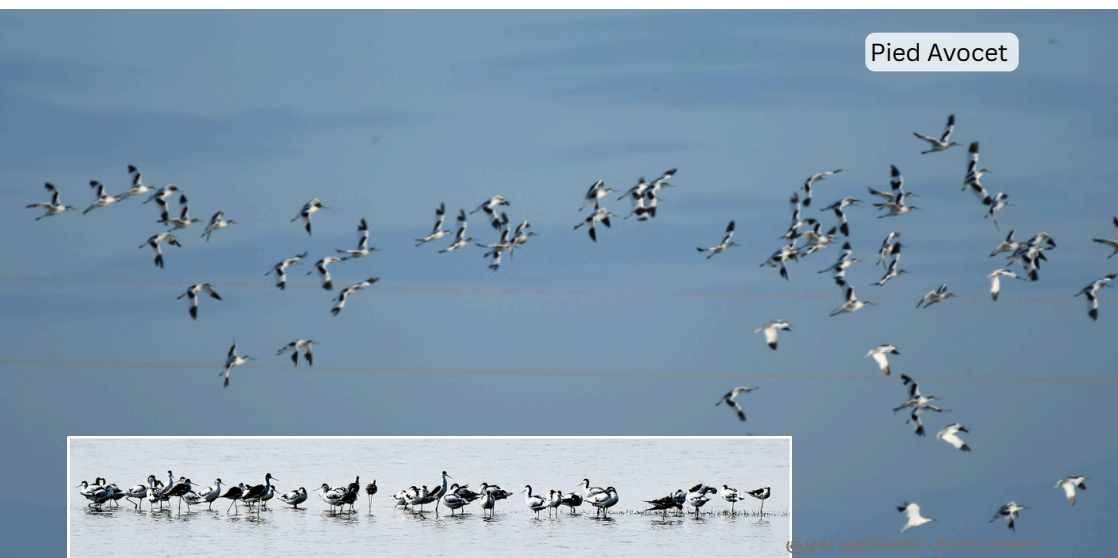
69



Shore Birds



Migratory Ducks



Pied Avocet



Painted Stork



Bar-headed goose



Migratory Ducks

Egrets & Gulls

71



Greater Flamingo & Ducks



Rare & Threatened Birds
Kovalam - Nemmeli Wetland





Harriers





Osprey



Spotted sandpiper



Gray-headed Lapwing



Pacific Golden-Plover



Eurasian curlew



Thick-knee



White stork



Pied Avocet



Chinese pond heron



Oriental pratincole



Chestnut-winged Cuckoo

Breeding Birds
Kovalam - Nemmeli Wetland

Photos of the bird nests were taken from a safe distance using telescopic lens.
Birds are not disturbed in any way. Image taken for conservation and education purpose.



Thick-knee chick



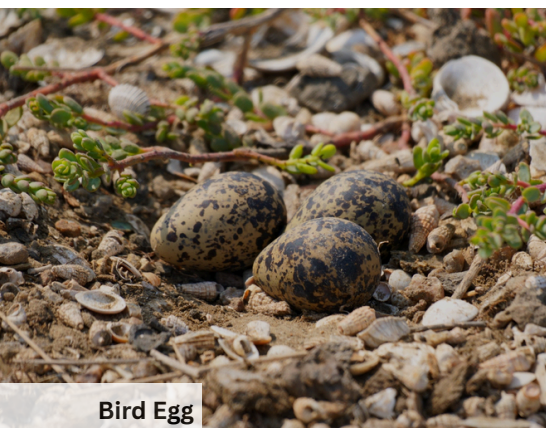
Kentish plover with chick



Oriental pratincole with chick



Black-winged stilt chick



Bird Egg



Black-winged stilt with chick

Birds of
Kovalam - Nemmeli Wetland

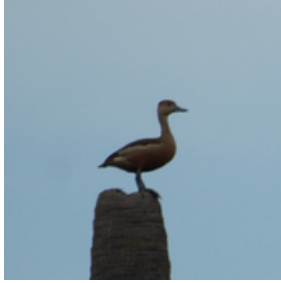


79

Birds of Nammeli



Fulvous Whistling-Duck
Suzhal Arivom | 21 - Nov 2024



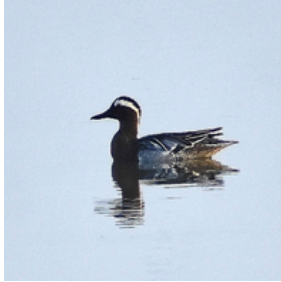
Lesser Whistling-Duck
Siddhanth S | 29 Sep 2025



Bar-headed Goose
Suzhal Arivom|17 Dec 2022



Ruddy Shelduck
Saravana M|23 Nov 2024



Garganey
Suzhal Arivom |22 Feb 2025



Northern Shoveler
Suzhal Arivom|18 Nov 2023



Eurasian Wigeon
Suzhal Arivom |22 Nov 2024



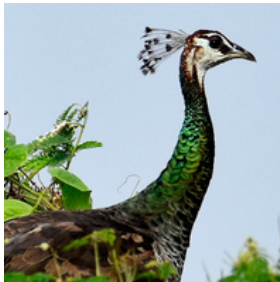
Indian Spot-billed Duck
Suzhal Arivom|16 Jan 2025



Northern Pintail
Suzhal Arivom |22 Dec 2024



Green-winged Teal
Sundar Palanivelu|16 Feb 2025



Indian Peafowl
Suzhal Arivom|7 Jan 2023



Gray Francolin
Suzhal Arivom|22 Feb 2025

80

Birds of Nammeli



Greater Coucal
Suzhal Arivom|7 Jan 2023



Blue-faced Malkoha
Suzhal Arivom |16 Jan 2025



Pied Cuckoo
Suzhal Arivom|7 Jan 2023



Asian Koel
Suzhal Arivom |17 Jan 2025



Common Hawk-Cuckoo
Bharath Ravikumar|14 Jan 2025



Little Swift
Anand Birdlife|7 Mar 2026



Asian Palm Swift
Arun Prabhu|4 Jan 2025



Eurasian Moorhen
Navin Viswanathan|29 Dec 2024



White-breasted Waterhen
Sanjay Malik|15 Jan 2023



Demoiselle Crane
Baranidharan S|5 Mar 2026



Great Thick-knee
Suzhal Arivom|28 Oct 2023



Indian Thick-knee
Suzhal Arivom|17 Jan 2025

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Birds of Nimmeli



Black-winged Stilt
Suzhal Arivom|28 Jan 2024



Pied Avocet
Baranidharan S|5 Oct 2025



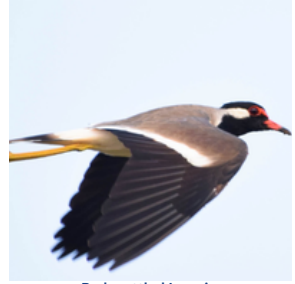
Little Ringed Plover
Suzhal Arivom|31 Dec 2022



Yellow-wattled Lapwing
Rameshkumar Natarajan|26 Jan 2019



Gray-headed Lapwing
Suzhal Arivom|28 Oct 2023



Red-wattled Lapwing
Rameshkumar Natarajan|26 Jan 2019



Tibetan Sand-Plover
Thalirnilavan Manikandan|7 Mar 2026



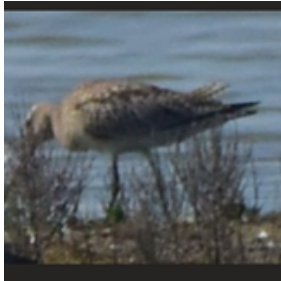
Kentish Plover
Thalirnilavan Manikandan|7 Mar 2026



Pheasant-tailed Jacana
Moham Raj K|9 Mar 2024



Eurasian Curlew
Suzhal Arivom|17 Jan 2025



Bar-tailed Godwit
Baranidharan S|5 Oct 2025



Black-tailed Godwit
Fareed Mohmed|31 Aug 2019

82

Birds of Kammeli



Pin-tailed Snipe
Anand Birdlife|7 Mar 2026



Terek Sandpiper
Nevine Jacob|21 Aug 2024



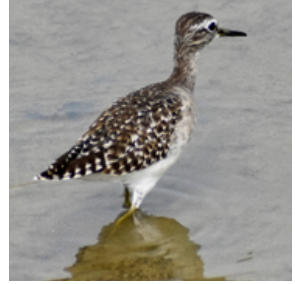
Common Sandpiper
Suzhal Arivom|28 Jan 2024



Green Sandpiper
Bharanidharan BJ|4 Oct 2023



Marsh Sandpiper
Suzhal Arivom|16 Jan 2025



Wood Sandpiper
Suzhal Arivom |28 Jan 2023



Common Redshank
Suzhal Arivom|31 Dec 2022



Spotted Redshank
Saravana Manian|4 Jan 2026



Common Greenshank
Suzhal Arivom|21 Nov 2024



Ruff
Siddhanth Sivadeeban|29 Sept 2025



Temmenick's Stint
Suzhal Arivom|22Feb 2025



Little Stint
Thalirnilavan Manikandan|7 Mar 2026

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Birds of Nammeli



Oriental Pratincole
Syed Ibrahim Shah Jalal|10 Dec 2022



Black-headed Gull
Raja Simma Pandiyan|23 Dec 2022



Slender-billed Gull
Bharath Ravikumar|13 Jan 2024



Brown-headed Gull
Suzhal Arivom|31 Dec 2022



Pallas's Gull
Ashish Gupta|25 Feb 2021



Lesser Black-backed Gull
Rajesh Gopalan|25 Dec 2024



Bridled Tern
Syed Ibrahim Shah Jalal|10 Dec 2022



Little Tern
Rajesh Gopalan|25 Dec 2024



Gull-billed Tern
Suzhal Arivom|16 Jan 2025



Caspian Tern
Suzhal Arivom|21 Nov 2024



Whiskered Tern
Baranidharan S|5 Oct 2025



White-winged Tern
Siddhanth Sivadeeban|29 Sep 2025

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Birds of Nammeli



Common Tern
Arun Prabhuj25 Dec 2024



Greater Flamingo
Suzhal Arivom|24 Oct 2021



Lesser Flamingo
Shreyas Ramanan|25 Dec 2024



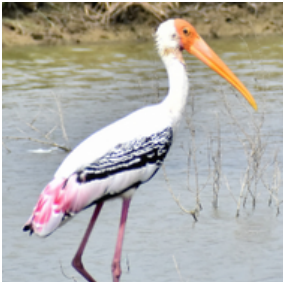
Little Grebe
Suzhal Arivom|16 Jan 2025



Asian Openbill
Suzhal Arivom|22 Feb 2025



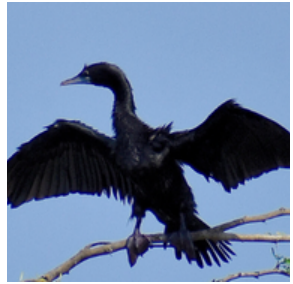
Asian Woolly-necked Stork
Sundar Palanivelu|16 Feb 2025



Painted Stork
Suzhal Arivom|28 Jan 2024



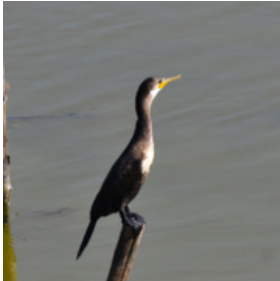
Oriental Darter
Suzhal Arivom|17 Jan 2025



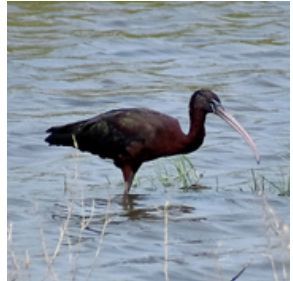
Little Cormorant
Suzhal Arivom|31 Dec 2022



Great Cormorant
Arun Prabhuj25 Dec 2024



Indian Cormorant
Baranidharan S|5 Oct 2025



Glossy Ibis
Suzhal Arivom|17 Jan 2025

85

Birds of Nimmeli



Black-headed Ibis
Suzhal Arivom|28 Oct 2023



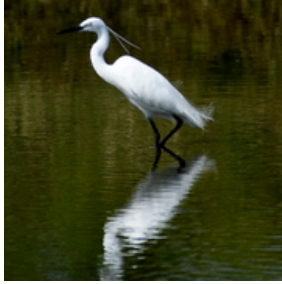
Eurasian Spoonbill
Suzhal Arivom|28 Jan 2023



Yellow Bittern
Suzhal Arivom|31 Dec 2022



Black-crowned Night Heron
Suzhal Arivom|28 Oct 2023



Little Egret
Suzhal Arivom|31 Dec 2022



Little Heron
Sreekumar Chirukandoth|16 Sep 2023



Chinese Pond-Heron
Badri Narayanan Thiagarajan|12 Apr 2025



Eastern Cattle-Egret
Suzhal Arivom|28 Jan 2024



Great Egret
Baranidharan S|5 Oct 2025



Medium Egret
Suzhal Arivom |28 Jan 2024



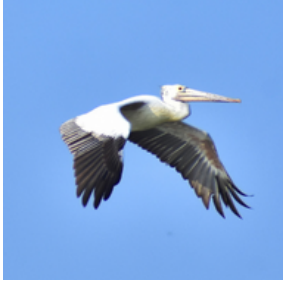
Gray Heron
Suzhal Arivom|21 Nov 2024



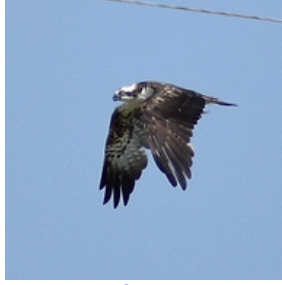
Purple Heron
Suzhal Arivom |16 Jan 2025

86

Birds of Nammeli



Spot-billed Pelican
Suzhal Arivom |28 Oct 2023



Osprey
Suzhal Arivom|31 Dec 2022



Black-winged Kite
Suzhal Arivom |31 Dec 2022



Oriental Honey-buzzard
Suzhal Arivom|22 Nov 2024



Short-toed Snake-Eagle
Suzhal Arivom|23 Mar 2024



Shikra
Suzhal Arivom |18 Nov 2023



Western Marsh Harrier
Saravana Manian|1 Mar 2026



Eastern Marsh Harrier
Cheran Jagadeesan|18 Feb 2023



Montagu's Harrier
Suzhal Arivom|17 Jan 2025



Black Kite
Suzhal Arivom|17 Jan 2025



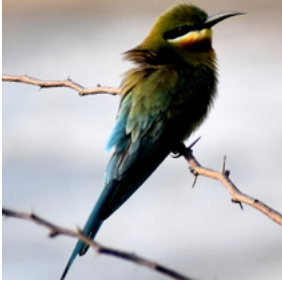
White-bellied Sea-Eagle
Bharath Ravikumar|14 Jan 2025



Asian Green Bee-eater
Suzhal Arivom|17 Dec 2022

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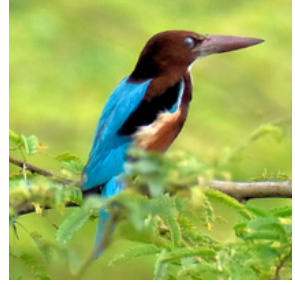
Birds of Nemmeli



Blue-tailed Bee-eater
Suzhal Arivom|22 Feb 2025



Common Kingfisher
Suzhal Arivom|22 Dec 2024



White-throated Kingfisher
Suzhal Arivom| 16 Jan 2025



Pied Kingfisher
Suzhal Arivom|17 Jan 2025



Indian Roller
Suzhal Arivom|28 Oct 2023



Eurasian Kestrel
Suzhal Arivom| 20 Nov 2022



Red-necked Falcon
Abinesh Inbarajan|2 Oct 2025



Peregrine Falcon
Suzhal Arivom|28 Oct 2023



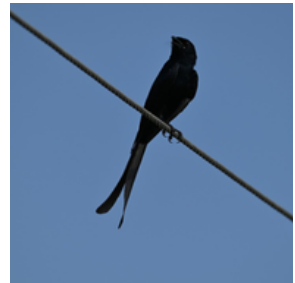
Black-headed Cuckooshrike
Ajay Sarvagam|29 Oct 2023



Indian Golden Oriole
Bharath Ravikumar|17 Aug 2023



Ashy Woodswallow
Suzhal Arivom |28 Jan 2024



Black Drongo
Aanya Prem|11 Feb 2025

88 Birds of Nammeli



Brown Shrike
Suzhal Arivom | 22 Nov 2024



Bay-backed Shrike
Suzhal Arivom | 28 Oct 2023



Rufous Treepie
Suzhal Arivom | 22 Nov 2024



House Crow
Dhruv Galada | 8 Jan 2026



Large-billed Crow
Sreekumar Chirukandoth | 16 Sep 2023



Ashy-crowned Sparrow-Lark
Nevine Jacob | 21 Aug 2024



Jerdon's Bushlark
Suzhal Arivom | 16 Jan 2025



Oriental Skylark
Suzhal Arivom | 23 Mar 2024



Ashy Prinia
Suzhal Arivom | 17 Jan 2025



Plain Prinia
Suzhal Arivom | 19 Oct 2021



Blyth's Reed Warbler
Arun kumar | 6 Jan 2026



Barn Swallow
Suzhal Arivom | 17 Dec 2022

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Birds of Nammeli



Eastern Red-rumped Swallow
Anand Birdlife|7 Mar 2026



Streak-throated Swallow
Anand Birdlife|7 Mar 2026



White-browed Bulbul
Suzhal Arivom |17 Jan 2025



Red-vented Bulbul
Suzhal Arivom|7 Jan 2023



Yellow-billed Babbler
Suzhal Arivom|22 Nov 2024



Rosy Starling
Suzhal Arivom |22 Nov 2024



Brahminy Starling
Suzhal Arivom|17 Jan 2025



Common Myna
Sreekumar Chirukandoth|29 Oct 2023



Indian Robin
Suzhal Arivom|17 Jan 2025



Oriental Magpie-Robin
Suzhal Arivom|17 Jan 2025



Pied Bushchat
Suzhal Arivom|6 Nov 2024



Purple Sunbird
Suzhal Arivom|17 Jan 2025

90

Birds of Nammeli



Loten's Sunbird
Suzhal Arivom |31 Dec 2022



Baya Weaver
Bharath Ravikumar|14 Jan 2025



Indian Silverbill
Suzhal Arivom |17 Dec 2022



Scaly-breasted Munia
Suzhal Arivom|22 Nov 2024



Tricoloured Munia
Suzhal Arivom|7 Jan 2023



Western Yellow Wagtail
Dhruv Galada|6 Mar 2026



White-browed Wagtail
Fareed Mohamed|1 Jan 2021



White Wagtail
Sagarika gupta|7 Dec 2024



Richard's Pipit
Dhruv Galada|11 Apr 2026



Paddyfield Pipit
Bharanidharan B|9 Mar 2025



Tawny Pipit
Suzhal Arivom|7 Jan 2023



Duck sp.
Suzhal Arivom|17 Jan 2025

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Birds of Nemmeli



Tringa sp.
Suzhal Arivom |16 Oct 2022



Wader sp.
Suzhal Arivom|28 Jan 2023



Shorebird sp.
Suzhal Arivom |31 Dec 2022



Gull sp.
Suzhal Arivom|20 Nov 2022



Tern sp.
Suzhal Arivom|20 Nov 2022



Gull/Tern sp.
Suzhal Arivom |20 Nov 2022



Cormorant sp.
Suzhal Arivom|19 Oct 2021



Small Bittern sp.
Suzhal Arivom|19 Oct 2021



White egret sp.
Suzhal Arivom|24 Feb 2023



Eagle sp.
Bharath Ravikumar|22 Feb 2023



Western/Eastern Yellow Wagtail
Suzhal Arivom|23 Mar 2024



Pipit sp.
Suzhal Arivom|22 Dec 2024

Community Voices to Protect Kovalam - Nemmeli Wetland



Pattali Makkal Katchi (PMK)

தனது தந்தை

தமிழகம் தேசியம் உயர்வு சிவன் விவசாயத் தொழில் ஆர்வம்

13:45 Getha

கற்றுத்தழல், மீனவர்களை பாதிக்கும் மாயல்லன் நீர்த்தேக்கத் திட்டத்தை கைவிடுக - அன்புமணி வலியுறுத்தல்

மாமல்லன் நீர்த்தேக்கம் அமைப்பதால் ஏற்படும் தன்மைகளை விட, நீளமடை அழியும் என அன்புமணி தெரிவித்துள்ளார்.



Published on 09 Feb 2026, 10:49 am

Post

செந்தமிழர் சிவன்
@Sivamamallan

மாமல்லன் நீர்த்தேக்கத் திட்டத்திற்கு எதிராக மீனவ கிராமங்களின் சாரியில் இன்று 09.02.2026) நடைபெற்று பொறுத்தினை ஏற்று தமிழ்நாடு அரசு உடனடியாக இத்திட்டத்தைக் கைவிட வேண்டும்.

@niketalan @TTherarasu @supriyasahula
@ARRROffice @kapadidink @tharomambaran

சென்னையின் குறுநீர் தேவையை திறைநேற்று மற்றும் சென்னைத் தடுப்பு ஆய்விப் காரணங்களைக் கூறி, செங்கல்பட்டி மாவட்டம் திருப்போலூர் மற்றும் திருச்செங்கோட்டில் வட்டங்களில் கிழக்கு கடற்கரை சாலை மற்றும் பண்டவ மகாலயிலும் சாலை இடைவெளிகள் வேலையம் உப்பங்குழிப் பகுதியில் ஒரு புதிய நன்னீர் தேக்கத்தை அமைக்கத் தமிழக அரசு முடிவு செய்துள்ளது. ஏக்கரளாறு 471 கோடி ரூபாய் மதிப்பீட்டில், 4.375 ஏக்கர் பரப்பளவில் அமைப்பதற்கும் இந்தத் திட்டத்திற்கான கடனாக ஒதுக்குமுறை மண்டல விதிகளை (ICRZ) அனுமதி கடந்த 2025ம் ஆண்டு டிசம்பர் 3ம் தேதி ஐயங்கப்பட்ட தலையில், சென்ற 19.01.2026 அன்று தமிழ்நாடு முன்னமைச்சர் ஸ்டாலின் அவர்களால் இத்திட்டம் அதிகாரபூர்வமாகத் தொடங்கி வைக்கப்பட்டது.

Amma Makkal Munnetra Kazhagam (AMMK)

Controversy Sparks Over Chennai's Mamallan Reservoir Project

Tamil Nadu's CM M K Stalin inaugurated the Mamallan reservoir project seeking to enhance Chennai's water supply. The project, however, faces criticism from environmentalists and local fishermen over potential ecological impacts and livelihood threats, urging for further study before proceeding.

Devildiscourse News Desk | Chennai | Updated: 19-01-2026 14:27 IST | Created: 19-01-2026 14:27 IST

Despite the project's promise to secure Chennai's water future, it has sparked opposition. Critics, including AMMK's T T V Dhinakaran and environmental group 'Thovulagin Nanbargal,' argue that insufficient hydrological studies were conducted, potentially threatening the environment and local communities.

(With inputs from agencies.)

Naam Tamilar Katchi (NTK)

புதிய தலைமுறை



“நீர்த்தேக்கத் திட்டத்தை கைவிடுக”

செங்கல்பட்டு மாவட்டம் திருப்போலூர், திருச்செங்கோட்டில் வட்டங்களில் மீனவ கிராம மக்களின் கோரிக்கையை ஏற்று மாமல்லன் நீர்த்தேக்கத் திட்டத்தை தமிழக அரசு கைவிட வேண்டும்
மாமல்லன் திட்டத்தை கைவிட வலியுறுத்தி அனைத்து அறவழி போராட்டங்களையும் நாதக முன்னெடுக்கும்
- நாதக தலைமை ஒருங்கிணைப்பாளர் சீமான்

08222223 Pntamamallan.com

Naam Tamilar Katchi (NTK)

இத்திட்டம் அறிவிக்கப்பட்ட நாளிலிருந்து இதன் குழுவியல் மற்றும் மீனவ வாழ்வாதார சிக்கல்களை கட்டிக்காட்டி இதனை கற்றுக்கூறும் ஆய்வுகளையும் பொதுமக்களும் சந்தித்து வருகின்றனர். கடந்த 18.01.2026 அன்று நாம் வெளியிட்ட அறிக்கை முதல், இத்திட்டத்திற்கு எதிராக போராட்டம் பொதுமக்களுக்கு நாம் தமிழர் கட்சி தனது முன்னையான ஆதரவை வழங்கி வருகிறது. இந்நிலையில் இன்று 09.02.2026, காஜாதுரை ரெடிக்ரூட்டம் முதல் கோக்கிலிமெடு வரைபேளம் 16 கீழைக் கிராமங்களைச் சேர்ந்த மக்கள் நட்சன வாழ்வாதாரப் பாதிப்புகளை கட்டிக்காட்டி தமிழ்நாடு அரசுக்கு எதிராகவும், மீனவத்துறையைக் கண்புத்தும், மாமல்லன் நீர்த்தேக்கத் திட்டத்தை கைவிட வலியுறுத்தி கோலாமை உப்பங்குழியில் இறங்கி ஆர்ப்பாட்டம் நடத்த உள்ளனர்.

காலம் காலமாக உப்பங்குழிகளை நம்பி மீனமீட்ட தொழில் செய்து வரும் மீனவர்களின் வாழ்விட “பாடு” உரிமைகளை இத்திட்டம் முற்றியுணர்ப்பு பறிக்கும் வகையில் அமைந்துள்ளது. அரசு தனது திட்ட அறிக்கையில் இத்திட்டத்தை “வெற்றியில்” என்று குறிப்பிட்டுள்ளது மீனவ சமூகத்தை வருகிறபடி வருவதாகும். இயற்கை வளங்களையும் மீனவ மக்களின் வாழ்வாதாரத்தையும் பறிக்கொடுத்து உருவாக்கப்பட்டு இத்திட்டத்திற்கு அரசு உடனடியாகக் கைவிட வேண்டும். மக்களின் கடந்தவருக்கு மதிப்பளிக்காமல் திட்டத்தை நடைமுறைப்படுத்துவது மக்களாட்சிக் ஏரினை செய்வதாகும். இதுவரை அளித்துவரும் ஆதரவின் தீட்சியாக, மீனவருக்கு வெறும்களின் இன்றையப் பொறுத்தத்திலும் நாம் தமிழர் கட்சியின் திருப்போலூர் சபமன்றத்தொகுதி வேட்பாளர் ஐயா அப்துல் ராஜா அவர்கள் தலைமையில் கட்சியின் அனைத்து நிலை பொறுப்பாளர்களும் பங்கிட்டுப்பார்கள் எனவும், இத்திட்டம் நடைமுறைக்கு வராமல் தடுத்துக்கொள்ள துறைத்து அமைதி போராட்ட வடிவங்களையும் நாம் தமிழர் கட்சி முன்னெடுக்கும் என்றும் அறிவிக்கிறோம். மீனவ மக்களின் அனுபவார்ப்பாட்டம் வெற்றியடைவட்டும்.

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நெய்தல் மக்கள் கட்சி
@bharathi_ju

Neithal Makkal Katchi

Show translation

வ. இந்நிதியாளிற்கு ஆரவள்ளி மலைத்தொடர் எப்படியோ அதன்போல செங்கல்பட்டு மாவட்ட மீனவர் களுக்குக் கோலாமம் உப்பங்குழி வாழ்வாதாரமும் பல்வழியிற் குழல் சிறப்பும் கொண்டு எங்களை உப்பங்குழியைச் சிறைக்கும் நீர்த்தேக்கத்திட்டத்தை உடனே கைவிடுங்கள்; அடிக்கல் நாட்டு விழாவை ரத்து செய்யுங்கள்.

#DontGoStalin



sewage is remain," said the project manager. On Monday he observed the wetland fishing, hundreds of migratory birds, and early morning work for building a new fish pond. The project is excavating wetland and fishing nets by scattered mudflats along with birds.

Former Tamil Nadu Minister Arumugam Prabhakaran mentioned the urgency of the project ahead of the Assembly elections. He said, "The project is a panchayati raj scheme being led by the ruling party, have received positive response in favour of the Fisheries Department, Kanyakumari, said a petition of the southern bench of the Green Tribunal challenging the project, said there is no case on whether Water Resources Department has obtained mandatory no-objection from the Wildlife Department before commencing the work.

When contacted, a senior WFD official said all state approvals have been obtained from the Wildlife Department. Muradkhan was not available for comments.

1. ஆதார
 2. அமைப்புகள்
 3. கருத்துகள் ஆய்வு
 4. கருத்துகள் - 1

LIVE ON THE SCREEN

7-year migration trail of harrier shows significance of Nemmeli wetlands

S V KRISHNA CHAITANYA
@Chennai

A seven-year migration trail traced through a single bird has drawn attention to the ecologically sensitive Nemmeli coastal wetlands, now facing looming threats, including the proposed Masanilar reservoir project.

In early March, volunteers from Suzhal Arivom documented a ringed adult male Montagu's Harrier at Nemmeli, a coastal grassland-wetland complex along the East Coast Road.

The bird was later confirmed to have been ringed as a juvenile in Rajasthan in 2019 by researchers at the Ashoka Trust for Research in Ecology and the Environment (ATREE), establishing a rare and verifiable long-distance migration link.

"This is not just a sighting; it reflects continuity," said Arjun Kannan of ATREE's Harrier-Watch programme. "Harriers exhibit strong site fidelity during winter. The repeated return of this individual suggests that Nemmeli is a critical habitat for the species."

Field observations over a week recorded the bird engaging in hunting, roosting and pairing behaviour, indicating that the site functions as a wintering ground rather than a transient stopover. Volunteers also sighted Pallid Harriers, Western Marsh Harriers, Peregrine Falcons and Red-necked Falcons, underscoring the area's significance as a raptor habitat.

According to a field report by Suzhal Arivom, the Nemmeli



Researchers at the Ashoka Trust for Research in Ecology confirmed that this Montagu's Harrier was ringed as a juvenile in Rajasthan in 2019 | SA VIKRAMA, MOHAMED NAZAR

complex has supported multiple migratory raptor species over two consecutive winters, with activity recorded throughout the day. "This pattern is characteristic of an established wintering habitat," the report noted.

The wetlands also support



biodiversity along the Central Asian Flyway. Migratory waterfowl such as pintails, garganey, shorebirds and sandpipers frequent the site, while species like the Demoiselle Crane and Bar-headed Goose have also been recorded. The landscape's mix of grassland, shallow wet-

lands and salt flats provides feeding and refuge grounds.

D Madhan, a biomimetics researcher associated with Suzhal Arivom, said the ecological significance extends beyond avifauna. "The ecosystem supports a range of lesser-studied marine and brackish organisms. Its loss would mean the disappearance of undocumented ecological knowledge," he said.

Conservationists, however, point out that the site lacks formal protection and faces increasing pressure from coastal development. Real estate expansion along the East Coast Road, waste dumping and habitat fragmentation continue to degrade the area.

Concerns have intensified over the proposed Masanilar

reservoir project, which could alter local hydrology and land use patterns. "Changes to such habitats directly affect species that depend on them," said M Yuvraj of the Madras Naturalists Society.

The Tamil Nadu Raptor Research Foundation (TNRPF), established in 2005, has identified coastal wetlands as priority habitats. Experts say Nemmeli presents an opportunity for early intervention. "There is emerging evidence of ecological importance," a Suzhal Arivom volunteer said.

Researchers have called for baseline ecological assessments, habitat mapping and integration of the area under conservation frameworks such as Biodiversity Heritage Sites or Conservation Reserves.

THE TIMES OF INDIA

With love, from Kazakhstan: Ringed harrier makes Nemmeli seasonal home

Asha.Prakash@timesofindia.com

Chennai: Earlier this year, Suzhal Arivom, an environmental researcher and conservation collective, spotted a ringed adult male Montagu's harrier (*Circus pygargus*) at Nemmeli in Chennai. Now it's been confirmed from the ring number that the bird was originally ringed in Rajasthan by the Ashoka Trust for Research in Ecology and the Environment (ATREE) under their Harrier-Watch programme in 2019.

"We ringed it as a juvenile in its first year," says Arjun Kannan, researcher at ATREE. "And there might be other such birds as well at Nemmeli as they are communal roosters."

The birds migrate from Kazakhstan to India, first to Rajasthan and later southwards as the sea-

ason progresses, when the western Indian grasslands become dry during winter. Afterwards, they fly back to Kazakhstan directly along the Central Asian Flyway (CAF).

"After more than a week of observation, the ringed male bird was found to engage in the full range of wintering behaviours that the site evidently supports; perching on open ground and low vegetation in the seasonal grassland and actively hunting over the grassland-wetland mosaic, a habitat type that falls under India's threatened Open Natural Ecosystems (ONEs)," says Deepak V from Suzhal Arivom. "Roosting at the site, it was seen with an adult female Montagu's Harrier, an apparent pair."

It shows that the Nemmeli coas-



RINGED BY ATREE: It perched on open ground and low vegetation in the grassland

tal wetland complex is not just an incidental stopover for this species, says Deepak. "It is supporting the complete suite of behaviours that define a functional wintering ground."

They are known to come back to the same wintering sites every year, says Arjun. "There might be predictable resources at Nemmeli for them to forage in, if something happens to that site, they might be

pushed to other suboptimal habitats where they might not have enough experience to be able to forage well."

Nemmel is known for a mix of grassy and wetland habitats, ideal for harriers. "The Nemmeli coastal grassland-wetland complex supports pallid harrier, eastern marsh harrier, pied harrier, as well as peregrine falcon, red-necked falcon, Eurasian kestrel, osprey, fish eagles and spotted eagles. It's significant as a diverse raptor wintering habitat," says Deepak.

Harriers have been established as a grassland-dependent species group that has shown documented declines of more than 30 years across India due to grassland loss, as documented by ATREE's publi-

shed research. "We seek the recognition of the Nemmeli seasonal grassland coastal wetland complex as a documented wintering site for long-distance migrant raptors, in any habitat mapping or site prioritization work undertaken under the Tamil Nadu Raptor Research Foundation," says Deepak. "Guidance from the Advanced Institute for Wildlife Conservation (AIWC) on the appropriate process by which a site such as Nemmeli can be brought to the attention of the Tamil Nadu forest department for habitat assessment, with a view to influencing future land use and conservation decisions." The Masanilar freshwater reservoir project at Nemmeli, he says, is a threat and will lead to destruction of this thriving ecosystem.

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Reservoir may cost migratory birds their crucial Nemmeli stopover

TI SELVA SUBRAMANIAM

CHENNAI: With the Tamil Nadu government pushing ahead with the construction of the Masanilar Reservoir, a major drinking water project intended to irrigate Chennai's water-scarce bird wetlands and environmentalists are raising concerns that the project could irreversibly damage one of the region's most important coastal wetland ecosystems.

The Masanilar Reservoir project, located at Nemmeli in Chengalpattu, was notified in Chennai's water supply drinking water rules, 2005, government of the previous Tamil Nadu government. The project cost of Rs 560 crore, the reservoir is designed to store 2.25 TMC of water and supply 175 MLD.

In nearly 13 lakh residents across the rapidly expanding southern suburbs, including Thiruvananthapuram, Kumbakonam, Tiruvarur and Manakulam. Spread across more than 1,500 acres and drawing water from a catchment area of over 6,000 acres, the project was conceived as a long-term solution to Chennai's growing water needs. Authorities have also argued that the reservoir will generate power revenue for recharge, generate water security for future generations.

But the six-acre site for the reservoir is also a biologically rich coastal wetland where freshwater and seawater naturally mix, creating a productive brackish water ecosystem that supports fish, crabs, molluscs, migratory birds and numerous wetland species.

National Newsdesk Press & V.



File picture of Greater Flamingos feeding in Nemmeli

who has been travelling to the area, said the great auklets in Nemmeli have emerged as a crucial feeding, wintering and breeding ground for both resident and migratory birds. According to him, hundreds of Greater Flamingos were recorded feeding in Nemmeli earlier this year, with flocks observed

more frequently at the site than most of Palam during winter periods. "Flamingos depend on algae, and small organisms from the area where freshwater and seawater mix in the right proportions. If the natural exchange of water is disrupted by the reservoir, these birds may lose an important feeding ground," he said.

Nemmel is also part of the Central Asian Flyway, one of the world's major migratory bird routes. Several migratory species from Central Asia, Europe and Russia use the wetland as a winter refuge or stopover site during their long journeys.

Environmentalists argue that the significance of Nemmeli extends beyond migratory birds. Owing to its status as a water bodies, seawater, many resident bird species live in the wetland's salt-rich, grassy and wet marshlands. Species such as the Great Thick-billed Wren, Indian Thick-knee, Red-tailed Tropicbird, jacks, plovers, redwings and several wetland birds rely on the site for nesting and raising their young.

According to conservationists, reads constructed through wetland maps and mapping methods

works have already been distributed to residents. Pointing out the removal of natural rich habitat for construction activities, they warned that it could lead to the loss of new plant species and further degradation of the ecosystem.

Fishermen and residents from more than 10 coastal villages have been protesting, expressing fears that converting the brackish water landscape into a reservoir will destroy their livelihoods, strip resources and local livelihoods.

KYRON Thiruvananthapuram, founder of The Nature Trust, said, "We have

warned for many of them if the habitat is permanently altered. To note that species such as the Greater Flamingo would be among the worst affected by the transformation."

Thiruvananthapuram said the Little Stint, a very migratory shorebird, travels nearly 5,000 kilometres from the Russian tundra to reach Nemmeli. Similarly, the Eurasian Wigeon undertakes journeys of around 12,000 kilometres before arriving at the wetland.

These habitats disappear, birds that have depended on them for generations may lose a critical stopover and feeding site along their migratory route," he warned.



Add financial authority to override environmental concerns

Save Kovalam Nemmeli Wetlands

The Nemmeli wetlands, with its estuaries and mosaic of grasslands, mangroves, and mudflats, sustain extraordinary biodiversity and the livelihoods of 16 fishing villages. The recent documentation of a ringed Montagu's Harrier, released in 2019 and recorded for the first time at Nemmeli, underscores this wetland's critical role as a raptor wintering site on the Central Asian Flyway.

Converting this naturally balanced brackish ecosystem into a freshwater reservoir would irreversibly destroy its intricate web of life, threatening both biodiversity and the traditional livelihoods of coastal communities.

We respectfully urge the Government of Tamil Nadu to halt all destructive works for Mamallan reservoir at Nemmeli and grant formal conservation status to this unique coastal wetland complex. We also appeal to the Tamil Nadu Raptor Watch Program to formally recognise and document the Nemmeli Coastal Wetland Complex as a critical raptor wintering hotspot on the Central Asian Flyway, strengthening the case for its long-term protection.



Suzhal Arivom is a grassroot level, environmental education, awareness creation, research, and conservation group operating in several districts of Tamil Nadu. Suzhal Arivom is driven by a team of passionate like-minded volunteers and experts from diverse backgrounds with the aim to sensitize people and spread knowledge about our Environment and Climate change.

To know more about Environment and Climate Change :



<https://youtube.com/@Suzhalarivom>

To get updates about the Suzhal Arivom initiatives :



<https://www.facebook.com/KnowAboutOurEnvironment>



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சுற்றுச்சூழல் கல்வி, பாதுகாப்பு மற்றும் விழிப்புணர்வு இயக்கம்

Reg. No. BK-4/9/2025, Tamil Nadu, India

KOVALAM-NEMMELI COASTAL WETLAND COMPLEX

Species Nursery Documentation – Conservation Report

focusing on the Muthukadu Estuary

Finfish & Shellfish Species Nursing Their Young: Ecological Analysis, Reservoir Threat Assessment & Scientific References

Southeast Coast of India | Chengalpet District, Tamil Nadu | April 2026

Prepared by: Suzhal Arivom

⚠ NOTICE: This Document Serves a Dual Purpose

This report presents scientific documentation of the species nursery value of the Muthukadu Estuary and the Kovalam-Nemmelī coastal wetland complex. It simultaneously serves as conservation evidence against the proposed Mamallan Reservoir (commenced January 2026), which will irreversibly destroy the brackish estuarine ecosystem documented herein. The evidence presented constitutes grounds for an immediate stay of construction, a Comprehensive EIA review, and formal protected status for the Nemmelī-Muthukadu complex. This report is a companion document to the Suzhal Arivom Conservation Report on Nemmelī Coastal Wetland Complex (April 2026) [Ref: E-I].

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 - Ecological Importance: with Reservoir Impact Assessment
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- Extended Species Table: Supporting Regional Documentation
- Species Ecological Notes with Reservoir Impact
- Legal and Regulatory Implications for Aquatic Biodiversity
- Why the Mamallan Reservoir Must Not Be Built: A Unified Case
- Annexures and Citation Index

1. Overview of Findings

The Muthukadu estuary and Kelambakkam backwaters, forming part of the Kovalam-Nemmelī coastal wetland complex located approximately 35-40 km south of Chennai along the southeast coast of Tamil Nadu (12.80N, 80.24E), represent a critically important estuarine nursery habitat along the Bay of Bengal coastline. [Ref: A-III] The brackish water lagoon, separated from the open sea by a seasonally dynamic sandbar, creates a sheltered, nutrient-rich environment that supports an exceptional diversity of commercially and ecologically important marine, brackish-water, and estuarine species during their juvenile and nursing phases. [Ref: A-I]

Field observations have documented 13 species actively nursing their young, comprising 8 finfish species and 5 shellfish species. This includes five families that use the estuary exclusively as a juvenile nursery ground (Lutjanidae, Monodactylidae, Scatophagidae, Mugilidae, and Penaeidae) before migrating to

offshore habitats as adults. [Ref: A-IV] The site is identified and prioritised as an Important Marine and Coastal Biodiversity Area (ICMBA) by the Wildlife Institute of India, one of 107 such sites nationally. [Ref: A-III, B-I, B-II]

⚠ The Mamallan Reservoir Threat: January 2026

The Tamil Nadu Government commenced construction of the Mamallan Reservoir in January 2026, proposing to impound the Nemmeli coastal wetland (of which the Muthukadu estuary is the northern gateway) into a 170 MLD freshwater reservoir across 4,375 acres in Phase I (total wetland area: 8,408 acres). Every species documented in this report is either euryhaline (dependent on salinity fluctuation) or an obligate estuarine nursery user. The salinity gradient ranging from 0 to 35 ppt seasonally is not merely a feature of this habitat; it is the habitat itself. The reservoir does not alter the ecosystem. It eliminates it.

The eDNA metagenomics study conducted at Muttukadu [Ref: A-I] documented 156 eukaryote species from 21 phyla, a biodiversity richness that depends entirely on the brackish hydrological regime the reservoir project would permanently destroy.

1.1 Ecological Importance: with Reservoir Impact Assessment

The Kovalam-Nemmel estuarine system functions as a critical ecological nexus. Each function below is followed by the specific reservoir impact.

Nursery Ground: The sheltered brackish waters provide safe juvenile-rearing habitat for *Lates calcarifer*, *Mugil cephalus*, *Chanos chanos*, and *Lutjanus argentimaculatus*. [Ref: A-VIII] **Reservoir Impact:** Freshwater impoundment eliminates the salinity gradient that triggers juvenile recruitment from the sea. All 8 finfish species lose their only local nursery ground.

Fisheries Base: Local artisanal fishers depend on seed collection of *Scylla serrata*, *Penaeus monodon*, and *P. indicus*. [Ref: A-II, A-XIII] **Reservoir Impact:** Conversion to freshwater eliminates wild seedstock. Thousands of fishing households and over 3,000 shrimp farms lose access to naturally recruited wild seed.

Biodiversity Hotspot: The salinity gradient (0-35 ppt seasonal) supports both marine-origin species and endemic south Indian species simultaneously. [Ref: A-IV, A-XII] **Reservoir Impact:** This gradient becomes permanent 0 ppt freshwater. Both endemic cichlid species lose their only documented Chennai-region breeding habitat.

Trophic Web Support: Marine diatom communities (*Coscinodiscus granii* at 1.2×10^6 cells/L) fuel the food web supporting milkfish, mullets, and predators. [Ref: A-X] **Reservoir Impact:** Marine diatoms cannot survive freshwater impoundment. The entire bottom-up trophic cascade collapses from the primary producer level upward.

Climate Buffer: The estuary's mangrove fringes and salt marshes protect the Kelambakkam-OMR corridor from storm surges. [Ref: A-III] **Reservoir Impact:** Raising 4.5-metre bunds severs tidal connectivity to the mangrove fringe, destroying its storm surge absorption function and increasing coastal vulnerability.

Conservation Concern: Pollution from sewage discharge and microplastic contamination already pose threats to juvenile fish survival. [Ref: A-XX] **Reservoir Impact:** The reservoir adds an irreversible threat. Unlike pollution which can be remediated, freshwater conversion is permanent and total destruction of the estuarine ecosystem.

1.2 Summary of Documented Species

A total of 13 species nursing their young have been documented across two groups:

- **Finfish** (8 species): *Lates calcarifer*, *Mugil cephalus*, *Chanos chanos*, *Lutjanus argentimaculatus*, *Etroplus suratensis*, *Pseudetroplus maculatus*, *Scatophagus argus*, *Monodactylus argenteus* [Ref: A-IV to A-XIV]
- **Shellfish** (5 species): *Scylla serrata*, *Scylla olivacea*, *Penaeus monodon*, *Penaeus vannamei*, *Penaeus indicus* [Ref: A-II, A-XI, A-XIII, A-XVII, A-XIX, A-XXIII]

Critical Finding: No Species Can Survive Reservoir Conversion

Each of the 13 species documented here is either euryhaline (dependent on salinity fluctuation) or an obligate estuarine nursery user. Not one of them can survive, recruit, or reproduce in a static freshwater impoundment. The proposed reservoir does not merely alter the habitat; it eliminates the ecological conditions that define it. Additionally, 12 supporting species documented in regional papers from analogous Tamil Nadu estuarine systems are included in Section 3, all sharing this same fundamental vulnerability.

2. The Mamallan Reservoir: A Species-by-Species Assessment of Destruction

The table below assesses precisely how reservoir conversion will destroy the nursery function of the Muthukadu estuary for each of the 13 documented species. This constitutes the scientific spine of the opposition to the project.

Scientific Name	Common Name	Group	Nursery Dependency	Reservoir Impact
<i>Lates calcarifer</i>	Asian Seabass	Finfish	Catadromous: larvae from offshore recruit into brackish backwaters using salinity gradient as cue	Freshwater impoundment eliminates salinity cue; juvenile recruitment collapses; seabass fishery across Chengalpeta ends
<i>Mugil cephalus</i>	Flathead Grey Mullet	Finfish	Euryhaline: juveniles school in backwaters; spawning cued to salinity cycle (Jan-Feb peak)	Freshwater disrupts salinity-cued spawning; mudflat biofilm food source destroyed; mullet fishery ends
<i>Chanos chanos</i>	Milkfish	Finfish	Filter-feeder; dependent on brackish planktonic productivity (<i>Coscinodiscus granii</i> at 1.2×10^6 cells/L)	Marine diatom communities cannot survive freshwater; trophic base collapses; milkfish recruitment ceases
<i>Lutjanus argentimaculatus</i>	Mangrove Red Snapper	Finfish	Obligate estuarine nursery: juveniles found exclusively in mangrove tidal creeks	Loss of tidal flushing severs estuarine-reef connectivity; only local nursery permanently destroyed
<i>Etroplus suratensis</i>	Pearlscale / Green Chromide	Finfish (Endemic)	Endemic south Indian cichlid; two spawning peaks aligned to monsoon-driven salinity cycles	Freshwater impoundment eliminates both spawning cycles; only Chennai-region breeding habitat lost

Scientific Name	Common Name	Group	Nursery Dependency	Reservoir Impact
<i>Pseudetroplus maculatus</i>	Orange Chromide	Finfish (Endemic)	Brackish estuarine fringe specialist; requires moderate salinity and natural substrate	Embankment destroys substrate; salinity removal makes habitat biologically unsuitable for second endemic
<i>Scatophagus argus</i>	Spotted Scat	Finfish	Fry recruited from Bay of Bengal; salinity gradient drives estuarine recruitment in spring-summer	Impoundment blocks marine fry ingress; recruitment pathway permanently severed
<i>Monodactylus argenteus</i>	Silver Moony	Finfish	Classic estuarine indicator; schools near mangrove prop roots; dependent on tidal connectivity	Raised bunds eliminate tidal connectivity; habitat structurally destroyed; cannot colonise freshwater
<i>Scylla serrata</i>	Giant Mud Crab	Shellfish	Megalopa settle in intertidal mangrove zones with tidal flushing; wild seedstock collected locally	Tidal flushing eliminated; seedstock collection collapses; Chengalpet crab aquaculture loses wild seed
<i>Scylla olivacea</i>	Orange Mud Crab	Shellfish	Mangrove-estuarine specialist; RGCA hatchery depends on wild Chengalpet coast seedstock	Habitat made permanently unsuitable; RGCA government hatchery seedstock supply ends
<i>Penaeus monodon</i>	Giant Tiger Prawn	Shellfish	Post-larvae recruit from offshore into estuarine nursery; flagship of TN aquaculture (3,000+ farms)	PL recruitment pathway severed; over 3,000 registered shrimp farms lose wild seed from this zone
<i>Penaeus vannamei</i>	Pacific White Shrimp	Shellfish	Cultured in ponds drawing brackish estuarine water; hatcheries near Kelambakkam depend on estuary	Estuary water becomes freshwater; pond intake ecologically incompatible; coastal aquaculture collapses
<i>Penaeus indicus</i>	Indian White Prawn	Shellfish	Native prawn; juveniles use shallow mudflats and seagrass beds as nursery grounds	Mudflat ecosystem permanently destroyed; native prawn nursery eliminated from this coastal stretch

The cumulative picture is unambiguous: the Mamallan Reservoir project would result in the functional biological extinction of the estuarine nursery at Muthukadu. No ecological mitigation can replicate a tidal salinity gradient. The loss is permanent and irreversible.

3. Extended Species Table: Supporting Regional Documentation

The following 12 species are documented in regional papers from analogous Tamil Nadu estuarine systems and are strongly corroborated as likely residents or regular users of the Kovalam-Nemmeli complex. All share the same fundamental vulnerability to freshwater conversion.

Scientific Name	Common Name	Group	Habitat Type	Regional Documentation Notes
<i>Eleutheronema tetradactylum</i>	Fourfinger Threadfin	Finfish	Estuarine-coastal	2nd most abundant at Muttukadu (4%); high commercial value; juvenile nursery user
<i>Oreochromis mossambicus</i>	Mozambique Tilapia	Finfish	Euryhaline	Tolerates brackish water; documented in adjacent Tamil Nadu estuaries
<i>Gerres filamentosus</i>	Whipfin Silver-biddy	Finfish	Estuarine	Common in mudflat-adjacent estuaries; feeds on benthic invertebrates
<i>Valamugil cunnesius</i>	Longarm Mullet	Finfish	Euryhaline	Co-occurs with <i>Mugil cephalus</i> in Tamil Nadu backwaters
<i>Ambassis commersoni</i>	Commerson's Glassy Perchlet	Finfish	Brackish	Common indicator of healthy brackish estuarine fringe habitats
Hilsa kelee	Kelee Shad	Finfish	Anadromous	Uses estuarine transition zones; documented in analogous TN estuaries
<i>Thryssa malabarica</i>	Malabar Thryssa	Finfish	Estuarine-coastal	Engraulid; estuarine nursery user in southeast India
<i>Metapenaeus monoceros</i>	Speckled Shrimp	Shellfish	Estuarine	Common in TN estuarine fisheries; juveniles use shallow mudflats
<i>Metapenaeus dobsoni</i>	Kadal Shrimp	Shellfish	Estuarine	Important artisanal fishery species; estuarine nursery dependent
<i>Portunus pelagicus</i>	Blue Swimming Crab	Shellfish	Estuarine-coastal	Juveniles use estuarine nursery areas; valued commercial species
<i>Perna viridis</i>	Green Mussel	Shellfish/Bivalve	Brackish-marine	Documented in Tamil Nadu estuaries; filter-feeder integral to trophic web
<i>Villorita cyprinoides</i>	Black Clam	Shellfish/Bivalve	Brackish	Endemic; supports local clam harvesting communities; salinity-dependent

4. Species Ecological Notes with Reservoir Impact

Lates calcarifer (Asian Seabass) | Finfish | Diadromous

Asian seabass is a catadromous euryhaline predator that spawns in offshore marine waters. Larvae and juveniles migrate into estuaries and backwaters, where they use the rich invertebrate and small-fish assemblages as food. [Ref: A-VIII] At Kelambakkam, juveniles use the mangrove-fringed creeks and shallow tidal flats as nursery grounds. Adults can reach 200 cm and 60 kg. [Ref: A-XIV] They are among the highest-value commercial fish in Tamil Nadu and are actively targeted by local fishers. [Ref: A-XIII] Their presence as nursing juveniles is a key indicator of estuarine health. [Ref: A-IV]

Reservoir Impact: The catadromous migration of *Lates calcarifer* juveniles from offshore into the estuary depends entirely on the salinity gradient as a navigational and physiological cue. Freshwater impoundment blocks this migration permanently. The seabass fishery that supports fishing families across the Kovalam-Kelambakkam coastline will collapse.

Mugil cephalus (Flathead Grey Mullet) | Finfish | Euryhaline

Documented as the third most abundant fish (3.8%) directly in the Muttukadu backwaters water quality study. [Ref: A-X] Mulletts are detritivorous benthopelagic fish that consume biofilm, detritus, and algae from mudflats, making them important nutrient cyclers in the estuary. Juveniles school in large numbers in the backwaters during winter months. Peak spawning is January-February in Indian estuaries, cued to seasonal salinity shifts. [Ref: A-XVI]

Reservoir Impact: Static freshwater impoundment destroys the mudflat biofilm ecosystem that mullets feed on, and eliminates the salinity-cued spawning cycle. The mullet roe fishery ceases. Mulletts also play a critical nutrient-cycling role; their loss further degrades the trophic web.

Chanos chanos (Milkfish) | Finfish | Euryhaline

Milkfish are filter-feeders, consuming phytoplankton and microalgae. Their presence at Kelambakkam reflects the high planktonic productivity of the backwaters, particularly the diatom-dominated communities documented at Muttukadu (*Coscinodiscus granii* dominant at 1.2×10^6 cells/L). [Ref: A-X] Milkfish are an emerging candidate for brackish water aquaculture in Tamil Nadu; the ICAR-Central Institute of Brackishwater Aquaculture (CIBA) facility at Muttukadu, directly adjacent to the Kelambakkam backwater system, achieved India's first captive breeding of the species in 2015 and has since distributed seed to farmers across Tamil Nadu, Kerala, and Andhra Pradesh. This proximity makes the Kelambakkam backwater ecologically significant as a natural nursery and production-support habitat for an aquaculture species of growing national importance. [Ref: A-VI, ICAR-CIBA 2015]

Reservoir Impact: Marine diatom communities (*Coscinodiscus granii*) cannot survive freshwater impoundment. The planktonic food base on which milkfish depend is permanently eliminated. The Muttukadu CIBA facility, which draws on the brackish backwater ecosystem for research and seed production, loses its operating ecological context. The natural nursery function of the Kelambakkam backwater for this species is permanently destroyed..

Lutjanus argentimaculatus (Mangrove Red Snapper) | Finfish | Euryhaline

A strong obligate nursery species: juveniles are exclusively found in mangrove estuaries and tidal creeks during their early life. [Ref: A-XIV] Kelambakkam's mangrove-lined backwater channels are ideal juvenile habitat. Adults migrate to offshore reef systems at 100+ m depth. The species is a high-value export fish; its juvenile presence indicates intact estuarine-reef connectivity along the Tamil Nadu coast. [Ref: A-XVIII]

Reservoir Impact: As an obligate estuarine nursery user with no alternative juvenile habitat, this species faces local extinction from this coastal stretch. Raised bunds sever tidal connectivity, making the mangrove fringe uninhabitable. The reef-estuarine connectivity (a fundamental ecological link) is permanently broken.

Etroplus suratensis (Pearlsplit / Green Chromide) | Finfish | Endemic

An endemic south Indian cichlid found in rivers, lakes, wetlands, and estuaries of India, Sri Lanka, and Bangladesh. It exhibits biparental brood care, where both parents guard eggs and juveniles. Two spawning peaks occur (May-August and November-January), aligning with Kelambakkam's seasonal salinity cycles driven by monsoon freshwater input. [Ref: A-VII] Its presence denotes a healthy, low-pollution estuarine habitat. [Ref: A-IV]

Reservoir Impact: Both spawning peaks are aligned to the monsoon-driven salinity cycle of the estuary. Permanent freshwater impoundment eliminates this seasonal salinity cue entirely. *Etroplus suratensis* loses its only documented Chennai-region breeding habitat.

Pseudetroplus maculatus (Orange Chromide) | Finfish | Endemic

A smaller endemic cichlid found in brackish and freshwater stretches of south Indian estuaries. Often co-occurs with *E. suratensis* and exhibits similar biparental care. Its presence alongside *E. suratensis* at Kelambakkam indicates suitable substrate (sand and mud), moderate salinity, and aquatic vegetation, all hallmarks of a healthy estuarine fringe. [Ref: A-IV]

Reservoir Impact: Embankment construction destroys the natural sand-mud substrate structure on which this species depends for nesting. Freshwater conversion removes the moderate salinity that defines its ecological niche. A second endemic cichlid loses its documented Chennai-region habitat.

Scatophagus argus (Spotted Scat) | Finfish | Marine-Estuarine

Spotted scat breeds in nearshore coastal waters; its advanced larvae actively migrate into estuaries during the fry/juvenile stage. At Kelambakkam, these juveniles (fry stage, 10-12 mm) are recruited into the estuary from the Bay of Bengal during spring-summer months. They are herbivorous to omnivorous, tolerant of wide salinity fluctuations, and grow well in low-saline brackishwater ponds. [Ref: A-XII]

Reservoir Impact: The impoundment blocks the marine fry ingress pathway from the Bay of Bengal. Fry cannot recruit into a freshwater impoundment behind a 4.5-metre bund. Aquaculture potential of this species in this region is permanently eliminated.

Monodactylus argenteus (Silver Moony) | Finfish | Marine-Estuarine

Silver moony is a classic estuarine indicator species, found in the brackish intertidal zone of tropical coasts. Its schooling behaviour in the Kelambakkam backwaters near mangrove prop roots reflects the habitat's structural integrity and connectivity to the open sea. [Ref: A-XII]

Reservoir Impact: Raised bunds eliminate tidal connectivity and mangrove prop-root habitat structure. As an estuarine indicator species, its local disappearance signals total ecosystem collapse. Silver moony cannot colonise or survive in a static freshwater impoundment.

Scylla serrata (Giant Mud Crab) | Shellfish | Portunidae

The giant mud crab is a mangrove-associated portunid crab of immense commercial importance. Females spawn offshore in high-salinity waters; larvae are swept inshore and megalopa settle in estuarine mangrove zones. Juveniles are resident in intertidal mangrove areas at Kelambakkam, providing suitable substrate, food, and shelter. [Ref: A-XI] Local fishers collect wild *Scylla* seedstock for grow-out, a direct livelihood connection to this specific nursery. [Ref: A-II]

Reservoir Impact: Tidal flushing (the mechanism that delivers megalopa into mangrove settlement zones) is eliminated by the embankments. Static freshwater makes mangrove intertidal zones biologically unsuitable for *Scylla* settlement. Wild seedstock collection for crab farming across Chengalpet district collapses.

Scylla olivacea (Orange Mud Crab) | Shellfish | Portunidae

One of four species in genus *Scylla*, *S. olivacea* inhabits the same mangrove and estuarine environments as *S. serrata* but tends to occur at slightly higher salinities. The RGCA Tamil Nadu hatchery programme covers both *Scylla* species, and wild seedstock is collected from estuaries along the Chengalpet coast including the Kelambakkam region. [Ref: A-XIX]

Reservoir Impact: Loss of tidal salinity renders the habitat permanently unsuitable for *S. olivacea*. The RGCA hatchery programme, which relies on wild Chengalpet coast seedstock, loses a critical source population. Government aquaculture infrastructure investment is directly undermined.

Penaeus monodon (Giant Tiger Prawn) | Shellfish | Penaeidae

The flagship shrimp species of Indian aquaculture. *P. monodon* spawns offshore; post-larvae recruit into estuarine nursery grounds where they metamorphose and grow. The Kelambakkam backwaters provide critical PL habitat; studies from the adjacent Pulicat lake/Nemmeli zone directly documented *P. monodon* collection from this stretch of coastline. [Ref: A-II] Tamil Nadu has registered over 3,000 shrimp farms covering 5,745 ha with *P. monodon* as a primary species. [Ref: A-XIII]

Reservoir Impact: The post-larval recruitment pathway from the sea into the estuary is permanently severed by impoundment. Over 3,000 registered shrimp farms in Tamil Nadu that depend on wild PL recruitment from this coastal zone lose a critical natural seed source.

Penaeus vannamei (Pacific White Shrimp) | Shellfish | Penaeidae

Although an introduced Pacific species, *P. vannamei* has become the dominant cultured shrimp in Tamil Nadu since the early 2010s. Its post-larvae are produced in hatcheries along the Chengalpet coast (including near Kelambakkam) and released into farm ponds that draw water from the estuary. Tamil Nadu Fisheries reports *P. vannamei* as the leading shrimp species by cultured area. [Ref: A-XIII]

Reservoir Impact: Coastal aquaculture farm ponds draw brackish estuarine water as a production input. Conversion of the estuary to freshwater makes this water intake ecologically incompatible with shrimp farming. Hatchery operations near Kelambakkam lose their operating environment.

Penaeus indicus (Indian White Prawn) | Shellfish | Penaeidae

The native Indian white prawn, historically dominant in Tamil Nadu estuarine fisheries before *P. vannamei* farming intensified. Directly documented in the heavy metals study from the Nemmeli/Pulicat zone. [Ref: A-II] *P. indicus* juveniles use the shallow mudflats and seagrass beds of estuaries like Kelambakkam as nursery grounds. It is also referenced in FAO reports on Tamil Nadu aquaculture zones including the Chengalpet district coastline. [Ref: A-XXIII]

Reservoir Impact: Mudflat and seagrass bed ecosystems are permanently destroyed by impoundment. *P. indicus*, the native species that historically sustained artisanal prawn fisheries in this region, permanently loses its nursery ground. The ecological and cultural heritage of traditional prawn fishing in the 16 villages around Nemmeli is extinguished.

5. Legal and Regulatory Implications for Aquatic Biodiversity

The Mamallan Reservoir project, as currently designed and being implemented, triggers violations across multiple layers of Indian environmental law and international treaty commitments. The following analysis is specific to the aquatic biodiversity and estuarine ecosystem documented in this report.

5.1 CRZ Notification, 2019

The Muthukadu estuary, its mangrove fringes, and intertidal zones are classified under CRZ-IA/IB, the highest protection tier under the Coastal Regulation Zone Notification, 2019. While the reservoir's embankments are not constructed within the physical boundaries of these zones, the project fundamentally and irreversibly alters the hydrological processes that sustain them. By impounding freshwater upstream

and raising 4.5-metre bunds across the wetland plain, the project eliminates the seasonal freshwater pulses that maintain the 0-35 ppt salinity gradient of the estuary, and blocks the tidal ingress from the Bay of Bengal that defines its brackish character.

The CRZ Notification protects not merely the physical boundary of the estuary but the ecological integrity that gives it legal significance. A project that destroys an estuarine ecosystem's hydrology from outside its boundary is no less a violation than one that builds within it. The Ministry of Environment, Forest and Climate Change (MoEFCC) must assess the project on these terms; the hydrological destruction of a CRZ-IA/IB system cannot be rendered compliant by locating embankments outside the zone's mapped boundary.

5.2 Wild Life (Protection) Amendment Act, 2022

Several aquatic species documented in this report, including *Lates calcarifer*, *Etroplus suratensis*, and *Scylla serrata*, are afforded protection under the schedules of the Wildlife (Protection) Amendment Act, 2022. The destruction of their primary local nursery habitat constitutes an indirect form of species harm that falls within the ambit of the Act's protection framework. The project has not demonstrated compliance with this Act with respect to aquatic species, whose habitat requirements are at least as critical as those of the avifauna more prominently discussed in the Rapid EIA.

5.3 Wetlands (Conservation and Management) Rules, 2017

The Muthukadu estuary functions as the northern estuarine gateway of the Nemmeli coastal wetland complex, already identified as a priority wetland under the Tamil Nadu Wetlands Mission. Rule 4 of the Wetlands (Conservation and Management) Rules, 2017 explicitly prohibits activities that damage or destroy notified wetlands. The State Wetland Authority was not engaged prior to the commencement of construction, which is itself a procedural violation.

5.4 ICMBAs Designation: Wildlife Institute of India

The Kovalam-Muthukadu coastal area is designated as one of 107 Important Marine and Coastal Biodiversity Areas (ICMBAs) nationally, identified by the Wildlife Institute of India using a Conservation Priority Index across 26 sub-indicators aligned with the Convention on Biological Diversity's Aichi Target 11. [Ref: A-III, B-I, B-II] No Environmental Impact Assessment framework has specifically addressed the implications of permanently destroying a nationally designated ICMBAs.

5.5 Environment (Protection) Act, 1986 and EIA Notification, 2006

A project that permanently alters 8,408 acres of coastal wetland, including a nationally designated ICMBAs and the estuarine nursery documented in this report, cannot be assessed through a Rapid EIA based on a three-month dry-season baseline and a six-day site visit. The salami-slicing of the project into phases, presenting data for only 4,375 acres, masks the true cumulative impact on the aquatic biodiversity documented herein.

5.6 International Obligations: CBD, CMS, and CITES

India's obligations under the Convention on Biological Diversity (CBD), the Convention on Migratory Species (CMS), and CITES extend to the protection of estuarine nursery habitats for diadromous and migratory fish species. *Lates calcarifer*, *Lutjanus argentimaculatus*, *Mugil cephalus*, and the penaeid shrimps documented here are trans-boundary species whose population integrity depends on intact coastal nursery networks. Destruction of the Muthukadu estuarine nursery undermines India's obligations under these international instruments and contravenes the National Biodiversity Strategy and Action Plan (NBSAP).

6. Why the Mamallan Reservoir Must Not Be Built: A Unified Case

The evidence documented in this report, spanning species ecology, estuarine hydrology, fisheries economics, legal compliance, and community livelihoods, converges on a single, unambiguous conclusion: the Mamallan Reservoir must not be constructed.

Part A: The Science Is Unambiguous

The 13 species documented in this report are not incidental visitors to the Muthukadu estuary. They are obligate users of brackish estuarine conditions (a salinity gradient, tidal flushing, mudflat substrate, and mangrove fringe) that took centuries of geological and ecological processes to establish. This is not a degraded or marginal habitat. **The eDNA study at Muttukadu [Ref: A-I] documented 156 eukaryote species** from 21 phyla in its waters. It is one of 107 nationally designated Important Marine and Coastal Biodiversity Areas in India.

A freshwater reservoir is not an alternative habitat for these species. It is the categorical absence of the conditions that define their ecology. No mitigation measure proposed in the Rapid EIA (not artificial islands totalling 0.3 acres, not salt-pan conversions requiring years of soil remediation, not 'compensatory wetlands' that take decades to develop biological complexity) can replicate a tidal salinity gradient. The project is furthermore hydrologically unsound for its stated purpose. The Nemmeli wetland receives tidal ingress from two estuaries. The 2021 Pallikaranai reservoir plan was halted on precisely these grounds. The Mamallan project repeats that error at eight times the scale.

Part B: The Law Requires Protection

The construction of the Mamallan Reservoir simultaneously engages violations or compliance failures across the CRZ Notification 2019, the Wetlands (Conservation and Management) Rules 2017, the Wildlife (Protection) Amendment Act 2022, the Environment (Protection) Act 1986, and India's international obligations under the CBD and CMS. No single legal framework permits what is being done.

Most critically: the legal argument for halting this project does not require proving that construction occurs within a protected zone. It requires demonstrating, as this report does, that the project's hydrological impacts irreversibly destroy the ecological character of a CRZ-IA/IB estuarine system, a nationally designated ICMBIA, and a priority wetland under the Tamil Nadu Wetlands Mission, regardless of where the embankments are physically located. The absence of a Comprehensive EIA covering a full annual hydrological cycle means that the aquatic biodiversity documented in this report was never formally assessed prior to construction commencement.

Part C: Communities Cannot Afford This Loss

Thousands of people across 16 fishing villages depend on the Nemmeli coastal wetland and the Muthukadu estuarine system for their livelihoods. The species documented in this report (*Scylla serrata*, *Penaeus monodon*, *Lates calcarifer*, *Mugil cephalus*) are not abstract ecological entities. They are the income, the protein, and the cultural identity of fishing communities that have coexisted with this wetland for generations.

The wild seedstock collection economy documented in this report (mud crab megalopa, tiger prawn post-larvae, seabass juveniles) is a low-capital, community-managed natural resource system that sustains hundreds of families and feeds the aquaculture industry across Chengalpattu district. It cannot be relocated. It cannot be compensated monetarily. It is the product of a specific ecology in a specific place, and that place will cease to exist if the reservoir is built. Their right to livelihood under Article 21 of the Constitution of India is directly at stake.

As the United Nations 2026 World Wetlands Day theme, 'Wetlands and Traditional Knowledge: Celebrating Cultural Heritage', the Nemmeli coastal wetland represents centuries of co-existence between people, fish, birds, and water. That co-existence cannot be reconstructed once the ecosystem that sustains it has been impounded behind a concrete bund.

▲ Formal Position of Suzhal Arivom

The evidence documented in this report (13 obligate estuarine nursery species, a nationally designated ICMBAs, century-old fishing livelihoods, and cascading legal violations) constitutes clear and sufficient grounds for the following: (1) An immediate stay of all construction activities at the Nemmeli coastal wetland under the Mamallan Reservoir project; (2) A Comprehensive EIA covering a minimum 24-month full hydrological cycle including monsoon-season aquatic biodiversity surveys; (3) Formal notification of the Nemmeli Wetland Complex, including the Muthukadu estuarine nursery, as a protected wetland under the Wetlands (Conservation and Management) Rules, 2017; (4) Initiation of the Ramsar Site nomination process for the Nemmeli-Kovalam complex; and (5) Mandatory prior consultation with fishing communities in accordance with Article 21 of the Constitution of India. The Muthukadu estuary is not an empty water body awaiting management. It is a functioning biological system of national significance. Its destruction is not development. It is irreversible ecological loss.

7. Annexures and Citation Index

All inline citations in this document are mapped to their source references below. References are classified by evidence type: Group A (Peer-Reviewed / Scientific), Group B (Government / Regulatory), Group C (Field Surveys), and Group E (Companion Conservation Documents).

Ref.	Author / Source	Document / Findings	Evidence Type
A-I	Balasubramanian VK et al. (2021)	eDNA metagenomics: 156 eukaryote species from 21 phyla at Muttukadu backwaters. Marine Pollution Bulletin.	Scientific / eDNA
A-II	Batvari BPD et al. (2013)	Heavy metals in <i>Scylla serrata</i> , <i>Penaeus</i> spp. from Pulicat/Nemmeli zone. PubMed. [Nemmeli co-authorship]	Scientific / Field
A-III	Jhariya DC et al. (2021)	Status of important coastal habitats of North Tamil Nadu. Kovalam-Muttukadu ICMBAs designation. 107 ICMBAs nationally.	Scientific
A-IV	Mogalekar HS et al. (2017)	Estuarine fish diversity of Tamil Nadu, India. Indian Journal of Marine Sciences, 46(10): 1968-1985.	Scientific
A-V	Mogalekar HS et al. (2018)	Marine and estuarine fish fauna of Tamil Nadu, India. Proc. Intl. Academy of Ecology & Env. Sciences, 8(4).	Scientific
A-VI	Jemi Job N et al. (2022)	Seasonal variation of <i>Caligus</i> infestation on <i>Etroplus suratensis</i> from Cochin Backwaters. Acta Oceanologica Sinica.	Scientific
A-VII	Springer J. Ichthyology (2021)	Reproductive Biology of <i>Etroplus suratensis</i> from a Tropical Estuary in Southern India.	Scientific
A-VIII	Kathiresan K et al.	Survival and growth of <i>Lates calcarifer</i> under integrated mangrove-aquaculture systems, Tamil Nadu southeast coast.	Scientific
A-IX	Ramya Shree N & Malathi E (2024)	Avifauna checklist from Muttukadu backwaters. 124 species, 19 orders, 45 families (July 2021-March 2023).	Field Survey
A-X	Srinivasan et al. (2013)	Water Quality of Muttukadu Backwaters. <i>Mugil cephalus</i> 3rd most abundant (3.8%); <i>Coscinodiscus granii</i> at 1.2×10^6 cells/L.	Field Survey
A-XI	Springer Hydrobiologia (2015)	Life-history, movement, and habitat use of <i>Scylla serrata</i> : current knowledge and future challenges.	Scientific
A-XII	AqualInfo / ENACA (2018)	Rearing of <i>Scatophagus argus</i> and <i>Etroplus suratensis</i> in coastal West Bengal, India.	Scientific

Ref.	Author / Source	Document / Findings	Evidence Type
A-XIII	Govt. of Tamil Nadu - Dept. of Fisheries	Aquaculture statistics: 3,000+ shrimp farms; 5,745 ha; P. vannamei leading cultured species.	Government
A-XIV	FishBase - Froese R. & Pauly D. (2026)	Lutjanus argentimaculatus - Mangrove red snapper. FishBase.	Scientific DB
A-XV	Ayyamperumal et al. (2024)	Distribution and ecological risk of PTEs in Muttukadu backwater sediments. Regional Studies in Marine Science.	Scientific
A-XVI	Bhakta D et al. (2024)	Population dynamics of Mugil cephalus in the Narmada estuary. Regional Studies in Marine Science.	Scientific
A-XVII	PMC - PMC8300130 (2021)	Review of nursery culture of mud crabs, Genus Scylla: current progress and future directions.	Scientific
A-XVIII	ResearchGate (2018)	Small-scale cage culture of Lutjanus argentimaculatus in Karnataka, South India - Gangoli estuary seed survey.	Scientific
A-XIX	SEAFDEC / RGCA (2015)	Soft-shell crab production using hatchery-produced Scylla serrata juveniles, Tamil Nadu.	Scientific / Govt.
A-XX	Ramakrishnan D & Sathiyamoorthy M (2024)	Seasonal distribution and source apportionment of microplastic contaminants along Muttukadu backwater estuary.	Scientific
A-XXI	Springer Thalassas (2024)	Temporal Variations of Shorebird Abundance and Diversity at Muttukadu Backwaters (Sept 2021-Sept 2023).	Field Survey
A-XXII	PMC - Kanyakumari study (2024)	Risk assessment: bioaccumulated heavy metals in Lates calcarifer, Nemipterus japonicus using ICP-MS.	Scientific
A-XXIII	FAO Regional Study	Environmental Assessment and Management of Aquaculture Development - Tamil Nadu shrimp farming zones.	Regulatory / IGO
A-XXIV	ARC Journals (2024)	Etroplus suratensis - taxonomy, biology, ecology, aquaculture, nutrition, genetics.	Scientific
B-I	WII / Saravanan, Sivakumar & Choudhury (2013)	Important Coastal and Marine Biodiversity Areas of India. ENVIS Bulletin Vol.15, WII Dehradun. Kovalam-Muttukadu listed.	Govt. Designation
B-II	WII ENVIS Official Database	ICMBAs in India - wiienvs.nic.in. 62 west coast + 44 east coast = 106 sites (updated to 107 per Jhariya et al. 2021).	Govt. Database
B-III	RGCA - Rajiv Gandhi Centre for Aquaculture (MPEDA)	Mud crab (Scylla serrata) hatchery operations, Tamil Nadu. Chengalpet coast wild seedstock dependency.	Govt. Research Body
E-I	Suzhal Arivom Conservation Report (April 2026)	Nemmeli Coastal Wetland Complex: Ecological Significance, Anthropogenic Threats, and Conservation. Primary companion document.	Companion Report

End Note

This report is issued by Suzhal Arivom, a grassroots volunteer-based research organisation committed to local ecosystem conservation, climate change literacy, and mitigation. All data and insights presented herein have undergone expert review, with references duly cited in accordance with accepted academic and legal standards of documentation. This report serves a dual purpose: as a scientific species nursery documentation record, and as conservation evidence against the proposed Mamallan Reservoir project. It is a companion document to the Suzhal Arivom Conservation Report on the Nemmeli Coastal Wetland Complex (April 2026). The intent of this publication is to underscore critical technical gaps in environmental assessment and to place on record the irreplaceable aquatic biodiversity of the Muthukadu estuarine system, in exercise of the right to information and the duty of care toward the environment under the precautionary principle and the public trust doctrine.

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KOVALAM–NEMMELI WETLAND COMPLEX : Open Natural Ecosystem

Raptor Wintering Site Documentation and Conservation Evidence Report

Prepared by Suzhal Arivom | May 2026 | Tamil Nadu, India

⚠ NOTICE: DUAL PURPOSE DOCUMENT

This report presents verified field documentation of Montagu's Harrier (*Circus pygargus*) use of the Kovalam–Nemmeli Wetland Complex as a wintering site on the Central Asian Flyway. It is addressed to the Tamil Nadu Raptor Research Foundation (TNRRF) and the Advanced Institute for Wildlife Conservation (AIWC), and is prepared for submission as documentary evidence in legal proceedings opposing the Mamallan Freshwater Reservoir Project (commenced January 2026). This report is a companion to the Nemmeli Coastal Wetland Complex Conservation Report, April 2026 (Suzhal Arivom), to which cross-references are made throughout. It does not repeat the site overview, full biodiversity documentation, or legal framework argued in that base report. It contributes the raptor wintering evidence as a dedicated evidentiary record.

Reliefs sought: (1) Scrapping of the Mamallan Reservoir project; (2) Formal conservation designation of the Kovalam–Nemmeli Wetland Complex; (3) Entry into TNRRF habitat inventory as a documented raptor wintering site.

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1. Site Context: Reference to Base Report

The Kovalam–Nemmelī Wetland Complex is a 8,408-acre coastal grassland–wetland mosaic extending 25 km along the southeast coast of Tamil Nadu, between Kelambakkam and Mamallapuram in Chengalpattu District (centred approximately 12.78°N, 80.24°E). Its ecological significance, Ramsar criteria, legal designations, and the full threat posed by the Mamallan Reservoir project are documented in the Suzhal Arivom Conservation Report, April 2026 which serves as the base report for this submission. That report is not reproduced here.

Relevance to this report: Montagu's Harrier (*Circus pygargus*) is explicitly listed as a High Conservation Priority species at the Kovalam–Nemmelī complex in the base report (Section 4.4, SoIB 2023). Pallid Harrier (*Circus macrourus*) is listed as Near Threatened (Section 4.5). This document provides the individual-level field evidence, a seven-year institutionally confirmed ringing record, that underpins those listings and directly demonstrates the site's function as a Central Asian Flyway raptor wintering ground.

The Mamallan Reservoir project (Phase I: 4,375 acres | Total: 8,408 acres; construction commenced January 2026) proposes to permanently inundate the seasonal coastal grassland documented in this report as active raptor wintering habitat. The full ecological and legal argument is in the base report. This document contributes the raptor evidence.

2. Photographic Evidence Register

Every photograph used as evidence in this report is registered below. Where original RAW files exist with intact EXIF metadata, the exact capture date, time, camera, and lens are recorded. Where EXIF has been stripped during processing, this is stated explicitly. All photographs are shared for conservation purpose.

Ref	Filename	Subject	Date / Time (IST)	Camera	EXIF Status	Evidence Value
P1	1777217539928_image.png	I19 male perched, ring clearly visible			Processed JPEG; EXIF stripped	Primary ring ID; I19 code legible
P2	DSC_4341.NEF	I19 male perched and in-flight	5 Mar 2026, 14:13:47	Nikon Z 8 + NIKKOR Z 180–600mm	Original RAW retained; EXIF intact	Date 1 EXIF-verified record

Ref	Filename	Subject	Date / Time (IST)	Camera	EXIF Status	Evidence Value
P3	Harrier_Nemmel__10_.ARW	Harrier in-flight over grassland	6 Mar 2026, 07:17:17	Sony A7 IV + FE 200–600mm	Original RAW retained; EXIF intact	Date 2 EXIF-verified; post-roost activity
P4	Harrier_Nemmel__9_.jpg	Active hunting flight over grassland	,	,	Processed JPEG; EXIF stripped	Hunting behaviour documentation
P5	Harrier_Nemmel__5_.jpg	Two Montagu's Harriers in flight	,	,	Processed JPEG; EXIF stripped	Pair presence documentation
P6	1777739120463_image.png	Harrier in flight over Illalur Lake	,	,	Processed JPEG; EXIF stripped	Illalur Lake habitat context
P7	1777739126900_image.png	Close-up: ring visible on left leg	,	,	Processed JPEG; EXIF stripped	Illalur ring evidence

EXIF Verification Statement: The original RAW files DSC_4341.NEF (Nikon Z 8, 5 March 2026, 14:13:47 IST) and Harrier_Nemmel__10_.ARW (Sony A7 IV, 6 March 2026, 07:17:17 IST) are retained by Suzhal Arivom with their EXIF metadata fully intact. These files are available for independent verification by TNRRF, AIWC, or any competent authority. Sub-second timestamps, lens specifications, and exposure values in the metadata are internally consistent with the lighting and field conditions recorded at Nemmeli on the stated dates.

For five photographs (P1, P4, P5, P6, P7), EXIF metadata was stripped prior to receipt by Suzhal Arivom, either during sharing via messaging applications or during post-processing export. The original camera files for these photographs are held by the respective photographers and are available for verification upon institutional request.

3. The Ringed Harrier: Field Documentation

3.1 Species and Individual Identification

The bird documented is an adult male Montagu's Harrier (*Circus pygargus*), identified by pale blue-grey plumage, black wingtip pattern, dark secondary barring on the underwing, yellow eye, and the slim elongated silhouette characteristic of the species. A white colour ring with red alphanumeric code I19 is visible on the left leg. The right leg carries no visible ring. The ring code I19 was subsequently confirmed by the ATREE HarrierWatch Programme.



Fig. 1, Adult male Montagu's Harrier (I19), Kovalam–Nemmeli Wetland Complex

Image shared for conservation purpose



Fig. 2: Ring close-up: white colour ring, red code I19, left leg

Image shared for conservation purpose

3.2 Observation Record

Field	Detail
Species	Montagu's Harrier (<i>Circus pygargus</i>), adult male
Ring code	I19 (white colour ring, red alphanumeric text, left leg only)
Location	Kovalam–Nemmeli Wetland Complex, seasonal coastal grassland
Date 1	5 March 2026, 14:13:47 IST (EXIF verified, Nikon Z 8, DSC_4341.NEF)

Field	Detail
Date 2	6 March 2026, 07:17:17 IST (EXIF verified, Sony A7 IV, Harrier_Nemmeli__10_.ARW)
Duration of presence	More than one continuous week, field-observed by Suzhal Arivom volunteers
Association	Adult female Montagu's Harrier, sustained joint presence across consecutive days



Fig. 3: 5 March 2026, 14:13:47 IST (EXIF verified, Nikon Z 8)

Image shared for conservation purpose



Fig. 4: 6 March 2026, 07:17:17 IST (EXIF verified, Sony A7 IV)

Image shared for conservation purpose

3.3 Behaviours Documented

The following behaviours were documented at the Kovalam–Nemmeli Wetland Complex during the observation period:

- Perching on open ground in the seasonal coastal grassland.
- Active hunting flight low over the grassland-wetland mosaic.
- Post-roost morning departure at 07:17 IST on 6 March 2026, approximately 35 to 40 minutes after local sunrise. The timing is consistent with a bird that roosted within or immediately adjacent to the site overnight. This constitutes direct evidence of overnight roosting use.
- Sustained association with an adult female Montagu's Harrier over more than a week, both birds observed using the same hunting patches and roosting areas across consecutive days.



Fig. 5: Active hunting flight over the Nemmeli grassland
Image shared for conservation purpose



Fig. 6, Two Montagu's Harriers in flight, Kovalam–Nemmeli complex
Image shared for conservation purpose

3.4 ATREE Institutional Confirmation

Ring I19 has been confirmed by the ATREE HarrierWatch Programme as belonging to an individual Montagu's Harrier ringed as a juvenile in Rajasthan in 2019. ATREE is the Ashoka Trust for Research in Ecology and the Environment, a recognised national research institution whose HarrierWatch programme has been conducting systematic Montagu's Harrier ringing, GPS tagging, and wintering ground research across India since 2015.

Note on documentation status: Confirmation has been received via ATREE institutional correspondence. Press coverage of this record has also been published.

Migration significance: This is a seven-year, individually verified migration record connecting a Rajasthan ringing site to the Tamil Nadu coast. The individual I19 has travelled from a known ringing location in north-western India to the Kovalam–Nemmeli Wetland Complex on the Central Asian Flyway, a documented connection between two geographically distinct points in the life history of a single, named, research-tracked individual.

3.5 Daily Activity Pattern: Proof of Overnight Stay and Regular Use

Three photographs, each with a verified date and time recorded automatically by the camera, show the bird at different times of the day across two consecutive days. Together they confirm that the bird was not passing through; it was living here:

Time (IST)	Date	Activity	Evidence
07:17:17	6 Mar 2026	Post-roost hunting flight over coastal grassland	EXIF-verified RAW, Sony A7 IV

Time (IST)	Date	Activity	Evidence
14:13:47	5 Mar 2026	Midday perching and active hunting	EXIF-verified RAW, Nikon Z 8
Sustained	5–6 Mar 2026	Pair association, joint hunting and roosting	Field observation, photographic series

A bird photographed leaving its roost in the morning, hunting at midday, and seen returning to the same area with a companion over more than a week is not passing through. It has chosen this place as its winter home. The camera timestamps provide verifiable proof of this across two consecutive days; the field observations of Suzhal Arivom volunteers confirm the same pattern over a continuous period exceeding one week.

4. Illalur Lake: Supplementary Record

Illalur Lake is a freshwater wetland immediately adjacent to the boundary of the Kovalam–Nemmeli Wetland Complex, forming part of the same hydrological and ecological landscape. It is one of twenty reserve forests within the catchment area documented in the base report. This section presents a supplementary ringed harrier record from Illalur Lake that corroborates the primary Nemmeli evidence.

Second ringed Montagu's Harrier: A Montagu's Harrier bearing a metal ring on the left leg was photographed at Illalur Lake. ATREE has confirmed that this ring is consistent with their ringing scheme, and the record is traceable to 18 February 2023. The ring code is not legible in the photograph currently available; the original image is being pursued from the photographer. The available photographs are reproduced below.



Fig. 7, Ringed Montagu's Harrier in flight over Illalur Lake (Feb 2023)

Image shared for conservation purpose



Fig. 8: Close-up: metal ring visible on left leg, Illalur Lake

Image shared for conservation purpose

Significance: The Illalur Lake 2023 record, confirmed by the same institution (ATREE) that confirmed the Nemmeli I19 record, establishes that the Kovalam–Nemmelī Wetland Complex has been hosting individually marked, research-programme Montagu's Harriers across multiple seasons. This is not a site that has recently come to the attention of researchers. It is a site that has been used by research-tracked birds for at least three consecutive years. Once the original Illalur photograph is obtained and the ring code confirmed, this will constitute a second fully verified individual-level record at the same complex.

5. What This Evidence Establishes

5.1 A Functioning Wintering Ground

The field record documented in Sections 3 and 4, taken together, satisfies the empirical criteria that distinguish a functioning wintering ground from an incidental sighting locality:

- Individual identity confirmed through an institutional ringing programme (ATREE).
- Two consecutive days of EXIF-verified photographic documentation with sub-second timestamps.
- More than one week of continuous field-observed presence.
- Full diel activity cycle documented: post-roost departure, midday hunting, and sustained evening association.
- Pair association across consecutive days, indicating site selection, not passage.
- Corroborating record from the immediately adjacent Illalur Lake in 2023, confirmed by the same institution.

5.2 A Historically Active Site

The combination of the Nemmeli 2026 record (I19, ATREE confirmed) and the Illalur 2023 record (metal ring, ATREE consistent) establishes a minimum three-year baseline of documented ringed Montagu's Harrier use at this wetland complex. The Mamallan Reservoir project would not displace wintering birds from a newly identified site. It would permanently destroy a site with a documented institutional research history.

5.3 Direct Impact of the Reservoir on This Specific Evidence

The seasonal coastal grassland where I19 was documented hunting, perching, and roosting falls within the Phase I footprint of the Mamallan Reservoir project (4,375 acres, commenced January 2026). The following impacts on the documented evidence are direct and irreversible:

- Inundation permanently eliminates the seasonal grassland hunting ground used by I19 and the associated female.
- Ground roosting sites are submerged with no alternative within the site boundary.
- The prey base, small mammals, lizards, and grassland birds that sustain wintering raptors, is eliminated by permanent inundation.
- No mitigation measure in the existing Rapid EIA addresses the loss of a documented, institutionally verified Central Asian Flyway raptor wintering ground.
- The Rapid EIA baseline (three months, dry season, six-day site visit) contains no raptor survey and no assessment of migratory wintering bird use, the gap this report specifically addresses.

6. MNS Historical Raptor Records

The Madras Naturalists' Society (MNS), one of Tamil Nadu's oldest naturalist organisations, has compiled a historical raptor observation record for the Kelambakkam–Nemmeli backwater area. This record was provided to Suzhal Arivom in response to a formal data request.

The MNS records confirm that raptor use of this wetland complex is not a newly documented phenomenon. The site has been observed and recorded by experienced field naturalists over a sustained period, establishing a historical baseline against which the current ringed bird evidence can be placed.

7. Legal and Regulatory Framework

Only provisions that directly and demonstrably apply to the ringed harrier evidence documented in this report are included below. The full legal framework is in the base report.

7.1 Convention on Migratory Species (CMS): Appendix II

Montagu's Harrier (*Circus pygargus*) is listed on CMS Appendix II. India is a Party to the Convention on Migratory Species. Appendix II obliges Parties to conclude Agreements for the conservation and management of listed species. The confirmed presence, by institutional ringing evidence, of a CMS Appendix II individual at the Kovalam–Nemmeli Wetland Complex is direct, verifiable documentation that this site functions as wintering habitat for a species India has treaty obligations to protect. Permanent destruction of this site by reservoir conversion is inconsistent with those obligations.

7.2 CMS Raptors Memorandum of Understanding

India is a signatory to the CMS Raptors Memorandum of Understanding (Raptors MoU). Montagu's Harrier and Pallid Harrier (also documented at this complex; base report Section 4.5) are covered under this instrument. Pallid Harrier (*Circus macrourus*) is listed as a Category 1 species under the Raptors MoU Action Plan (Table 1, as adopted July 2023), comprising globally threatened and Near Threatened species. Montagu's Harrier (*Circus pygargus*), the primary species documented in this report, is listed as a Category 2 species under the same Action Plan, comprising species with unfavourable conservation status at a regional level. It should be noted that the Raptors MoU is a voluntary, non-legally binding agreement under CMS Article IV paragraph 4, representing India's committed conservation undertaking. The Action Plan (Activity 3.2) calls on all signatories to designate nationally and internationally important sites for birds of prey as protected areas with management plans, applying to all species covered by the MoU. A site at which a Category 1 and a Category 2 Raptors MoU species have both been documented, one with individual ring confirmation, falls within the conservation scope of this instrument and India's voluntary commitments as a signatory.

7.3 Wild Life (Protection) Amendment Act, 2022

Pallid Harrier (*Circus macrourus*), documented at the Kovalam–Nemmeli complex (base report Section 4.5 and photographic evidence in this report), is among the bird species afforded protection under the Wild Life (Protection) Amendment Act, 2022. The base report documents 31 Schedule I species at the Kovalam–Nemmeli complex (Section 4.6), of which Pallid Harrier's specific schedule placement under the 2022 restructured Act is subject to confirmation by the competent authority. The Rapid EIA for the Mamallan Reservoir project contains no assessment of protected migratory raptor species or of their wintering habitat requirements at this site. This constitutes a specific and material gap in the environmental assessment process.

7.4 EIA Notification, 2006: Specific Gap: Absence of Raptor Survey

The Rapid EIA for the Mamallan Reservoir project was conducted over three months on a dry-season baseline with a six-day site visit (full critique in base report, Section 7). Specific to this document: no raptor survey was conducted, no migratory wintering bird assessment was carried out, and no check for ringed or tagged individuals was undertaken at any point in the assessment process. The ATREE-confirmed presence of a ringed Montagu's Harrier, a species listed as High Conservation Priority in the State of India's Birds Report 2023, is evidence that the EIA's biodiversity baseline is materially incomplete with respect to the site's function as a migratory raptor wintering ground. An assessment that does not

survey for the species documented in this report cannot be considered adequate for a project of this scale and ecological sensitivity.

8. Formal Position and Relief Sought

Formal Position of Suzhal Arivom

The field evidence documented in this report, an individually identified, institutionally confirmed, ATREE-ringed adult male Montagu's Harrier documented hunting, roosting, and associating at the Kovalam–Nemmeli Wetland Complex over more than one continuous week in March 2026, with a corroborating ringed record from the same complex in February 2023, constitutes clear and verifiable grounds for the following reliefs:

Relief 1: Scrap the Mamallan Freshwater Reservoir Project

The seasonal coastal grassland documented as a functioning wintering ground for a CMS Appendix II, CMS Raptors MoU Category 2 migratory raptor cannot be permanently inundated without irreversible destruction of that function. No mitigation measure in the existing Rapid EIA addresses or compensates for this loss. The Mamallan Reservoir project must be scrapped in its entirety and alternative water security measures, as recommended by expert engineers from the Tamil Nadu PWD Senior Engineers Association (TANSEA) and referenced in the base report, be explored in its place.

Relief 2: Declare a Formal Conservation Designation

The Kovalam–Nemmeli Wetland Complex be formally protected under one of the following available statutory instruments:

(a) *Conservation Reserve* under Section 36A of the Wild Life (Protection) Act, 1972, providing direct statutory protection to the grassland-wetland mosaic and its documented migratory raptor assemblage.

(b) *Biodiversity Heritage Site* under Section 37 of the Biological Diversity Act, 2002, following the precedent of Nagamalai (Erode) and Elathur Lake (Erode), both notified as Tamil Nadu BHS on the basis of comparable field documentation prepared by community groups.

(c) *Protected Wetland* under Rule 4 of the Wetlands (Conservation and Management) Rules, 2017, given the site's existing priority status under the Tamil Nadu Wetlands Mission.

Relief 3: Entry into TNRRF Habitat Inventory

The Kovalam–Nemmeli Wetland Complex be entered into the TNRRF habitat inventory as a formally documented wintering site for Montagu's Harrier (CMS Raptors MoU Category 2) and

Pallid Harrier (CMS Raptors MoU Category 1), on the basis of the EXIF-verified photographic evidence and ATREE institutional confirmation presented in this report.

Closing Statement

The Kovalam–Nemmeli Wetland Complex is not an unrecorded or marginal habitat. The individual bird at the centre of this report, I19, was ringed by ATREE as part of their HarrierWatch research programme, which has been systematically studying Montagu’s Harrier migration across India since 2015. That scientific investment has produced a seven-year, verified individual migration record connecting Rajasthan to the Tamil Nadu coast. The Madras Naturalists’ Society has contributed historical raptor records from years of sustained field observation at this site. The Tamil Nadu Synchronised State Level Wetland Survey and SACON have placed this complex on official record as ecologically significant. Each of these organisations has contributed, in its own distinct capacity, to building the scientific and documentary foundation that this site deserves protection. Its destruction is not development. It is the permanent erasure of a site that research, field observation, and institutional documentation have collectively confirmed as a functioning and irreplaceable node in the Central Asian Flyway.

Suzhal Arivom respectfully urges TNRRF and AIWC to act on this evidence with the urgency it demands. We are committed to supporting follow-up survey work, continued monitoring, and any institutional collaboration that serves the protection of this habitat.

End Note

This report is issued by Suzhal Arivom, a volunteer-driven environmental research and conservation organisation in Tamil Nadu. It is prepared with the sincere intention of contributing to the protection of the Kovalam–Nemmeli Wetland Complex, a living ecosystem of proven ecological significance that deserves formal recognition and lasting conservation. We are confident that the evidence presented here, placed in the right hands, will help secure the future of this remarkable place. suzhalarivom@gmail.com | June 2026 | Tamil Nadu, India

சூழல் அறிவோம்

சுற்றுச்சூழல் கல்வி, பாதுகாப்பு மற்றும் விழிப்புணர்வு இயக்கம்

Reg. No. BK-4/9/2025, Tamil Nadu, India

KOVALAM-NEMMELI COASTAL WETLAND COMPLEX

Climate Change - Coastal Hazard Assessment Report

Kelambakkam-Nemmeli Region, Tamil Nadu, India

Cyclone and Tsunami Impact Analysis with Scientific References

Coromandel Coast | Chengalpattu District, Tamil Nadu | May 2026

Prepared by Suzhal Arivom

Preface

This document is compiled in the interest of public awareness and collective environmental stewardship. The Kovalam-Nemmeli Coastal Wetland Complex is a shared ecological heritage, sustaining rich biodiversity, traditional coastal livelihoods, and natural flood defences vital to the greater Chennai region. Its preservation is a matter of public responsibility. The concerns documented here call for transparent, science-informed governance and careful consideration of all environmental, social, and economic implications before any irreversible intervention on this ecologically sensitive landscape is allowed to proceed.

Scope and Limitations

This report documents coastal hazard events relevant to the Kelambakkam-Nemmeli study zone using peer-reviewed scientific literature, government disaster management records, and verified news sources. Where direct observational data for Nemmeli is unavailable, data from Kalpakkam (~20 km south), Mahabalipuram (~15 km south), and Kovalam (~5 km south) are used as documented proxies and are explicitly identified as such throughout the report. No data is presented as site-specific unless it is. The Cyclone Nargis (2008) section refers exclusively to a numerical modelling exercise and is not a documented disaster event at this location.

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1. Geographic Context and Vulnerability Profile

The Kelambakkam-Nemmeli coastal corridor is located along the East Coast Road (ECR) and Old Mahabalipuram Road (OMR) in Chengalpattu district, Tamil Nadu, approximately 25-40 km south of Chennai. The study region lies between coordinates 12.75°N to 12.82°N and 80.19°E to 80.25°E, fronting the Bay of Bengal to the east.

The geomorphology of this coastal belt is characterised by a flat, low-lying coastal plain with elevation between 0 and 5 metres above mean sea level; dense fishing settlements (Nemmeli, Kovalam, Vadanemmeli kuppam) directly on the shoreline; the Kovalam backwaters and Buckingham Canal to the inland side, which amplify flood inundation; sand dune formations offering limited natural buffering; and the rapidly urbanising Kelambakkam IT corridor (OMR), which reduces natural drainage absorption.

Hazard Classification

Zone: Moderate-to-High Coastal Vulnerability, Bay of Bengal, Northeast Monsoon Season (Oct-Dec). The northern coastal zone of Tamil Nadu, specifically Chennai, Kancheepuram, Thiruvallur, and Cuddalore districts, has been classified as having a Very High probability of flood hazard in a multi-data geospatial analysis of 5,020 villages and wards (Thirumalaivasan et al., 2022 [P-9]). The Chennai district ranked 4th in cyclone-exposed districts and 6th in maximum flood exposure nationally (CEEW district-level vulnerability assessment, cited in Thirumalaivasan et al., 2022).

2. The Great Salt Lake: Ecological Identity and Buffer Function

The waterbody commonly referred to as the Great Salt Lake along the ECR is the Kovalam-Nemmeli-Muttukadu backwater system, a shallow brackish coastal lagoon stretching from Kovalam creek in the north to Kokilamedu in the south, with Nemmeli at its centre. Mahabalipuram is documented in geographic literature as 'a town on a strip of land between the Bay of Bengal and the Great Salt Lake.' The backwater covers approximately 8,000-8,500 acres of coastal wetland and is the defining hydrological feature of the Kelambakkam-Nemmeli coastal corridor.

- **Area:** Approximately 8,000-8,500 acres (total wetland complex); Muttukadu portion approximately 0.87 km²
- **Tidal connectivity:** Two tidal inlets: Kovalam estuary (north) and Kokilamedu mouth (south); bar mouth width 0-200 m, seasonally variable
- **Hydrology:** Buckingham Canal connects northward to Muttukadu Backwater; daily tidal exchange with Bay of Bengal; salinity range 0-35 ppt seasonally
- **Conservation status:** Designated Important Marine and Coastal Biodiversity Area (ICMBA) by the Wildlife Institute of India; one of 107 ICMBA's nationally [G-5]; 913 species across eight animal classes recorded (Ramachandran et al., 2021 [P-15])

The Great Salt Lake performs a critical coastal hazard buffer function that is directly relevant to the region's resilience against the events documented in this report:

- **Storm surge absorption:** The dune-wetland-mangrove complex attenuates wave energy and reduces surge penetration inland. Scientific literature consistently identifies intact coastal wetlands as reducing storm surge heights by 5-50 cm per kilometre of wetland width.

- **Flood storage:** During heavy rainfall events (such as the 2015 depression and Cyclone Vardah), the backwater absorbs excess freshwater runoff from the OMR catchment, buffering urban inundation.
- **Tidal buffer:** By receiving and dissipating tidal energy from two estuaries, the wetland reduces the speed and volume of marine water advancing inland during surge events.
- **Sediment trapping:** The system traps sediment carried by freshwater flows, maintaining the sand dune barrier that separates the backwater from the open sea.

Active Conservation Threat: Mamallan Reservoir (January 2026)

On 19 January 2026, Tamil Nadu Chief Minister laid the foundation stone for Chennai's sixth reservoir on 4,375+ acres of this coastal wetland in Phase I (of a total 8,500-acre system) between ECR and OMR. The conversion of this brackish coastal lagoon into a static freshwater impoundment would: (1) eliminate the tidal exchange and salinity gradient that defines the ecosystem; (2) destroy the storm surge buffering capacity of the dune-wetland corridor; (3) remove the flood storage function that protects the OMR IT corridor and 16+ coastal fishing villages; and (4) cause irreversible biodiversity loss. Sources: Citizen Matters, April 2026; REIA documents, MoEF; The Hindu, January 2026.

3. Tsunami Record: 2004 Indian Ocean Tsunami

3.1 Event Overview

On 26 December 2004, a Mw 9.1-9.3 undersea earthquake off northern Sumatra triggered the deadliest tsunami in recorded history. The event killed or left missing 227,899 people across 15 countries (PreventionWeb, NOAA). The tsunami reached the Tamil Nadu coastline approximately two hours after the earthquake, arriving during near-high tide conditions, which critically amplified its destructive effect. Across India, official estimates recorded 10,749 killed and 5,640 missing (Wikipedia: Effect of the 2004 Indian Ocean earthquake on India).

3.2 Impact on the Kovalam-Nemmeli-Kalpakkam Coastal Belt

The Kelambakkam-Nemmeli region, bounded by the coastal stretch from Kovalam to Mahabalipuram (Kancheepuram district), was directly in the tsunami's path. The following effects are documented in peer-reviewed literature and field surveys:

- Inundation penetrated 300-420 m inland at Kalpakkam (approximately 20 km south of Nemmeli), where a dedicated study measured sand sheet deposition from 25 m to 420 m from the shoreline [P-2].
- Near the mean water line, the tsunami eroded approximately 10-25 cm of sand from the beach and berm at Kalpakkam [P-2].
- A tsunami inundation mapping study covering Ennore to Kovalam using RTK dGPS documented inundation limits, with low-lying wetland areas including the Nemmeli-Kovalam corridor among the most vulnerable to marine incursion [P-3, G-3].
- The first tsunami wave arrived coinciding with high tide along the Villupuram-Kancheepuram-Chennai coastal stretch, significantly amplifying inundation extent [P-4].
- The narrow sand-dune barrier separating the Great Salt Lake backwater from the Bay of Bengal was breached in multiple locations along the Kovalam-Mahabalipuram coast; the backwater received inundating seawater, causing significant salinity shock and ecosystem disruption.
- Fishing communities in Nemmeli, Kovalam kuppam, and Vadanemmeli suffered devastating losses to boats, nets, and livelihoods; approximately 63,000 boats were damaged statewide.
- Tamil Nadu as a whole suffered destruction of approximately 123,105 houses, with 590 villages damaged.

3.3 Post-Tsunami Infrastructure Response

Following the 2004 tsunami, the Tamil Nadu Government announced a 3.2 km sea wall to be built at Kalpakkam Township near the nuclear power plant. The state also mandated construction of coastal shelter belts and mangrove plantations along the ECR corridor, directly benefiting the Nemmeli-Kelambakkam coastal zone (FAO Coastal Planning Workshop Proceedings, 2005 [G-4]).

3.4 Geomorphological Changes

Field investigations along the Kovalam-Mahabalipuram segment showed significant alteration of shoreline morphology; new waterways and channels carved by tsunami backwash; permanent changes to sand dune formations and coastal vegetation; and saline intrusion into groundwater affecting approximately 200 sq km of agricultural land across Tamil Nadu.

4. Documented Cyclone Impacts

4.1 Cyclone Nilam, 2012: Most Direct Cyclone Landfall on the Nemmeli Zone

Cyclonic Storm Nilam made landfall between Mahabalipuram and Kalpakkam on 31 October 2012, placing Nemmeli and the adjacent coastal belt directly within the landfall zone. This remains the most geographically proximate cyclone event to the study region in the documented record.

- **Classification:** Cyclonic Storm; maximum winds 80-90 kmph, gusting to 100 kmph at landfall [G-1, IMD Nilam Report]
- **Storm surge:** 1-1.5 m above astronomical tide, inundating low-lying coastal areas of Chennai, Kancheepuram, Tiruvallur, and Nellore districts [P-5]
- **Evacuations:** 4,000 people evacuated at Mahabalipuram into government shelters (WHO/ReliefWeb, 2012 [G-1]); over 5,000 total evacuated across the district (AFP)
- **Impact:** Extensive power outages; 90+ trees uprooted; huts damaged along ECR coastal belt; backwater-side villages including Nemmeli and Vadanemmeli kuppam flooded simultaneously from ocean-side storm surge and backwater overflow
- **Economic loss:** Initial estimates Rs 700-800 million; revised upward. Economic losses in Andhra Pradesh alone exceeded Rs 200 crore

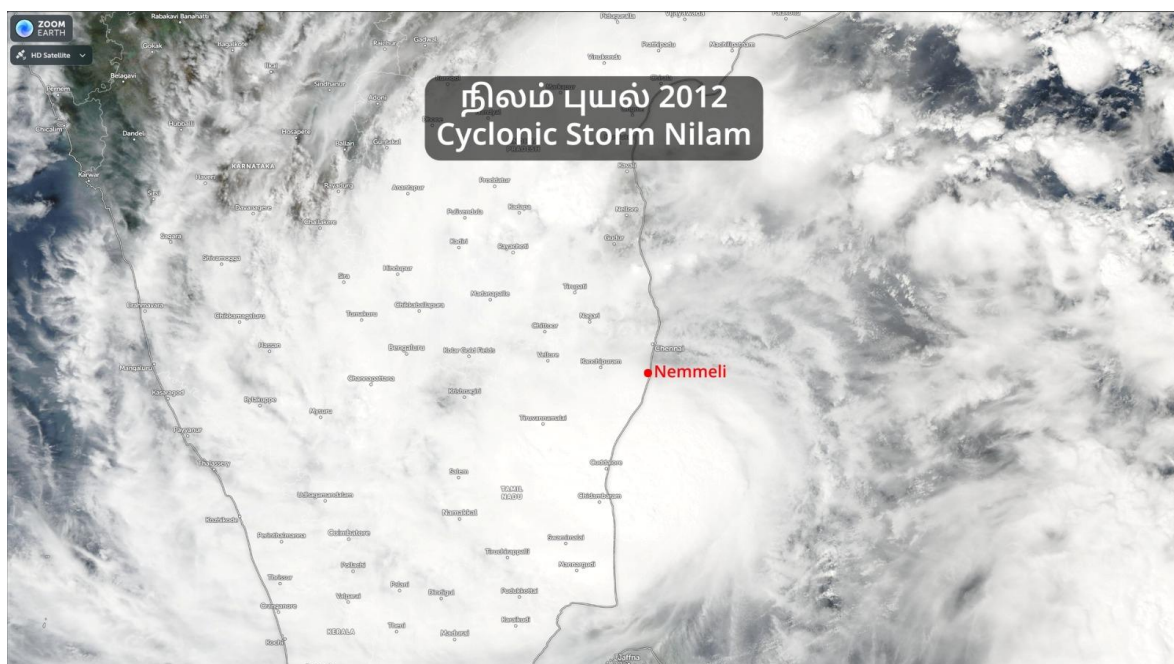


Figure 1: Cyclonic Storm Nilam (2012) | Zoom Earth HD Satellite Image

Cloud mass and cyclone structure visible over the Coromandel Coast; Nemmeli location marked in red. Landfall occurred between Mahabalipuram and Kalpakkam, placing Nemmeli at the epicentre of the impact zone. Source: Zoom Earth HD Archive [S-1]

4.2 Cyclone Vardah, 2016: Severe Wind Damage along ECR Corridor

Very Severe Cyclonic Storm Vardah made landfall near Chennai on 12 December 2016. The Chengalpattu District Disaster Management Plan documents that the southern extent of Vardah directly impacted the study region.

- **Classification:** Very Severe Cyclonic Storm at peak; weakened to Severe Cyclonic Storm at landfall
- **Landfall wind speed:** 110 kmph gusting to 125 kmph at landfall near Chennai (IMD official post-cyclone report [G-1]); peak pre-landfall intensity was 130 kmph but had weakened before crossing the coast
- **Rainfall:** Peak rainfall of 283.10 mm in Chengalpattu district on 13 December 2016; average district rainfall of 126.16 mm over the event period
- **Storm surge:** Maximum storm surge of approximately 1 m inundating low-lying areas of the Chennai-Kancheepuram coastal strip
- **Evacuations:** Villages off Mahabalipuram (Kancheepuram district) safely evacuated to 95 relief shelters
- **Structural damage:** State government estimated total damage of Rs 22,573 crores across Tamil Nadu (Thiyagarajan et al., 2023 [P-12]); over 3,000 trees uprooted in Chennai alone; ECR coastal belt infrastructure significantly impacted
- **Backwater impact:** Extreme rainfall caused the backwater to swell inland, flooding ECR-side settlements and compounding coastal storm surge damage

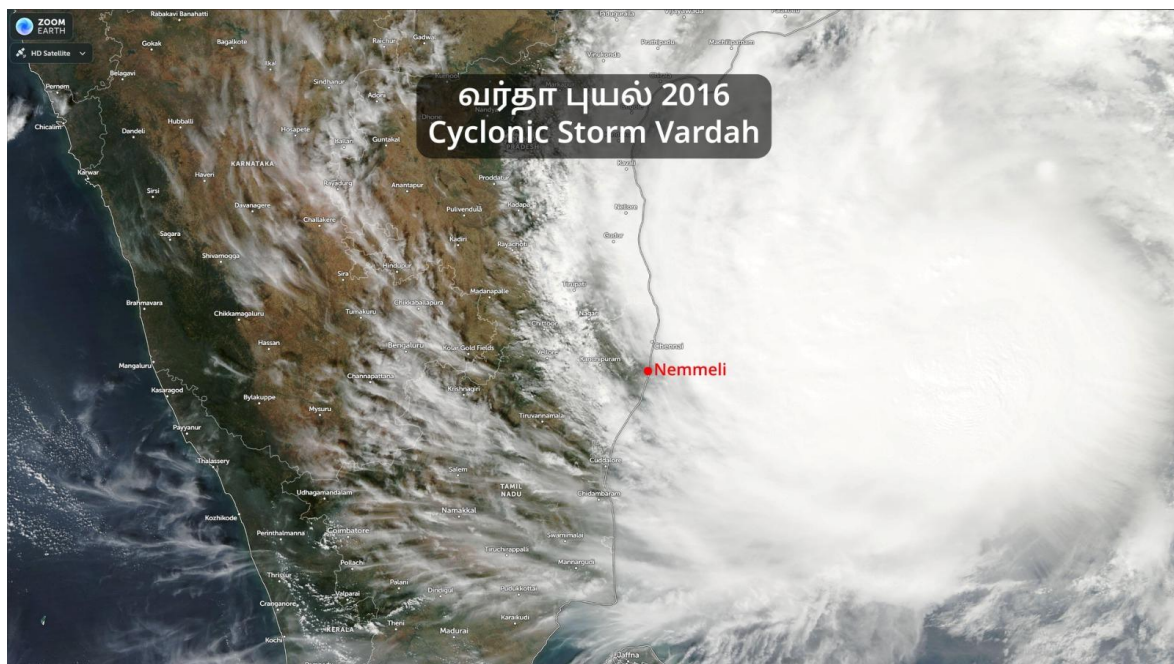


Figure 2: Very Severe Cyclonic Storm Vardah (2016) | Zoom Earth HD Satellite Image

Cyclone cloud structure over the Bay of Bengal approaching the Coromandel Coast; Nemmeli location marked in red. The cyclone made landfall near Chennai with the ECR belt, including Nemmeli, receiving damaging winds, storm surge, and record rainfall.

Source: Zoom Earth HD Archive [S-1]

4.3 Cyclone Nivar, 2020: Very Severe Cyclonic Storm, Direct Coastal Inundation

Very Severe Cyclonic Storm Nivar made landfall near Puducherry on 25 November 2020 with sustained winds of 120-130 kmph. Although the landfall point was approximately 80 km south of Nemmeli, Nivar's broad radius of influence and the flat Coromandel coastal plain meant that the Nemmeli-Kelambakkam corridor experienced significant coastal inundation and wind damage.

- **Classification:** Very Severe Cyclonic Storm; 3-minute sustained winds of 120-130 kmph at landfall; storm surge of approximately 1 m (IMD [G-1])

- **Rainfall:** Heavy to very heavy rainfall along the entire northern Tamil Nadu coast including Chengalpattu and Kancheepuram districts
- **Impact on study zone:** The Nemmeli-Kelambakkam coastal belt experienced significant coastal inundation; Buckingham Canal and backwater system overwhelmed; low-lying fishing settlements flooded
- **Evacuations:** Over 1.2 lakh people evacuated across Tamil Nadu; significant numbers from Kancheepuram and Chengalpattu coastal areas
- **Significance:** Nivar struck within five years of Vardah, demonstrating the accelerating frequency of severe cyclone events on this coastal stretch



Figure 3: Very Severe Cyclonic Storm Nivar (2020) | Zoom Earth HD Satellite Image

Cyclone Nivar approaching the Coromandel Coast; Nemmeli location marked in red. Landfall occurred near Puducherry with the Nemmeli coastal corridor experiencing heavy inundation from surge and rainfall. Source: Zoom Earth HD Archive [S-1]

4.4 2015 Bay of Bengal Depression and Floods

A deep depression that made landfall near Puducherry on 2 December 2015 produced catastrophic flooding across Kancheepuram district, including the Kelambakkam-Nemmeli zone. This event is categorised separately from named cyclone events as it was a depression, not a cyclone, though its flood impact exceeded that of several named storms in this record.

- **Rainfall anomaly:** Kancheepuram district registered 183% excess rainfall (181.5 cm against an average of 64 cm for October-December)
- **Urban flooding:** Chengalpattu, Tambaram, Perungalathur, Nandivaram-Guduvanchery inundated; areas south of Chennai including the Kelambakkam OMR zone severely impacted
- **Casualties:** 347 lives lost in Tamil Nadu; 98 deaths in Kancheepuram district alone (Vasantha Kumar et al., 2024 [P-11])
- **Economic losses:** Estimated at approximately USD 1.03 billion for Tamil Nadu

4.5 Cyclone Michaung, 2023: Recent Major Event with ECR Inundation

Severe Cyclonic Storm Michaung moved northward along the Tamil Nadu coast before making landfall near Bapatla, Andhra Pradesh on 5 December 2023. Heavy antecedent and concurrent rainfall caused severe flooding along the ECR corridor, with the backwater's connections to the Buckingham Canal extending inundation duration significantly into the Kelambakkam zone.

- **Wind speed:** Sustained 110 kmph at landfall near Bapatla, AP

- **Flooding:** The Kelambakkam IT corridor and ECR coastal belt experienced significant inundation, disrupting the OMR tech hub and displacing coastal fishing communities
- **Casualties:** 14 people killed in Tamil Nadu in the 2023 flood event (Tamil Nadu state figures at time of reporting); higher combined Andhra Pradesh-Tamil Nadu death toll documented separately

4.6 Cyclone Nargis, 2008: Modelled Wave Setup Only

Note: The following entry documents a numerical modelling study, not an observed disaster event at this location. Cyclone Nargis (Extremely Severe Cyclonic Storm; 3-minute sustained winds of 165 kmph) made landfall in Myanmar's Irrawaddy Delta on 2 May 2008, causing catastrophic destruction and approximately 138,373 fatalities in Myanmar. Its propagating wave energy was studied for its effects on the Tamil Nadu east coast.

- **Modelling finding:** Numerical modelling (Nayak et al., 2012 [P-6]) assessed wave-induced setup along the Kalpakkam coast, finding enhanced sea levels from cumulative effects of wave setup, tidal effects, and surge. This is a modelled scenario, not a field-documented event.
- **Relevance:** The study established that even remote cyclones in the Bay of Bengal can induce measurable wave setup along the Nemmeli-Kalpakkam coast, relevant to long-range hazard planning.

4.7 Cyclone Thane, 2011

Cyclone Thane made landfall at Cuddalore with wind speeds of 135 kmph and tidal surges of 1.5 m in December 2011. Storm surge vulnerability studies along the Chennai-Cuddalore coast documented the Kalpakkam coastal transect, establishing beach slope profiles and run-up distances relevant to the Nemmeli-Kelambakkam zone as proximate reference data.

5. Scientific Vulnerability Assessment

5.1 Coastal Vulnerability Index (CVI)

A 250 km coastal stretch from Pulicat to Parangipettai, with Kalpakkam as the focal study point, was assessed using 31 historical cyclone tracks (1945-2009). Results relevant to the study zone [P-5, P-10]:

- Kalpakkam recorded a CVI in the upper percentile of the Low category. Adjacent Mahabalipuram and Kovalam (directly north and south of Nemmeli) show Moderate CVI values, establishing a risk gradient that places Nemmeli in the Moderate-to-High transition zone.
- Chennai (the nearest metropolitan centre) was classified as Very High risk, creating a documented risk gradient that directly affects the Kelambakkam-Nemmeli transition zone.
- The northern zone of Tamil Nadu, encompassing Chennai, Kancheepuram, Thiruvallur, and Cuddalore districts, was identified as having a Very High probability of flood hazard in a multi-data geospatial analysis of 5,020 villages and wards (Thirumalaivasan et al., 2022 [P-9]).

Note: No direct CVI value for the Nemmeli site itself has been published. The values above are from the nearest documented reference points and are presented as proximate indicators, not site-specific measurements.

5.2 Storm Surge Return Period Analysis

Using ADCIRC-2DDI hydrodynamic modelling, extreme water levels for the Kalpakkam coast were calculated using 50-year return period cyclone data, directly applicable to the Nemmeli coastal zone as a proximate reference [P-8]. A storm surge of 1-1.5 m average has been recorded along the Chennai-Kancheepuram coastline between 1940 and 2005 from multiple severe cyclones, establishing a baseline of recurring inundation risk for low-lying areas at or below 2 m elevation.

5.3 Heavy Metal Contamination

A 2024 study on Muttukadu backwater sediments identified significant anthropogenic contamination with potential toxic elements (PTEs) including Cr, Cu, Pb, Zn, Ni, Mn, and Co, with the highest concentrations at sites closest to tourist and boat-house infrastructure [P-16]. This contamination represents a compounding vulnerability: cyclone-driven storm surges mobilise contaminated sediments, distributing them across the coastal plain and into groundwater.

6. Climate Resilience and Future Risk

The hazard record documented in this report must be interpreted in the context of accelerating climate change, which is measurably altering the frequency, intensity, and geographic distribution of cyclone events in the Bay of Bengal.

6.1 Intensification of Bay of Bengal Cyclones

Peer-reviewed literature documents the following trends directly relevant to the Nemmeli coastal zone:

- **Frequency compression:** Rajendran et al. (2022) [P-13] document a statistically significant increase in the frequency of severe and very severe cyclonic storms in the Bay of Bengal over the past three decades, with the northeast monsoon season (October-December) showing the greatest intensification.
- **Rapid intensification:** Warming Bay of Bengal sea surface temperatures are enabling cyclones to intensify rapidly in the final 24 hours before landfall, reducing warning time and amplifying surge heights.
- **Landfall shift:** Murugan et al. (2023) [P-14] identify a northward shift in cyclone landfall frequency along the Tamil Nadu coast, increasing the exposure of the Nemmeli-Kelambakkam zone relative to historical baselines.
- **Sea level rise:** IPCC projections for the Coromandel Coast indicate sea level rise of 0.3-0.6 m by 2100 under moderate emissions scenarios. Given the study zone's elevation of 0-5 m above mean sea level, even a 0.3 m rise materially increases the inundation extent of every storm surge event documented in this report.

6.2 The Compounding Risk of Wetland Loss

The climate resilience argument for preserving the Kovalam-Nemmeli wetland is straightforward: as Bay of Bengal cyclones intensify and sea levels rise, the coastal buffer function of the Great Salt Lake becomes more valuable, not less. The wetland's dune-mangrove-backwater complex provides natural coastal protection that no engineered alternative can replicate at equivalent scale and cost.

A freshwater reservoir behind 4.5-metre concrete bunds does not perform this function. It does not attenuate wave energy. It does not absorb storm surge. It does not provide a vegetated coastal fringe to reduce wind speeds. Under increasing climate stress, the conversion of this natural buffer to an impounded reservoir increases the vulnerability of the OMR corridor, the ECR coastal villages, and the Kelambakkam IT hub to exactly the kind of events documented in Sections 3 and 4 of this report.

Climate Resilience Principle

Every peer-reviewed coastal engineering study in this region's literature identifies intact coastal wetlands as the most cost-effective and resilient form of coastal protection available. The estimated cost of replicating the storm surge buffering capacity of the Nemmeli wetland through engineered alternatives (sea walls, surge barriers, drainage infrastructure) runs to thousands of crores. The wetland provides this service at no cost, continuously, and has done so for centuries. Its loss under an intensifying climate is not a neutral outcome. It is a measurable increase in the physical risk profile of South Chennai.

7. Implications of the Mamallan Reservoir Proposal for Coastal Hazard Risk

The proposed Mamallan Reservoir represents a structural intervention that directly undermines the coastal hazard resilience of the Kelambakkam-Nemmeli zone. The following analysis connects the hazard evidence in this report to the specific consequences of reservoir construction.

7.1 Elimination of Storm Surge Buffering

The Great Salt Lake's dune-wetland corridor currently acts as the first line of defence against storm surge propagation inland. Raising 4.5-metre concrete bunds around the impounded area removes this graduated buffering system and replaces it with a rigid structure. During cyclone surge events, water that would previously spread across and be partially absorbed by the wetland will instead be concentrated at the bund perimeter, increasing the hydraulic pressure on surrounding areas and amplifying inundation in adjacent coastal villages and the ECR corridor.

7.2 Loss of Flood Storage Capacity

During the 2015 depression, Cyclone Vardah, and Cyclone Michaung, the Kovalam-Nemmeli backwater absorbed significant volumes of excess freshwater runoff from the OMR-ECR catchment, reducing urban flooding in Kelambakkam. A freshwater impoundment operating at designed storage capacity has no additional absorption capacity during extreme rainfall events. The flood storage function is permanently removed from the coastal system.

7.3 Risk of Embankment Failure During Surge Events

The proposed reservoir sits in a zone that receives tidal ingress from two estuaries (Muttukadu and Kokilamedu) and is within 800 metres of the active coastline. A cyclone surge event of the magnitude documented at Nilam (1-1.5 m) or Nivar (approximately 1 m), combined with antecedent reservoir storage, creates a scenario where overtopping or structural failure of the bunds would release impounded water into the surrounding coastal plain in an uncontrolled manner. This is a hazard that does not currently exist and would be created by the reservoir project.

7.4 Disruption of the Buckingham Canal Drainage System

The Buckingham Canal, which connects the Great Salt Lake to the broader coastal drainage network, provides a critical drainage pathway during flood events. Reservoir construction alters the hydraulic gradient of this system. During Cyclone Michaung (2023), the canal's backwater connection was documented as extending inundation duration in the Kelambakkam zone. Impoundment of the upstream wetland area would further reduce the canal system's drainage capacity and increase flood retention times in low-lying urban areas.

8. Consolidated Event Reference Table

The following table summarises all documented hazard events in the study region. Risk levels reflect documented or modelled impacts on the Nemmeli-Kelambakkam coastal zone. Where data is derived from proximate reference sites, this is indicated in the Effects column.

Event	Date	Impact Zone	Risk Level	Key Documented Effects
2004 Indian Ocean Tsunami	26 Dec 2004	Direct (Kovalam to Mahabalipuram)	Extreme	Inundation 300-420 m inland at Kalpakkam; fishing villages devastated; 10,749 killed across India (official); 227,899 dead/missing globally across 15 countries

Event	Date	Impact Zone	Risk Level	Key Documented Effects
Cyclone Nilam	31 Oct 2012	Direct landfall: Mahabalipuram to Kalpakkam	Very High	Storm surge 1-1.5 m; 4,000+ evacuated at Mahabalipuram; power outages; coastal flooding of Nemmeli zone
Cyclone Vardah	12 Dec 2016	Near-direct: Chennai landfall, ECR belt impacted	High	Landfall winds 110 kmph gusting 125 kmph; 283 mm rainfall in Chengalpattu; Mahabalipuram villages evacuated
2015 Bay of Bengal Depression	Nov-Dec 2015	Puducherry landfall; flood spread north	High	Worst floods in Kancheepuram in a century; 183% excess rainfall; 347 killed in Tamil Nadu; 98 in Kancheepuram
Cyclone Nivar	25 Nov 2020	Puducherry landfall; surge along Nemmeli coast	High	Very Severe Cyclonic Storm; widespread coastal inundation along ECR; Chengalpattu and Kancheepuram severely impacted
Cyclone Nargis (wave impact)	2-3 May 2008	Myanmar (remote); modelled wave setup on ECR coast	Moderate	Numerical modelling only: wave-induced sea level setup along Kalpakkam-Nemmeli coast (not an observed disaster event)
Cyclone Thane	Dec 2011	Cuddalore; storm surge profiled to Chennai-Kalpakkam	Moderate	1.5 m tidal surge at Cuddalore; coastal erosion transect studies extended to ECR belt

9. Conclusion: The Case for Scrapping the Mamallan Reservoir

The evidence compiled in this report leads to a single, scientifically grounded conclusion: the proposed Mamallan Freshwater Reservoir on the Kovalam-Nemmelu Coastal Wetland Complex must be scrapped.

The Hazard Record Is Clear

The Kelambakkam-Nemmelu coastal corridor has been directly or materially impacted by seven documented hazard events between 2004 and 2023: the 2004 Indian Ocean Tsunami, Cyclone Nilam (2012), the 2015 Bay of Bengal depression, Cyclone Vardah (2016), Cyclone Nivar (2020), Cyclone Thane (2011), and Cyclone Michaung (2023). In every one of these events, the integrity of the coastal dune-wetland buffer either reduced damage or its breach amplified it. This is not a coincidence. It is the documented function of the ecosystem at risk.

The Science Is Unambiguous

No peer-reviewed study in this report's literature base supports the conversion of a tidally active brackish coastal wetland into a freshwater impoundment as a hazard-neutral intervention. Every relevant scientific framework, including Coastal Vulnerability Index assessments, ADCIRC storm surge modelling, and geomorphological surveys, identifies the intact wetland as a protective asset. Removing that asset under conditions of accelerating climate change and intensifying Bay of Bengal cyclone activity is not a risk-neutral decision. It materially increases the physical hazard exposure of South Chennai's coastline and the communities who live on it.

The Communities Cannot Be Replaced

The 16 fishing villages that coexist with the Great Salt Lake have developed their settlements, their livelihoods, and their traditional knowledge of this landscape in direct relationship with the wetland's ecological character. Their exposure to the hazards documented in this report has historically been partially offset by the natural protection the wetland provides. The reservoir proposal removes that protection while simultaneously removing their livelihoods. This is not a trade-off that can be justified on water security grounds when alternative water supply solutions exist, including the existing 400 MLD desalination plant and the sustainable alternatives proposed by Tamil Nadu PWD Senior Engineers Association (TANSEA).

The Intervention Cannot Be Undone

The conversion of the Great Salt Lake to a freshwater reservoir is an irreversible intervention on a 8,500-acre coastal ecosystem that took centuries to develop. The hazard events documented in this report will continue to occur. Under a changing climate, they will intensify. The wetland's capacity to buffer those events, once destroyed, cannot be reconstructed. Engineers can build bunds, but they cannot reconstruct a tidal salinity gradient. They cannot rebuild a dune-mangrove system that took centuries to form. They cannot restore the ecological complexity that the eDNA study at Muttukadu documented across 156 eukaryote species from 21 phyla.

Formal Position of Suzhal Arivom

On the basis of the hazard evidence, scientific vulnerability assessments, climate resilience principles, and community impact documentation compiled in this report, Suzhal Arivom respectfully and formally calls upon the Government of Tamil Nadu to: (1) Immediately stay all construction activities at the Nemmeli Coastal Wetland under the Mamallan Reservoir project; (2) Commission a Comprehensive Environmental Impact Assessment covering a full annual hydrological cycle of minimum 24 months, including monsoon-season surveys, coastal hazard modelling, and storm surge impact analysis under proposed reservoir conditions; (3) Formally notify the Nemmeli Wetland Complex as a protected wetland under the Wetlands (Conservation and Management) Rules, 2017; (4) Explore ecologically sound and community-centred water management alternatives as recommended by TANSEA and other expert bodies; and (5) Recognise the Great Salt Lake as the irreplaceable coastal resilience asset it is, and protect it accordingly for present and future generations. The time to intervene is now. Some decisions cannot be undone. The conversion of the Great Salt Lake is one such decision.

10. Scientific and Institutional References

All claims in this report are supported by the references tabulated below. Peer-reviewed papers are listed under prefix P; government and institutional sources under prefix G; satellite sources under prefix S.

Ref.	Author / Source	Document / Findings	Type
P-1	Gopinath G. et al. (2014)	Impact of the 2004 Indian Ocean Tsunami along the Tamil Nadu coastline: field survey review and numerical simulations. <i>Natural Hazards</i> , 72(3). DOI: 10.1007/s11069-014-1034-6	Peer-Reviewed
P-2	Morton R.A. et al. (2007)	Erosion and sedimentation at Kalpakkam (N Tamil Nadu, India) from the 26 December 2004 tsunami. <i>Marine Geology</i> , 240(1-4): 65-83. DOI: 10.1016/j.margeo.2007.02.009	Peer-Reviewed
P-3	Kumar C.S. et al. (2008)	Inundation mapping based on December 2004 Tsunami Hazard along Chennai coast, SE India. <i>Natural Hazards and Earth System Sciences</i> , 8: 617-626. DOI: 10.5194/nhess-8-617-2008	Peer-Reviewed

Ref.	Author / Source	Document / Findings	Type
P-4	Narayan J.P. et al. (2005)	Run-up and Inundation Pattern during the Indian Ocean Tsunami of December 26, 2004 along the Tamil Nadu coast. Gondwana Research, 8(4): 611-616. DOI: 10.1016/j.gr.2005.04.010	Peer-Reviewed
P-5	Rajesh R. & Bhaskaran P.K. et al. (2014)	Coastal vulnerability due to extreme waves at Kalpakkam based on historical tropical cyclones in the Bay of Bengal. International Journal of Climatology, 34(5): 1460-1471. DOI: 10.1002/joc.3902	Peer-Reviewed
P-6	Nayak S., Bhaskaran P.K., Venkatesan R. (2012)	Near-shore wave induced setup along Kalpakkam coast during an extreme cyclone event in the Bay of Bengal. Ocean Engineering, 55: 52-61. DOI: 10.1016/j.oceaneng.2012.07.005	Peer-Reviewed
P-7	Rao V.R. et al. (2013)	Storm surge vulnerability along Chennai-Cuddalore coast due to severe Cyclone Thane. Natural Hazards. DOI: 10.1007/s11069-013-0718-z	Peer-Reviewed
P-8	Rao A.D. et al. (2009)	Estimation of Extreme Water Levels Due to Cyclonic Storms: Case Study for Kalpakkam Coast. ADCIRC-2DDI modelling study. ResearchGate.	Peer-Reviewed
P-9	Thirumalaivasan D. et al. (2022)	A Multi-Data Geospatial Approach for Understanding Flood Risk in Coastal Plains of Tamil Nadu. MDPI Earth, 3(1): 23. DOI: 10.3390/earth3010023	Peer-Reviewed
P-10	Thirumalaivasan D. (2023)	Assessment of Coastal Vulnerability for Extreme Events: Chennai Coast. Ocean and Coastal Management. DOI: 10.1016/j.ocecoaman.2022.106440	Peer-Reviewed
P-11	Vasanth Kumar S. et al. (2024)	A Comparative Study on 2015 and 2023 Chennai Flooding: A Multifactorial Perspective. MDPI Water, 16(17): 2477. DOI: 10.3390/w16172477	Peer-Reviewed
P-12	Thiyagarajan G. et al. (2023)	A Study of Vardha Cyclone and its Impacts in Tamil Nadu. IJCRT, Vol. 11, No. 10. IJCRT2310591	Peer-Reviewed
P-13	Rajendran C.P. et al. (2022)	Appraisal of climate change and cyclone trends in Indian coastal states. Arabian Journal of Geosciences, 15: 10076. DOI: 10.1007/s12517-022-10076-8	Peer-Reviewed
P-14	Murugan K. et al. (2023)	Multi-Criterion Analysis of Cyclone Risk along Tamil Nadu coast: A Geospatial Approach. MDPI IJGI, 12(8): 341. DOI: 10.3390/ijgi12080341	Peer-Reviewed
P-15	Ramachandran R. et al. (2021)	Status of important coastal habitats of North Tamil Nadu: Diversity, current threats and approaches for conservation. Regional Studies in Marine Science. DOI: 10.1016/j.rsma.2021.101795	Peer-Reviewed
P-16	Chinnaraja C. et al. (2024)	Distribution, ecological risk assessment, and source identification of PTEs in Muttukadu backwater sediments. Marine Pollution Bulletin. DOI: 10.1016/j.marpolbul.2024.116341	Peer-Reviewed
P-17	Muruganandam R. et al. (2021)	Environmental DNA reveals aquatic biodiversity of an urban backwater area, southeast coast of India. Marine Pollution Bulletin, 170. DOI: 10.1016/j.marpolbul.2021.112673	Peer-Reviewed
P-18	Srinivasan M. et al. (2013)	Spatio-Temporal Variations in Water Quality of Muttukadu Backwaters, Tamilnadu. Water Environment Research, 85(7). DOI: 10.2175/106143012X13560205144812	Peer-Reviewed

Ref.	Author / Source	Document / Findings	Type
G-1	India Meteorological Department (IMD)	Cyclone Reports: Nilam (2012), Vardah (2016), Nivar (2020), Michaung (2023). Regional Meteorological Centre, Chennai.	Government
G-2	Chengalpattu District Disaster Management Plan 2021	District Collectorate, Chengalpattu, Tamil Nadu Government. Documents Vardah impact and ECR corridor infrastructure.	Government
G-3	ICMAM Project Directorate, Ministry of Earth Sciences (2008)	Tsunami Inundation Mapping: Chennai Coast, Ennore to Kovalam. NIOT Campus, Chennai.	Government
G-4	FAO (2005)	Proceedings of the Workshop on Coastal Area Planning and Management in Asian Tsunami-Affected Countries. FAO Fisheries Technical Paper. Rome.	Government/IGO
G-5	Wildlife Institute of India (WII)	Important Marine and Coastal Biodiversity Areas (ICMBAs) of India. Identifies Kovalam-Muttukadu Backwaters as one of 107 ICMBAs nationally.	Government
G-6	MoEF/EIA (2018)	Additional EIA Studies for Impact on Marine Environment: Kovalam, Thiruporur Taluk, Kancheepuram District. Environment Clearance Portal, MoEFCC.	Government
S-1	Zoom Earth HD Satellite Archive	Satellite imagery of Cyclonic Storm Nilam (2012), Cyclonic Storm Vardah (2016), Very Severe Cyclonic Storm Nivar (2020) showing cloud extent over Nemmeli coastline.	Satellite

End Note

This report is issued by Suzhal Arivom, a grassroots volunteer-based research organisation committed to local ecosystem conservation, climate change literacy, and mitigation. All data and analysis presented herein are drawn from peer-reviewed scientific literature, verified government sources, and documented field records. No claim is made beyond what the cited evidence supports. Satellite imagery is sourced from Zoom Earth HD Archive and presented under fair use for public interest environmental documentation. For further communication: suzhalarivom@gmail.com

Salt Pans as Avifaunal Habitat

The scientific case for the Nemmeli salt pans, and why freshwater impoundment would destroy them

A Conservation Evidence Note | Companion to the Nemmeli Coastal Wetland Complex Conservation Report (April 2026) | June 2026

Purpose and scope

This note sets out the peer-reviewed and official scientific evidence on how salt pans sustain waterbirds in Tamil Nadu and India. It accompanies the Kovalam - Nemmeli Coastal Wetland Complex Conservation Report (Suzhal Arivom, April 2026). The Nemmeli salt pans are former coastal wetland converted for salt production. The evidence below shows, with quantified data, that such habitats hold high avifaunal value, and that converting them into a deep freshwater reservoir would eliminate the three physical conditions, shallow depth, salinity, and a benthic prey base, on which their birds depend. Every source cited was verified in June 2026; no claim rests on assumption.

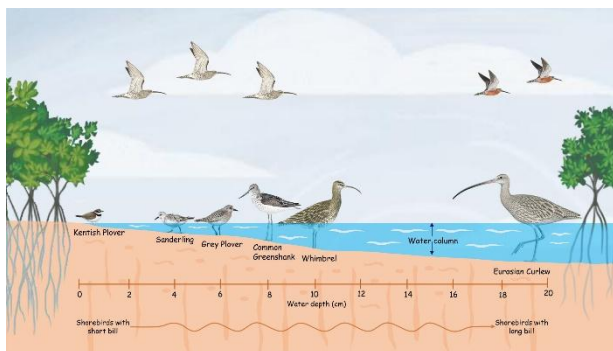
Note: Beyond its salt pans, the natural Kovalam-Nemmeli Wetland Complex boasts rich habitat diversity, including shallow waters, marshes, seasonal grasslands, mudflats, drylands, scrub, and riparian vegetation across primary brackish and freshwater zones. Collectively, these habitats are also part of Open Natural Ecosystems (ONEs), which are increasingly threatened. Crucially, the abandoned salt pans play an indispensable role in maintaining the area's ecological integrity and biodiversity

1. The mechanism: why birds need shallow, saline, prey-rich water

The avifaunal value of a salt pan is not a matter of opinion. It rests on three measurable physical conditions, each documented in peer-reviewed studies, several from India itself.

1.1 Shallow water is non-negotiable

Shorebirds and waders are mechanically constrained by the length of their legs and bills. A study of 19 shorebird species on the Indian coast confirmed that foraging water depth scales directly with bill length, and that most shorebirds will only feed where water is shallower than roughly **10 centimetres**. [3] Deepen the water beyond that and the foraging surface simply disappears for most species. This is why depth, more than any other single factor, governs where birds can feed.



This holds specifically in salt pans. In one of the world's largest coastal saltworks, researchers found that the distribution of foraging shorebirds was controlled **primarily by water depth**, and that the way to maximise a salt pan's value for birds is to **lower** water levels to expose shallow feeding surfaces. [4] A deep, embanked freshwater reservoir does the exact opposite of what the science prescribes.

1.2 Salinity builds the food supply

The prey that birds come for, benthic invertebrates such as polychaete worms, chironomid larvae and crustaceans, is itself governed by salinity. A 15-year programme on the Indian coast found prey density was driven by salinity, reaching over **1,000 invertebrates per square metre** in saline winter mudflats, and concluded explicitly that **altering freshwater inflow, for example through dams or barrages, would seriously harm prey organisms and the shorebird populations of the Central Asian Flyway that depend on them.** [5]

India already has a documented case of what freshening a coastal wetland does. After the Thanneermukkom barrage (1975) cut off saltwater and converted part of the Vembanad Ramsar estuary into a freshwater sector, benthic polychaete diversity **declined measurably over the following 30 years.** [6] The Nemmeli reservoir proposes the same intervention, blocking tidal salt water and holding fresh water, with the same predictable result for the food web.

1.3 Specialist prey cannot follow into freshwater

Some salt-pan food sources are obligately saline. Brine shrimp (*Artemia*), a staple of flamingo diets in hypersaline pans, survive across a wide salinity range but are absent in dense, harvestable concentrations from fresh water. [7] Remove the salinity and this food source, and the flamingos it supports, cannot persist.

Summary of the quantified mechanism:

Ecological variable	Documented finding (peer-reviewed)	Source
Water depth	Most shorebirds forage only where water is shallower than about 10 cm; foraging depth scales with bill and leg length. Deep water removes the foraging surface entirely.	Aarif et al. 2024 (India) [3]
Water depth (salt pans)	In one of the world's largest coastal saltworks, foraging shorebird distribution was governed mainly by water depth, not prey abundance. Helping birds means lowering water levels, the opposite of impoundment.	Lei et al. 2025, Yellow Sea [4]
Salinity and prey	Benthic invertebrate prey density was driven by salinity, exceeding 1,000 individuals/m ² in saline winter mudflats. Altering freshwater inflow (dams, barrages) is identified as a serious threat to prey and to Central Asian Flyway shorebirds.	Bhatt & Aarif et al. 2023 (India) [5]
Freshening a coastal wetland	An artificial salinity barrier (Thanneermukkom, 1975) that converted part of a Ramsar estuary to freshwater caused a measurable decline in benthic polychaete diversity over 30 years.	Vembanad estuary study 2023 [6]
Specialist prey	Brine shrimp (<i>Artemia</i>), a key flamingo food in hypersaline pans, are obligate saline-water organisms absent in dense numbers from fresh water; freshening removes them.	<i>Artemia</i> biology literature [7]

2. The Indian record: salt pans protected, not destroyed

Where India has assessed salt-marsh and salt-pan landscapes, the conclusion has consistently been that they are wetlands of high value deserving protection. Two cases are decisive.

2.1 India's largest waterbird site is a salt swamp complex

The Point Calimere / Great Vedaranyam Swamp on the Tamil Nadu coast is Ramsar Site no. 1210, designated in 2002. The listing itself describes a 385 sq km complex of **salt swamps, salt pans, mangroves, mudflats and grasslands**. [8][9] It has recorded the largest congregation of migratory waterbirds in India, peaks exceeding **1,00,000 birds**, and large wintering flamingo populations alongside globally threatened species. [10] India's premier east-coast waterbird site is, in other words, a salt-swamp and salt-pan landscape, protected at the highest level rather than impounded.

2.2 Salt pans brought under sanctuary protection: Thane Creek

On the west coast, the Thane Creek Flamingo Sanctuary protects a mosaic of mudflats, mangroves and salt pans. BNHS surveys recorded on the order of **1,21,000 flamingos** in the seascape, and identified salt-pan sites such as the Bhandup pans among the most species-rich for shorebirds, recommending they be brought formally within the sanctuary. [11][12][13] Again, the response to a working salt-pan habitat was legal protection, not conversion.

2.3 Nemmeli Salt Pans: Nationally Verified Avifaunal Data (State of India's Birds, June 2026)

The State of India's Birds (SolB) platform, operated by the Bombay Natural History Society and partner institutions, published a species report for the Nemmeli Coastal Wetland Complex on 14 June 2026, drawing on 80,103 field observations, 2,668 checklists, 1,797 unique lists, 1,830 hours of birding, and data from 619 independent observers recorded between 1900 and March 2026. This is not advocacy data. It is the same national scientific infrastructure used by the Government of India to monitor bird population trends under the National Action Plan for Migratory Birds along the Central Asian Flyway. [28]

The SolB report documents the following for the Nemmeli Coastal Wetland Complex: 236 total bird species; 91 migratory species confirming Nemmeli's role on the Central Asian Flyway; 50 High Conservation Priority species as defined by the State of India's Birds 2023 report; 8 globally threatened species per IUCN Red List; 31 Schedule I species under the Wildlife Protection Act; 1 Endangered species (Great Knot, *Calidris tenuirostris*); 7 Vulnerable species including Common Pochard, Grey Plover, Curlew Sandpiper, River Tern, Greater Spotted Eagle, Broad-billed Sandpiper, and Black-capped Kingfisher; 17 Near Threatened species including Spot-billed Pelican, Eurasian Curlew, Black-tailed Godwit, Lesser Flamingo, and Indian Courser; 2 CITES Appendix I species and 24 CITES Appendix II species; and 2 CMS Appendix I species and 97 CMS Appendix II species.

Critically, the top-ranked hotspot within the entire wetland complex is Nemmeli Salt Pans with 207 species, ranked above Kelambakkam Backwaters (204 species), Muttukadu Backwaters (179 species), Mahabalipuram Backwaters (117 species), and the Great Salt Lake opposite SSN College (111 species). The salt pans are not the least ecologically significant part of the complex. They are its most species-rich node. [28]

The SoIB Waterbird Congregations table independently confirms three species at Nemmeli that satisfy the Ramsar Convention's Criterion 6 threshold of 1% of the global biogeographic population: Painted Stork at 500 individuals (2% of global population, 1% threshold 250); Black-headed Ibis at 600 individuals (2% of global population, 1% threshold 250); and Spot-billed Pelican at 800 individuals (8% of global population, 1% threshold 100). The Spot-billed Pelican is also the most frequently reported species in the complex, appearing in 74% of all checklists, confirming it is not an occasional visitor but a resident dependent on this habitat. Any single one of these species records is independently sufficient to qualify Nemmeli for Ramsar designation under Criterion 6. [28]

These sit within a wider pattern: recent assessment of five Tamil Nadu coastal sanctuaries recorded **131 waterbird species** [14], and Indian wetland law under the Wetlands (Conservation and Management) Rules, 2017, consistent with the Ramsar Convention, expressly recognises human-made wetlands, salt pans included, as part of the protected wetland ecosystem. [15]

3. Nemmeli Already Qualifies as a Ramsar Site: The Unassessed Case

The Wetlands (Conservation and Management) Rules 2017 impose an obligation on state governments to identify and protect wetlands that satisfy Ramsar criteria. The Nemmeli Coastal Wetland Complex satisfies not one but five of the nine Ramsar criteria for Sites of International Importance, on the basis of independently verified, peer-reviewed, and nationally published data. No Ramsar screening of this site has been conducted. No such assessment accompanied the Environmental Impact Assessment for the Mamallan Reservoir. The conversion proposal has proceeded in the absence of any evaluation of whether the site it proposes to destroy already qualifies for the highest level of wetland protection under Indian and international law. [29]

3.1 Criterion 1 (Representative Wetland Type): Met

The Nemmeli Coastal Wetland Complex is an outstanding representative of a tidally influenced brackish coastal ecotone integrating six Ramsar wetland types simultaneously within a continuous 25 km corridor: estuarine waters (Type F), intertidal mudflats and salt flats (Type G), intertidal marshes (Type H), intertidal mangrove systems (Type I), seasonal freshwater marshes fed by 69 upstream lakes and tanks, and human-made salt pans (Type 5). This multi-type configuration, shaped by dual tidal influx from the Muttukadu and Kokilamedu estuaries, is largely irreplaceable within the South Asian biogeographical region. No comparable example of this specific ecotone type exists in proximity to Chennai. The salt pans are not peripheral to this qualification. They are one of the six constituent Ramsar habitat types that together make the site eligible. [29]

3.2 Criterion 2 (Threatened Species and Ecological Communities): Met

The wetland hosts 1 Endangered species (Great Knot, *Calidris tenuirostris*, IUCN 2024–2025), 7 Vulnerable species, and 17 Near Threatened species, as independently documented by the SoIB platform from 80,103 field observations. It supports 50 High Conservation Priority species as defined by the State of India's Birds 2023 report, including species experiencing population declines exceeding 80% over 30 years. The broader wetland community itself, a rare tidally influenced coastal ecotone, constitutes a threatened ecological community of exceptional regional significance. Destruction of the salt pans eliminates one of the six habitat types that collectively support this threatened community. [28][29]

3.3 Criterion 4 (Critical Life Cycle Stage and Refuge): Met

Nemmeli serves as a critical wintering and staging ground for 88 recorded migratory species travelling along the Central Asian Flyway (CAF), including Bar-tailed Godwit, Great Knot, Curlew Sandpiper, and Little Stint, species for which India supports the largest wintering populations globally. The wetland also functions as a breeding and nursery ground for prawn species and marine fish, making it critical to the life cycles of commercially important aquatic species. The first documented record of the Demoiselle Crane in the Chennai region (March 2026) was recorded at this site, confirming its function as a refuge for rare and displaced migratory species during adverse conditions. [29]

3.4 Criterion 5 (20,000 or More Waterbirds): Met

Field surveys during the 2025–2026 winter season documented a peak count of approximately 45,000 birds across the 25 km wetland corridor, well exceeding the 20,000-bird threshold. This included over 16,000 migratory ducks representing the largest duck congregation recorded in the South Chennai region during that season. The site has been consistently surveyed as part of the Tamil Nadu Synchronized State Level Wetland Survey since 2023 and contributes data to the Asian Waterbird Census coordinated by Wetlands International South Asia. (Rapid Environmental Impact Assessment, Mamallan Reservoir) [29]

3.5 Criterion 6 (1% of Global Population): Met for Three Species

Three species independently satisfy this criterion at Nemmeli: Spot-billed Pelican at up to 600 individuals (6% of global population, 1% threshold 100); Painted Stork at up to 500 individuals (2% of global population, 1% threshold 250); and Black-headed Ibis at up to 600 individuals (2% of global population, 1% threshold 250). Any single species record satisfying Criterion 6 is, in itself, independently sufficient to qualify a site for Ramsar designation. Nemmeli satisfies it for three species simultaneously. [29]

3.6 The Legal Consequence: A Ramsar-Qualifying Site Cannot Be Converted Without Assessment

Under the Wetlands (Conservation and Management) Rules 2017, any wetland satisfying Ramsar criteria is eligible for notification as a wetland of importance under Rule 3. The Rules impose obligations on state governments to identify, assess, and protect such wetlands. The Kovalam–Muttukadu Backwaters corridor, within which the Nemmeli salt pans sit, is already designated as an Important Marine and Coastal Biodiversity Area (ICMBA) by the Wildlife Institute of India, one of 107 such nationally designated sites. [30] The proposed conversion of the Nemmeli salt pans has proceeded without any Ramsar screening, without any EIA addressing the wetland’s avifaunal values under the framework of the Wetlands Rules 2017, and without any formal assessment of whether the site constitutes a protected wetland under Rule 3. This is not merely a procedural gap. It is a substantive failure to apply the legal framework that exists precisely to prevent the irreversible destruction of internationally significant wetland habitat.

Site / Study (India)	Salt pan – Marsh character	Documented avifaunal value
Point Calimere / Great Vedaranyam Swamp, Tamil Nadu (Ramsar Site 1210)	385 sq km complex explicitly comprising salt swamps, an unsurveyed salt swamp, salt pans, mangroves, mudflats and grasslands.	Largest migratory waterbird congregation recorded in India, peaks above 1,00,000 birds ; large Greater Flamingo wintering populations and globally threatened species. [8] [9] [10]

Site / Study (India)	Salt pan – Marsh character	Documented avifaunal value
Point Calimere (Kodikkarai) salt pans, Tamil Nadu	Five traditional coastal salt pans, monitored with their benthic invertebrate prey base for one year.	Up to 44 waterbird/shorebird species ; bird density positively tracked benthic prey density ($P < 0.05$). [1] [2]
Ramanathapuram coastal sanctuaries, Tamil Nadu	Salt-influenced tank and marsh sanctuaries, including two Ramsar sites.	131 waterbird species across five sanctuaries, confirming the southeast coast's role on the Central Asian Flyway. [14]
Thane Creek Flamingo Sanctuary, Mumbai	Mudflat, mangrove and salt-pan mosaic (including the Bhandup salt pans), water levels tide- and gate-controlled.	BNHS recorded around 1,21,000 flamingos ; salt-pan sites ranked among the most species-rich for shorebirds and recommended for sanctuary protection. [11] [12] [13]

4. Avifauna in Tamil Nadu Salt Pans: Recent Media Evidence

The peer-reviewed record presented is corroborated by a pattern of recent field observations reported across Tamil Nadu's salt pans. Media coverage from 2025–2026 documents repeated, large-scale congregations of migratory and resident waterbirds in salt pan habitats in Nemmeli and along the state's coast, providing real-world confirmation that these landscapes function as critical avifaunal refuges well beyond the Nemmeli complex.

The following ground-level observations from across Tamil Nadu confirm, site by site, what the peer-reviewed science in Section 1 predicts: salt pans with shallow, saline, prey-rich conditions attract and sustain diverse waterbird assemblages, including globally threatened species.

4.1 Greater Flamingos Recorded at Nemmeli Salt Pans (September 2025)

Of particular relevance to this evidence note is a report by The Hindu documenting Greater Flamingos lingering in the Nemmeli salt pans themselves. This is not a sighting from a distant Tamil Nadu location: it is a direct, named observation at the very site under threat. The significance is considerable. Greater Flamingos are obligate shallow-water foragers whose presence is tied to salinity, benthic prey, and open, undisturbed habitat conditions, precisely the three conditions identified in Section 1 of this note. Their documented use of the Nemmeli salt pans places the theoretical mechanism on record as a ground-truth observation: the habitat functions as described, and it is doing so at Nemmeli [\[16\]](#). A deep freshwater reservoir would eliminate every one of the physical conditions that brought these birds here.



4.2 Thoothukudi Salt Pans: A Recurring Pattern of Avifaunal Significance (2025-2026)

The following pattern from Thoothukudi demonstrates that Nemmeli is not an isolated case but part of a statewide ecological dynamic: Tamil Nadu's salt pans, whether in active production, temporarily flooded, or abandoned, repeatedly and measurably attract diverse and globally significant waterbird assemblages.

Across 2025 and 2026, the salt pans of Thoothukudi have produced a consistent and independently corroborated record of high avifaunal activity, spanning multiple seasons, species groups, and observation methods.

In December 2025, heavy rainfall temporarily transformed the suburban salt pans into shallow wetlands. Multiple waterbird species colonised them almost immediately, and aquatic invertebrate and small-fish populations rose sharply [20]. Forest Department officials described the congregation as ecologically significant, noting that the episode "highlights the ecological value of such landscapes beyond their commercial use."

Building on this, ATREE and the Muthunagar Nature Trust conducted a formal three-day aquatic bird population census in January 2026, documenting migratory and resident species across the same salt pan habitats[19]. Large numbers of Rosy Starlings migrating from Northwest Asia and Eastern Europe were recorded. Researchers described the census data as a vital baseline for future wetland conservation, recognising that salt pans function as critical temporary refuges during migration. This was not casual observation; Tamil Nadu's salt pans are being actively and formally enumerated as conservation-significant landscapes.

That same month, large flocks of the Black-headed Ibis were recorded in the salt pans alongside Spoonbills and Oriental Darters[18]. Ornithologists attributed the congregation directly to the shallow, food-rich conditions of the salt pan environment and described it as a positive indicator of gradual coastal and wetland ecosystem recovery.

By June 2026, large flocks of migratory Greater and Lesser Flamingos were reported in the same salt pans [17], prompting conservation experts to call for stronger habitat protection. Researchers from ATREE noted that coastal salt pans, creeks and shallow water bodies provide the feeding and resting conditions flamingos require. Concern was also raised that pollution from domestic and industrial sources is degrading habitat quality. The Tamil Nadu government's designation of Dhanushkodi as a flamingo sanctuary was welcomed, though experts stressed that protection must extend across the coast.

Taken together, Thoothukudi's salt pans are not incidentally used by birds. They are actively, repeatedly and measurably depended upon salt pans, whether in active production, abandoned, temporarily flooded, attract and sustain diverse and sometimes globally threatened waterbird assemblages. They do so because they provide the exact conditions, shallow water, saline substrates, and invertebrate prey, that the peer-reviewed science identifies as irreplaceable. The Nemmeli salt pans are not an isolated case; they are part of a statewide pattern of avifaunal dependence on this habitat type. Eliminating them through freshwater impoundment removes a node in that wider ecological network.

4.3 Puthalam Salt Pans, Kanyakumari: 224 Species and State-First Records (2025)

The salt pans at Puthalam in Kanyakumari district, located approximately 10 km northwest of Kanyakumari town between the Manakudy estuary and the Indian Ocean, are among the most ornithologically significant salt pan sites on the Tamil Nadu coast. These are active, working salt pans in continuous production since the British colonial period, not abandoned or converted sites. [21]

With 224 bird species recorded on eBird to date, Puthalam holds the highest documented species count of any Tamil Nadu salt pan site referenced in this note. The site functions as an essential wintering, feeding, and roosting ground for migratory waders from distant continents. Species recorded include flamingos, ibises, pelicans, storks, terns, plovers, stints, ducks, egrets, and sandpipers. BNHS Deputy Director Dr S. Balachandran, whose hometown is 5 km from Puthalam, regularly monitors the site, conducting headcounts and recording the arrival and departure of migratory species. [21][22]

In August and September 2025, Puthalam produced two state-first ornithological records for Tamil Nadu. The Arctic tern (*Sterna paradisaea*), renowned for undertaking the longest annual migration on earth at nearly 70,000 km between the Arctic and Antarctic, was recorded at Puthalam on 13 September 2025, only the fifth confirmed sighting anywhere in India. The following day, the white-cheeked tern (*Sterna repressa*) was also recorded, a first for Tamil Nadu. In the same period, the red knot (*Calidris canutus*) and the red-necked stint (*Calidris ruficollis*), both near-threatened species of Arctic origin, were also documented at the site. [21]

Puthalam carries an additional precedent directly relevant to Nemmeli. The salt pans around the Manakudy estuary were previously earmarked for airport construction. The pans, which attracted birds in thousands and where greater flamingos were permanent residents, faced destruction. Strong public protests backed by forest department survey data ultimately saved the habitat. [23] The Nemmeli case presents the same conservation question: a salt pan of documented avifaunal significance facing conversion to an incompatible land use. The Puthalam outcome demonstrates that the scientific and public case for salt pan protection can and does succeed.

5. Answering the obvious objection

“If salt pans are themselves artificial, why is replacing them with another artificial water body a problem?”

Because the value of a salt pan to birds comes from specific physical conditions, not from the fact that it is human-made. The evidence in Section 1 shows those conditions are **shallow water, salinity, and a salinity-built prey base**. A salt pan retains all three. A deep freshwater reservoir behind raised bunds retains none: it is too deep to forage in, too fresh to grow the invertebrate prey, and sealed off from the tidal exchange that sustains the system. The two are not interchangeable “artificial wetlands”; one preserves the wetland’s biological function and the other extinguishes it. The Vembanad barrage case [6] is the proof, from India’s own record, that freshening a coastal wetland degrades its benthic life.

This is stated plainly so the argument cannot be misread: the case for Nemmeli does not depend on calling salt pans pristine. It rests on the documented fact that this former-wetland-turned-salt-pan still performs the ecological functions recorded in the base report, nearly **45,000 birds at peak** and up to **6% of the**

global Spot-billed Pelican population (Rapid Environmental Impact Assessment, Mamallan Reservoir), and that deep freshwater impoundment would end them.

5.1 The scientifically sound alternative: managed natural reversion, not impoundment

Salt pans are human-made structures that altered natural coastal wetlands, representing a significant land-use change along the Indian coast. Over the decades since their creation, however, they have undergone ecological succession and now function as surrogate wetlands supporting diverse avifauna. Peer-reviewed research comparing active salt pans in Sri Lanka to a natural lagoon within the Bundala Ramsar site found that the two habitats shared similar physico-chemical properties and waterbird communities, though with lower biodiversity in the salt pans, confirming that artificial salt pans support waterbirds but cannot fully replace natural wetland function. [24]

Given the long timescales of ecological recovery, it is not scientifically advisable to dismantle salt pans through freshwater impoundment. Peer-reviewed evidence shows that saltmarsh vegetation can take approximately 100 years to develop to a composition comparable to nearby natural marshes. [25] A global meta-analysis further found that longer abandonment duration has a positive impact on waterbird richness in restored habitats, confirming that ecological succession, if allowed to proceed undisturbed, produces measurable biodiversity gains over time. [26] Abrupt freshwater impoundment short-circuits this succession entirely and replaces a functioning surrogate wetland with a system that, as the Vembanad evidence demonstrates, actively degrades the benthic food web that waterbirds depend on.

The sustainable alternative is to allow the Nemmeli salt pans to gradually revert to their natural state, whether as coastal wetland, intertidal mudflat, or salt marsh, preserving both their current biodiversity value and their potential for long-term ecological restoration. Nature-based solutions including managed coastal realignment and tidal restoration have been shown in peer-reviewed literature to jointly deliver coastal habitat and waterbird benefits, and are increasingly adopted as the preferred intervention over hard engineering. [27] This reframes the conservation ask: not to freeze the salt pans in their current state indefinitely, but to protect them from irreversible conversion and allow natural ecological processes to determine their trajectory.

5.2 The Salt Pans Are Not the Starting Point — They Are the Middle of a 2,000-Year Conversion Story

The revenue land terms themselves confirm the natural origin of this landscape. Uppangazhi (உப்பங்கழி) literally means uppu (salt) plus kazhi (tidal creek or mangrove backwater), translating as “salt tidal creek” or “salt backwater.” The word kazhi in Tamil denotes a tidal creek or estuarine backwater, unmistakably a natural coastal wetland feature. Kazhuveli (கழுவேலி) means “passage to backwaters” or tidal flood plain, denoting a brackish tidal wetland landscape. These are not wasteland classifications. They are wetland classifications that encode the prior natural state of the land in their very names. The government’s own REIA for the Mamallan Reservoir confirms that the Great Salt Lake is hydraulically connected to the Bay of Bengal through the Kovalam and Kokilamedu estuaries. A land parcel that retains active tidal connectivity with the Bay of Bengal is, by the Ramsar Convention’s own definition, a functioning coastal wetland. [31]

Sangam classical Tamil poetry dated to approximately 200 BCE to 300 CE directly describes salt being extracted from the tidal brackish coastal backwaters of this coastline. Two verses from the Natrinai anthology are directly relevant: “The dark brackish waters produce white salt” (இருங்கழிச் செறுவின் வெள் உப்பு விளையும், Natrinai 311:4) and “They are harvesting salt without plowing” (உவர் விளைவு உப்பின் உழா உழவர், Natrinai 331:2). The key Tamil word in Natrinai 311:4 is iruṅkazi (இருங்கழி), meaning dark backwater or estuary, confirming that the salt was extracted from a tidal estuarine setting. This is not evidence that these lands were salt pans by nature. It is evidence that they were tidal wetlands that humans modified for salt production at least 2,000 years ago. [32]

Peer-reviewed satellite remote sensing of the Chennai coast, covering the lake near Nemmeli and Muttukadu creek across four epochs of Landsat imagery from 1988 to 2016, documented a 32% reduction in wetland cover in this corridor over 28 years, with salt pans and aquaculture among the documented conversion drivers. [33] The REIA itself acknowledges that the Kelambakkam–Kovalam Link Road blocks a 1.7 km wide floodplain, and that the East Coast Road runs as a 6.5-metre-high embankment severing tidal exchange. The wetland’s current degraded condition is a consequence of prior government-built infrastructure, not evidence that this landscape was never a wetland. A peer-reviewed study published in 2024 confirms that the Buckingham Canal connects the Great Salt Lake directly to Muttukadu Backwater, establishing that the Nemmeli salt pans, the Great Salt Lake, and the Muttukadu corridor form a single, hydrologically continuous coastal system. [34] Destroying the salt pan node does not merely affect that node. It severs a functioning link in a connected tidal ecosystem.

On 16 February 2026, 22 leading scientists including ecologists, ornithologists, coastal hydrologists, marine social scientists, and contributors to national and global climate assessments submitted a formal petition to the Chief Minister of Tamil Nadu and the Additional Chief Secretary (Environment, Climate Change and Forests), explicitly stating that the Kovalam–Nemmeli backwater is not an inland freshwater depression but a tidal-marsh ecotone hydraulically connected to the Bay of Bengal, that salt marshes support benthic invertebrates, serve as breeding grounds for fish and prawns, sustain migratory birds, and protect coastlines from erosion and storm surges, and that converting this ecotone into a freshwater reservoir would destroy all these ecological functions within a single season. This is the on-record expert scientific consensus, placed before the government in writing. The conversion proposal has proceeded regardless. [35]

The proposed Mamallan Reservoir would be the third major conversion of this landscape: from natural tidal marsh to managed salt pan (ancient, approximately 2,000 years ago, confirmed by Sangam literature and peer-reviewed soil science); from active salt pan to a partially degraded but still tidally functioning wetland (modern, as the ongoing tidal connectivity confirmed by the REIA itself demonstrates); and now from a functioning wetland to a freshwater reservoir (proposed). Each conversion has moved further from ecological integrity. Natural reversion is not a speculative future state. It is a return to a documented prior condition, the tidal connectivity for which still exists beneath the landscape, as the government’s own documents confirm. Abrupt freshwater impoundment makes that return impossible. [31][33]

6. Conclusion

The scientific record, much of it from India and Tamil Nadu, converges without contradiction: Salt pans sustain rich and internationally significant waterbird populations because they hold shallow, saline, prey-rich water and provide high-tide and dry-season refuge. India protects its largest such site as a Ramsar wetland and has brought comparable salt pans under sanctuary status. The measurable conditions that give these habitats their value, shallow depth, salinity, and a benthic prey base, are precisely the conditions a deep freshwater reservoir destroys, as India's own Vembanad barrage experience demonstrates.

On this evidence, the Nemmeli salt pans are a habitat of demonstrable and quantifiable conservation value, and the proposed freshwater impoundment would not modify that habitat but eliminate it. Along with other habitats, it is well established that the salt pans form a critical part of Kovalam-Nemmeli's biodiversity. Suzhal Arivom calls on decision-makers to recognise the Nemmeli wetland complex for what the evidence shows it to be: a living, functioning coastal ecosystem supporting internationally significant wildlife, and to pursue the course that science, Indian law, and global conservation practice all support, protecting its shallow brackish hydrology, rejecting irreversible freshwater impoundment, and allowing this former coastal wetland to complete, in its own time, the ecological recovery that human use interrupted. The course supported by the science and by Indian precedent is **to protect and manage the Nemmeli wetland complex, maintaining its shallow brackish hydrology, not to impound it.**

This evidence note has been prepared by Suzhal Arivom in the interest of conserving the Kovalam-Nemmeli Coastal Wetland Complex and protecting its internationally significant avifauna from irreversible habitat loss. It is ecological, scientific, and fact-based, drawing on peer-reviewed literature verified in June 2026, official Ramsar and government records, and field observations from the Nemmeli salt pans and the broader Tamil Nadu coast. Every quantified claim is attributed to its source. Claude was used solely for document structuring. We request all stakeholders, decision-makers, and readers to receive this note in the spirit of ecological responsibility, and to act on the weight of evidence it presents: to protect the Nemmeli wetland complex, reject freshwater impoundment, and allow this former coastal wetland to recover on its own ecological terms. For communication: suzhalarivom@gmail.com

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Issued by Suzhal Arivom, a volunteer-driven environmental research and conservation organisation in Tamil Nadu, as a companion evidence note to the Nemmeli Coastal Wetland Complex Conservation Report (April 2026). Contact: suzhalarivom@gmail.com

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A Plant That Hunts

Record of an Insectivorous Plant from the Nemmeli Coastal Wetland and a Call for Its Protection

***Drosera burmannii* (Burmans Sundew / Azhukanni)**

Family: Droseraceae | Order: Caryophyllales

Nemmeli Coastal Wetland Complex, Chengalpattu District, Tamil Nadu

Observed by

Suzhal Arivom Volunteers

Date of Sighting

21 January 2026

Location

Nemmeli Coastal Wetland Complex
Chengalpattu District, Tamil Nadu

Report Date

February 2026

Notice: This report presents a field observation record of *Drosera burmannii* (Burmans Sundew / Azhukanni) from the Nemmeli Coastal Wetland Complex and simultaneously serves as conservation evidence against the proposed Mamallan Reservoir project, construction of which commenced in January 2026. The species documented here was entirely absent from the Rapid Environmental Impact Assessment (REIA) conducted for that project. This report is a companion document to the Suzhal Arivom Conservation Report on Nemmeli Coastal Wetland Complex (April 2026) and the Species Nursery Documentation Report (April 2026).

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Photographed at Nemmeli Coastal Wetland Complex, by Suzhal Arivom Volunteers. **What you see is a butterfly being trapped and slowly digested by a plant. This plant grows in the coastal grassland that the Mamallan Reservoir project will permanently destroy.**

1. Overview

On 21 January 2026, Suzhal Arivom Volunteers documented an established colony of *Drosera burmannii*, commonly known as Burmann's Sundew or Azhukanni in Tamil, within the open coastal grassland of the Nemmeli Coastal Wetland Complex, Chengalpattu District, Tamil Nadu. The colony was recorded across five GPS-verified locations, with multiple mature rosettes actively trapping prey.

The significance of this finding lies not in the plant alone but in what its presence tells us about the place where it grows. *Drosera burmannii* is a strict habitat specialist. It establishes only in undisturbed, nutrient-poor, seasonally waterlogged ground. Its colony at Nemmeli is biological confirmation that this coastal grassland remains ecologically intact.

Construction of the Mamallan Reservoir commenced in January 2026. The proposed project will permanently impound this coastal wetland under a freshwater reservoir. The grassland where this colony was documented falls in and around the project footprint. This report places that fact on record.

2. Meet the Plant: *Drosera burmannii* (Azhukanni)

Most people have never heard of a plant that hunts animals. *Drosera burmannii* is one. It is small enough to sit in the palm of your hand, around 2 to 3 cm and grows flat against the soil in a circular arrangement of leaves called a rosette. Each leaf is fringed with red, hair-like structures tipped with glistening droplets. Those droplets are not dew. They are a trap.



Mature rosette of *Drosera burmannii*, Nemmeli Coastal Wetland, 21 January 2026.

The plant secretes a sweet nectar from these red tentacles to attract insects. When an insect lands and makes contact, the outer snap-tentacles respond. Research by Gibson and Waller (2009) documented that these tentacles move 180 degrees in 5 to 15 seconds, pushing the prey into the sticky centre of the leaf. The mucilage then envelops the insect, blocking its breathing pores. The prey dies within 15 minutes. The plant then digests it over several days, absorbing the nitrogen and phosphorus it cannot obtain from the poor soil it lives in. [Ref: A-I, A-II]

A peer-reviewed study on *Drosera burmannii* specifically documents that carnivorous plants of this genus consume mosquitoes, midges, and other disease-transmitting flies as prey. [Ref: A-III] Ants are attracted to its nectar and are among its most commonly trapped prey. [Ref: A-IV] Our own photograph from Nemmeli on 21 January 2026 documents a butterfly being actively digested by this plant, confirming that it can trap and consume prey significantly larger than itself.

Drosera burmannii is an annual plant. It germinates with the monsoon rains, grows through the post-monsoon cool period, flowers between December and February, sets seed, and dies as the ground dries in March to April. One season. One chance. No recovery if the habitat is destroyed.

Its Tamil name is Azhukanni. It has been recorded across Tamil Nadu and the Indian subcontinent, but its occurrence in a coastal wetland grassland at near sea-level elevation in the Nemmeli Coastal Wetland Complex has not been previously documented in published literature.

3. The Sighting: What We Saw and Where

Observer: Suzhal Arivom Volunteers

Date: 21 January 2026

Location: Nemmeli Coastal Wetland Complex, Chengalpattu District, Tamil Nadu

Habitat: Open black clay coastal grassland, within CRZ zone, near sea level

GPS elevation range: -1.73 m to +2.59 m

Five photographs were taken at five separate GPS-stamped locations within a small area of the coastal grassland, as recorded below.

Photo	Latitude	Longitude	Elevation	Time	Field Note
Image 4	12.688132 N	80.209552 E	-1.08 m	12:12	Grassland
Image 5	12.688131 N	80.209552 E	-1.73 m	12:12	Grassland
Image 3	12.688082 N	80.209480 E	0.59 m	12:16	-
Image 1	12.688069 N	80.209478 E	2.59 m	12:17	-
Image 2	12.688045 N	80.209496 E	-1.41 m	12:18	-



Colony in open black clay coastal grassland, Nemmeli Coastal Wetland Complex, 21 January 2026.



Two mature rosettes of *Drosera burmannii*. GPS coordinates visible. Nemmeli, 21 January 2026.

The photographs confirm three things collectively. First, multiple mature rosettes are present across five GPS points, confirming this is an established colony and not a stray individual. Second, active trapping is documented: a butterfly is being digested in real time in Image 6. Third, the surrounding habitat is open, undisturbed black clay coastal grassland, consistent with the specific soil and moisture requirements of this species.

4. Why Is This Plant Here? Reading the Habitat

Drosera burmannii does not grow just anywhere. Its presence at a location is a precise statement about the ecological condition of that location. Understanding what this plant needs to survive is the same as understanding what Nemmeli's coastal grassland is providing.

Soil

Drosera burmannii establishes only in nutrient-poor, acidic soils with a pH range of 5.2 to 6.0. [Ref: A-V] It cannot survive in ground that has been enriched by fertiliser runoff, altered by construction material, or compacted by vehicle movement. Its presence in the Nemmeli coastal grassland confirms that the black clay soil here is chemically undisturbed. This is not degraded land. This is ecologically intact ground.

Water

The plant requires ground that is seasonally waterlogged but not permanently flooded. The GPS elevation data from our sighting (-1.73 m to +2.59 m above sea level) confirms that this colony exists within the post-monsoon tidal fringe of the coastal wetland, where the land floods with the northeast monsoon and slowly dries through the winter. This is exactly the natural hydrological rhythm of a functioning coastal wetland, and *Drosera burmannii* is here because that rhythm has not been disrupted.

Disturbance

Drosera burmannii is among the first plant species to disappear when a habitat is cleared, compacted, or chemically altered. An established, reproducing colony at Nemmeli means this grassland has remained free from significant anthropogenic disturbance. This is a coastal grassland that has held its ecological integrity despite decades of development pressure on the landscape surrounding it.

Drosera burmannii is a living ecological certificate. Its colony at Nemmeli confirms intact soil chemistry, functioning seasonal hydrology, and an undisturbed grassland surface. These are the same conditions that sustain the 236 bird species, the estuarine nursery, the mangroves, and the fishing communities documented in companion Suzhal Arivom reports. This plant is here because Nemmeli, despite everything, remains ecologically whole.

5. What the REIA Did Not Record

The Rapid Environmental Impact Assessment conducted for the Mamallan Reservoir project was carried out over six days, from 31 October to 5 November 2025. It documented 233 plant species across the project area. Not one insectivorous plant appears anywhere in that list. *Drosera burmannii* is absent.

Suzhal Arivom Volunteers visited the same coastal grassland on 21 January 2026, less than three months after the REIA survey was completed. We found an established colony across five GPS-verified locations. The plants were mature, actively trapping prey, and in reproductive stage. A butterfly was being digested in real time.

Drosera burmannii is an annual plant. At the time of the REIA survey in late October and early November, plants germinated by the monsoon would have been at the seedling stage, a few millimetres tall, growing flat against dark soil, requiring targeted ground-level searching in the specific microhabitat they occupy. By January they are fully visible, mature, and impossible to miss with a careful survey. The REIA surveyed at the wrong point in this plant's annual life cycle and without methodology designed to detect specialist microhabitat species.

On Record: The absence of *Drosera burmannii* from the REIA flora list is not a minor data gap. It raises a direct question: if an insectivorous plant colony thriving across five GPS-verified locations in and around the proposed construction footprint was not recorded in a six-day survey, what else was not documented? A Rapid EIA conducted over six days during the one season cannot characterise the biodiversity of a seasonally dynamic 8,500-acre coastal wetland. The Mamallan Reservoir project is being built on the basis of an incomplete ecological record.

6. A Call for Protection

The Nemmeli Coastal Wetland is not an empty patch of land awaiting development. It holds 236 bird species including species listed as Endangered, Vulnerable, and Near Threatened on the IUCN Red List. It holds 31 species under Schedule I of the Wildlife Protection Act 2022. It is an estuarine nursery for 13 obligate brackish-water fish and shellfish species documented by Suzhal Arivom (Species Nursery Documentation Report, April 2026). It hosts the nearest mangrove stand to South Chennai. It sustains 16 fishing villages. And it holds an established, reproducing colony of an insectivorous plant that certifies its ecological integrity with its very presence.

Drosera burmannii is here because the conditions are right: the soil is intact, the water cycle is functioning, and the land is undisturbed. The Mamallan Reservoir project will permanently flood this grassland under a freshwater impoundment behind a 4.5-metre embankment. The colony documented in this report will be lost. As an annual plant with no perennial root structure, it cannot be relocated. Its seed bank will be destroyed the moment construction moves the earth. The loss is permanent.

Suzhal Arivom calls on the Government of Tamil Nadu and all relevant authorities to:

- Impose an immediate stay of all construction activities at the Nemmeli Coastal Wetland under the Mamallan Reservoir project, pending a Comprehensive Environmental Impact Assessment.
- Commission a full annual hydrological cycle survey of minimum 24 months, including monsoon-season flora surveys, to establish an accurate and complete ecological baseline.

- Formally notify the Nemmeli Coastal Wetland Complex as a protected wetland under the Wetlands (Conservation and Management) Rules, 2017.
- Initiate the process for Ramsar Site nomination for the Nemmeli-Kovalam Coastal Wetland Complex, which demonstrably meets multiple Ramsar criteria.

7. Photographic Evidence

All photographs were taken by Suzhal Arivom Volunteers on 21 January 2026 at the Nemmeli Coastal Wetland Complex, Chengalpattu District, Tamil Nadu. GPS coordinates, elevation, and timestamp are embedded in each original image file.



Image 6: Butterfly trapped and being actively digested by *Drosera burmannii*. Nemmeli Coastal Wetland.



Image 1: Mature rosette of *Drosera burmannii*, Lat: 12.688069 N, Long: 80.209478 E. 21 January 2026.



Image 3: Two mature rosettes of *Drosera burmannii* in coastal grassland habitat. Lat: 12.688082 N, Long: 80.209480 E. 21 January 2026.



Image 4: Colony of *Drosera burmannii* in open black clay coastal grassland. Multiple individuals visible. Lat: 12.688132 N, Long: 80.209552 E. 21 January 2026.

8. Citation Index

Group A: Peer-Reviewed and Scientific

Ref.	Author / Source	Citation / Finding
A-I	Gibson & Waller (2009). International Carnivorous Plant Society.	Snap-tentacle movement in <i>Drosera burmannii</i> documented at 5 to 15 seconds. Basis for trapping speed cited in Section 2.
A-II	Adamec L. et al. (2012). PMC / Annals of Botany.	Prey digestion and death through asphyxiation within 15 minutes. Cited in Section 2.
A-III	Ellison A.M. & Gotelli N.J. (2009). American Journal of Botany. PMC peer-reviewed.	Carnivorous plants including <i>Drosera burmannii</i> consume mosquitoes, midges, and disease-transmitting dipterans. Cited in Section 2.
A-IV	JLR Explore Field Reference (2023). <i>Drosera: The World of Carnivorous Plants</i> .	<i>Drosera burmannii</i> specifically attracts and traps ants with sweet nectar. Cited in Section 2.
A-V	Kali Tiger Reserve Study. International Journal of Environmental Sciences, 14(1), 2025.	<i>Drosera burmannii</i> habitat: nutrient-poor acidic soil, pH 5.2 to 6.0, moist open ground. Cited in Section 4.
A-VI	Bakshi M.K. et al. (2017). Indian Forester, 143(6): 612-613.	Record of <i>Drosera burmannii</i> from Palamau Tiger Reserve, Jharkhand. Indian peer-reviewed field record.
A-VII	India Biodiversity Portal / Centre for Floristic Research, Madras Christian College, Tambaram.	<i>Drosera burmannii</i> : species description, flowers in erect racemes, distribution across all districts of Tamil Nadu. Flora of Tamil Nadu, Gamble (1919).

Group B: Government and Regulatory

Ref.	Author / Source	Citation / Finding
B-I	REIA: Mamallan Reservoir, Kovalam Sub Basin, Chengalpattu District. November 2025. Prepared by M/s Hubert Enviro Care Systems (P) Ltd for Water Resources Department, Tamil Nadu.	Six-day site visit (31 Oct to 5 Nov 2025). 233 plant species recorded. Zero insectivorous plants documented. Cited in Section 5.

Group E: Companion Suzhal Arivom Documents

Ref.	Author / Source	Citation / Finding
E-I	Suzhal Arivom. Nemmeli Coastal Wetland Complex: Ecological Significance, Anthropogenic Threats, and Conservation. April 2026.	Primary companion conservation report. 236 bird species, avifaunal significance, REIA critique, legal gaps, recommendations. Suzhal Arivom Conservation Report on Nemmeli Coastal Wetland Complex (April 2026)
E-II	Suzhal Arivom. Kovalam-Nemmeli Coastal Wetland Complex: Species Nursery Documentation Report. April 2026.	13 obligate estuarine nursery species documented. Scientific case against reservoir conversion of estuarine habitat. Suzhal Arivom. Kovalam-Nemmeli Coastal Wetland Complex: Species Nursery Documentation Report

End Note

This report is issued by Suzhal Arivom. Field observation by Suzhal Arivom Volunteers, 21 January 2026. It documents the presence of *Drosera burmannii* (Burmans' Sundew / Azhukanni) within the Nemmeli Coastal Wetland Complex, Chengalpattu District, Tamil Nadu, and simultaneously serves as conservation evidence against the proposed Mamallan Reservoir project. The insectivorous plant colony documented here was entirely absent from the Rapid Environmental Impact Assessment conducted for the reservoir project, confirming that the six-day survey was inadequate in duration, seasonal coverage, and ecological methodology. This report is a companion document to the Suzhal Arivom Conservation Report on Nemmeli Coastal Wetland Complex (April 2026) and the Species Nursery Documentation Report (April 2026). Issued in exercise of the right to information and the duty of care toward the environment under the precautionary principle and the public trust doctrine.

Contact: suzhalarivom@gmail.com

Kovalam-Nemmeli Wetland Complex: Field Evidence of an Active Avian Breeding Landscape

(Open Natural Ecosystem: A Seasonal Cradle of Life)

Prepared by

Suzhal Arivom

Reg. No. BK-4/9/2025 | Tamil Nadu, India

June 2026

Companion documents: Nemmeli Coastal Wetland Complex Conservation Report (April 2026) and
Kovalam-Nemmeli Wetland Complex Raptor Wintering Site Documentation Report (May 2026)

NOTICE: PURPOSE OF THIS REPORT

This report presents field-documented evidence establishing the Kovalam-Nemmeli Coastal Wetland Complex as an active and thriving breeding ground for birds. The observations recorded here were made over approximately three years of random field visits covering an estimated 35 percent of the accessible landscape. They do not constitute a complete or systematic survey. The actual number of breeding species at this site is expected to be substantially higher, and can only be determined through a dedicated full annual cycle ecological survey.

Companion to: Nemmeli Coastal Wetland Complex Conservation Report (Suzhal Arivom, April 2026) and Kovalam-Nemmeli Wetland Complex Raptor Wintering Site Documentation Report (Suzhal Arivom, May 2026) [20]. Site overview, Ramsar criteria, and legal framework are in those documents and are not repeated here.

The report is addressed to environmental authorities, administrators, practitioners, and the general public. Its purpose is constructive: to place documented ecological evidence in the right hands so that informed decisions can be made about the future of this landscape.

Contents

1. Site Context and Geographic Scope
2. Breeding Bird Inventory: What We Have Found
3. Gaps in the Current Environmental Assessment
4. A Wetland Complex in Full Life
5. Born on Borrowed Ground: The Oriental Pratincole at Nemmeli
6. South Chennai's Last Ground-Nesting Sanctuary
7. The Way Forward

References

End Note

1. Site Context and Geographic Scope

The Kovalam-Nemmeli Coastal Wetland Complex is a continuous 25-kilometre coastal grassland and wetland mosaic stretching from the Muttukadu estuary (Kovalam Creek) in the north to the Kokilamedu estuary near Mamallapuram in the south. It lies between the Old Mahabalipuram Road (OMR) to the west and the East Coast Road (ECR) to the east, in Chengalpattu District, Tamil Nadu (centred approximately 12.65 degrees N, 80.24 degrees E).

The site covers a total area of 8,408.26 acres (3,404 hectares) across Thiruporur and Thirukazhukundram Taluks, classified in revenue records as Uppangazhi (salt pan) and Kazhuveli (marshy backwater) land. It is prioritised as an Important Marine and Coastal Biodiversity Area (ICMBA) by the Wildlife Institute of India and meets multiple Ramsar Convention criteria for sites of international importance. [19] [3]

1.1 Habitat Mosaic

The complexity of life at this site is rooted in its habitat diversity. Across the 25-kilometre stretch, the landscape transitions between:

- Open saltpan and cracked mudflat (Uppangazhi): bare and semi-bare ground with sparse halophytic vegetation, characteristic of the Nemmeli and Buckingham Canal areas. This is primary breeding habitat for ground-nesting shorebirds, pratincoles, lapwings, and larks.
- Kazhuveli brackish marsh: shallow seasonal wetland with sedge and grass margins, supporting waterfowl, moorhen, jacanas, and painted-snipe.
- Buckingham Canal corridor: earthen banks and canal edges supporting kingfisher and bee-eater burrow colonies.
- Riparian ridge vegetation: trees and shrubs along canal embankments and field margins, providing heronry nesting trees for egrets, herons, and cormorants.
- Coastal scrub and seasonal grassland: open ground with scattered thorny scrub, supporting francolins, larks, pratincoles, and raptors.
- Mangrove fringe: nearest plantation at 0.92 km south of the project boundary, contributing to the broader ecological connectivity of the complex.

This mosaic is not a uniform wetland. It is an ecotone: a transition zone between coastal, freshwater, and terrestrial ecosystems. The ecological value of an ecotone lies precisely in this diversity. Removing any one habitat type can cause the species dependent on it to disappear. [19]

1.2 Observation Zones Referenced in This Report

Field	Detail
Nemmeli Zone	Open saltpan, mudflat, Buckingham Canal section, and coastal scrub. Primary zone for ground-nesting shorebirds, pratincoles, larks, raptors, and burrow-nesting species.
Kelambakkam Zone	Estuary, Mangroves, Salt marsh, and freshwater wetland fringe. Primary zone for waterbirds, jacanas, whistling ducks, herons, egrets, and colonial nesters.
Full Complex	Both zones together, encompassing the full 25 km Muttukadu-to-Kokilamedu corridor.

2. Breeding Bird Inventory: What We Have Found

Important note on scope: The observations in this report were made during random field visits over last three year, covering an estimated 35 percent of the accessible landscape. They represent a minimum baseline, not a complete inventory. A dedicated full annual cycle survey, covering all seasonal windows from January through December, is required to establish the true breeding species richness of this site. That figure is expected to be substantially higher.

2.1 Summary Count

Field	Detail
Confirmed breeding species (Kovalam-Nemmeli Complex)	47 species
Nemmeli Zone confirmed	22 species
Kelambakkam Zone confirmed	25 species
Potential breeding species (habitat suitable, not yet confirmed)	7 species
Over-wintering species with extended residency	5 species
Survey coverage (estimated)	Approximately 35 percent of accessible landscape
Survey method	Random field visits, three years; not a systematic annual cycle survey
Breeding confirmations: REIA survey (July to November 2025)	Zero

2.2 Nemmeli Zone: Confirmed Breeding Species (22 species)

Species in this zone nest primarily on open saltpan and salt marsh ground, earthen canal banks, and coastal scrub. All are directly dependent on the open, undisturbed, unflooded habitat that characterises the Nemmeli landscape.

Common Name	Scientific Name	Nesting Type	Habitat Zone	Status / Rarity
Red-wattled Lapwing	<i>Vanellus indicus</i>	Ground scrape	Saltpan / open mudflat	LC / WPA II
Kentish Plover	<i>Charadrius alexandrinus</i>	Ground scrape	Sandy saltpan margin	LC (Tier 2 rarity TN)
Little Ringed Plover	<i>Charadrius dubius</i>	Ground scrape	Sandy coastal margin	LC (Tier 2 rarity TN)
Black-winged Stilt	<i>Himantopus himantopus</i>	Ground scrape near water	Wetland edge, saltpan	LC / WPA II
Great Thick-knee	<i>Esacus recurvirostris</i>	Ground scrape	Open saltpan / gravel	NT (Tier 1: only KTTC stronghold)

Small Pratincole	<i>Glareola lactea</i>	Ground scrape	Open sandy/saltpan ground	LC (Tier 1 rarity TN coast)
Oriental Pratincole	<i>Glareola maldivarum</i>	Ground scrape	Open saltpan mudflat	LC (Tier 1 rarity TN coast)
Ashy-crowned Sparrow-lark	<i>Eremopterix griseus</i>	Ground scrape in grass	Open scrub / saltpan margin	LC
Jerdon's Bushlark	<i>Mirafra affinis</i>	Ground cup nest	Scrub grassland	LC / WPA II
Oriental Skylark	<i>Alauda gulgula</i>	Ground cup nest	Open grassland	LC
Gray Francolin	<i>Ortygornis pondicerianus</i>	Ground nest in grass	Scrub grassland	LC
White-breasted Waterhen	<i>Amauornis phoenicurus</i>	Reed / marsh platform	Wetland edge	LC / WPA II
Common Kingfisher	<i>Alcedo atthis</i>	Bank burrow	Canal / creek bank	LC / WPA II
Pied Kingfisher	<i>Ceryle rudis</i>	Bank burrow	Canal / creek bank	LC / WPA II
White-throated Kingfisher	<i>Halcyon smyrnensis</i>	Earthen burrow / cavity	Canal bank / scrub	LC / WPA II
Green Bee-eater	<i>Merops orientalis</i>	Ground burrow colony	Open sandy bank	LC / WPA II
Blue-tailed Bee-eater	<i>Merops philippinus</i>	Ground burrow colony	Sandy earthen bank	LC (Tier 1: primarily migrant TN coast)
Rose-ringed Parakeet	<i>Psittacula krameri</i>	Tree cavity	Scrub / palm	LC / WPA IV
Indian Roller	<i>Coracias benghalensis</i>	Tree cavity / earth bank	Open scrub	NT (IUCN)
Red-necked Falcon	<i>Falco chicquera</i>	Reused crow / raptor nest	Palm tree / Pylon	LC (Tier 1: rare localized breeder; - 56.7% SoIB 2023)
Shikra	<i>Accipiter badius</i>	Tree nest	Scrub / riparian tree	LC / WPA I (Schedule I; confirmed breeding: display and juvenile sightings, MNS)
Black-winged Kite	<i>Elanus caeruleus</i>	Tree nest	Open scrub / OMR edge	LC (confirmed breeding; juvenile sighted near OMR, MNS)

2.3 Kelambakkam Zone: Confirmed Breeding Species (25 species)

Species in this zone nest in wetland margin vegetation, mangroves, riparian trees, floating aquatic plants, and tree hollows. The Buckingham Canal corridor and freshwater marsh at Kelambakkam support the heronry and waterfowl breeding community that is sustained by the broader hydrological connectivity of the complex.

Common Name	Scientific Name	Nesting Type	Habitat Zone	Status / Rarity
Cattle Egret	<i>Bubulcus ibis</i>	Colonial tree platform	Riparian trees	LC / WPA II
Little Egret	<i>Egretta garzetta</i>	Colonial tree platform	Riparian trees / canal edge	LC / WPA II
Intermediate Egret	<i>Ardea intermedia</i>	Colonial tree platform	Riparian trees	LC / WPA II
Great Egret	<i>Ardea alba</i>	Colonial tree platform	Riparian trees	LC / WPA II
Little Cormorant	<i>Microcarbo niger</i>	Colonial tree platform	Riparian trees over water	LC / WPA II
Indian Cormorant	<i>Phalacrocorax fuscicollis</i>	Colonial tree platform	Riparian trees	LC / WPA II
Striated Heron	<i>Butorides striata</i>	Scrub / low tree	Dense riparian scrub	LC / WPA II
Black-crowned Night Heron	<i>Nycticorax nycticorax</i>	Colonial tree	Dense riparian vegetation	LC / WPA II
Oriental Honey Buzzard	<i>Pernis ptilorhynchus</i>	Tree nest	Tall trees near open scrub	LC (Uncommon coastal TN)
Spot-billed Duck	<i>Anas poecilorhyncha</i>	Ground near water / marsh	Wetland margin	LC / WPA II
Fulvous Whistling Duck	<i>Dendrocygna bicolor</i>	Marsh / tree hollow	Freshwater marsh	LC (Tier 2: localized TN)
Lesser Whistling Duck	<i>Dendrocygna javanica</i>	Tree hollow / marsh platform	Freshwater marsh / tank	LC
Grey-headed Swampphen	<i>Porphyrio poliocephalus</i>	Floating marsh platform	Shallow marsh / floating vegetation	LC / WPA II
Eurasian Moorhen	<i>Gallinula chloropus</i>	Floating platform	Shallow marsh	LC / WPA II
Pheasant-tailed Jacana	<i>Hydrophasianus chirurgus</i>	Floating vegetation	Floating aquatic plants	LC (Tier 2: - 35% long-term TN decline)
Bronze-winged Jacana	<i>Metopidius indicus</i>	Floating vegetation	Floating aquatic plants	LC (Uncommon TN)
Greater Painted-snipe	<i>Rostratula benghalensis</i>	Ground scrape in marsh	Marsh edge	LC (Uncommon TN)
Black Drongo	<i>Dicrurus macrocercus</i>	Tree fork	Scrub / tall grass	LC / WPA II
Ashy Prinia	<i>Prinia socialis</i>	Scrub / grass cup	Dense scrub	LC / WPA II

Plain Prinia	<i>Prinia inornata</i>	Grass cup	Open grass / scrub	LC / WPA II
Jungle Prinia	<i>Prinia sylvatica</i>	Grass / scrub cup	Dense coastal scrub	LC (Uncommon coastal TN)
Indian Pied Starling	<i>Gracupica contra</i>	Dome nest in tree / structure	Open scrub near water	LC (Tier 1: range limit TN; south limit Andhra Pradesh)
Common Myna	<i>Acridotheres tristis</i>	Cavity / structure	Near human habitation	LC / WPA IV
Large-billed Crow	<i>Corvus macrorhynchos</i>	Tree nest	Tall trees	LC
House Crow	<i>Corvus splendens</i>	Tree nest	Near habitation	LC

2.4 Potential Breeding Species (7 species, habitat confirmed suitable)

Common Name	Scientific Name	Nesting Type	Habitat Zone	Status / Rarity
Indian Courser	<i>Cursorius coromandelicus</i>	Ground scrape	Open dry scrub / saltpan margin	LC (Uncommon coastal TN)
Yellow-wattled Lapwing	<i>Vanellus malabaricus</i>	Ground scrape	Dry open ground	LC
Indian Thick-knee	<i>Burhinus indicus</i>	Ground scrape	Rocky / stony open ground	LC
Collared Pratincole	<i>Glareola pratincola</i>	Ground scrape	Open saltpan / mudflat	LC (Tier 1: Indian breeding restricted to NW states)
Osprey	<i>Pandion haliaetus</i>	Tree / structure platform	Near large water body	LC / WPA I
White-bellied Sea Eagle	<i>Haliaeetus leucogaster</i>	Large tree / structure	Coastal tree near water	LC (Uncommon coastal TN)
Short-toed Snake Eagle	<i>Circaetus gallicus</i>	Tree nest	Open scrub / grassland	LC

Rare and Uncommon Breeding Records: Tier 1 Species

The following confirmed or potential breeding species represent particularly significant records for Tamil Nadu, either because their Indian breeding populations are in decline, because Tamil Nadu lies at or beyond the edge of their natural breeding range, or because this site is their only documented breeding stronghold in the region.

- Great Thick-knee (*Esacus recurvirostris*): Near Threatened (IUCN). The Kovalam-Nemmeli complex is the only confirmed breeding stronghold for this species in the entire Kelambakkam-Thiruporur-Thirukazhukundram Corridor. Breeding documented since at least 2021.
- Red-necked Falcon (*Falco chicquera*): Long-term population decline of 56.7 percent recorded by SolB 2023. Considered a rare, localised breeder across India. Confirmed breeding at Nemmeli with juvenile sightings documented by Madras Naturalists Society. [8, 15]

- Oriental Pratincole (*Glareola maldivarum*): Sporadic breeder in peninsular India. Rare confirmed coastal nesting record in Tamil Nadu. Active chick documented at this site on 24 May 2026.
- Blue-tailed Bee-eater (*Merops philippinus*): Primarily a winter visitor and seasonal migrant in peninsular Tamil Nadu. Confirmed breeding at Nemmeli represents an uncommon coastal breeding record for the state.
- Indian Pied Starling (*Gracupica contra*): Natural range in India extends south only to northern Andhra Pradesh. Confirmed breeding at Kelambakkam places this site at or beyond the documented southern range limit. A significant range extension record for Tamil Nadu.
- Collared Pratincole (*Glareola pratincola*, potential): Indian breeding populations are confined to Gujarat, Rajasthan, Punjab, and Haryana. If confirmed at this coastal Tamil Nadu site, this would be an exceptional southernmost breeding record.

3. Gaps in the Current Environmental Assessment

The Rapid Environmental Impact Assessment (REIA) prepared for the Mamallan Freshwater Reservoir project includes a bird survey conducted between July and November 2025, with a site visit for biodiversity documentation of six days (31 October to 5 November 2025). The assessment recorded 102 bird species from field observations and 124 species from secondary sources, and **reported zero breeding confirmations for any species at the site.** [19]

We note the following gaps in that assessment, without questioning the effort or intent of the team that conducted it. These are structural limitations of the survey design, and they matter because they mean that the **breeding ecology of this site** has not yet been assessed at all.

3.1 The Active Breeding Season Was Not Surveyed

The active breeding season for resident bird species in coastal Tamil Nadu runs from February to June, peaking in March to May. This is when ground-nesting species establish territories, lay eggs, incubate, and raise chicks. The REIA survey window (July to November) begins after this season has concluded for most species. [17, 18]

Of the 47 breeding species documented in this report, the following have their entire confirmed breeding period before July:

- Great Thick-knee: February to May
- Red-necked Falcon: January to May [8]
- Black-winged Stilt: April to July [11]
- Little Ringed Plover and Kentish Plover: February to July [1, 2]
- Small Pratincole: December to March [13]
- Ashy-crowned Sparrow-lark: February to September in southern India [16]

A survey starting in July can document the presence of these species as residents but it cannot document whether they are breeding, have bred, or have active nests at the site.

3.2 The Site Visit Was Limited to Six Days

The ecological documentation of the Kovalam-Nemmeli complex, covering more than 8,400 acres of habitat over 25 kilometres, was based on a **site visit of six days**. Standard guidelines for bird surveys in environmental impact assessments recommend a minimum of six separate visits within the breeding season alone, in addition to non-breeding season surveys, for any site of ecological sensitivity. [17] The BNHS Common Bird Monitoring Programme recommends visits covering summer, winter, and monsoon as a minimum standard. [18]

Our own observations, conducted over three years and covering an estimated 35 percent of the accessible landscape, document **47 confirmed breeding species** in this stretch of land. These were not found through systematic search. They were encountered during random visits by volunteers who are familiar with the site. A six-day assessment by a team unfamiliar with the seasonal patterns of this landscape cannot be expected to produce a representative baseline.

3.3 Species Confirmed Breeding Here Were Not Detected

The following confirmed breeding species at the Kovalam-Nemmeli complex are absent from the REIA species inventory entirely:

- Great Thick-knee (Near Threatened; only KTTC breeding stronghold)
- Small Pratincole
- Oriental Pratincole (active chick documented 24 May 2026)
- Fulvous Whistling Duck
- Pheasant-tailed Jacana (long-term decline of 35 percent in Tamil Nadu per SolB 2023) [5, 15]
- Bronze-winged Jacana
- Greater Painted-snipe
- Indian Pied Starling (at southern range limit)
- Blue-tailed Bee-eater (uncommon coastal breeder)
- Jungle Prinia

The **Little Ringed Plover** and **Kentish Plover** are classified in the REIA as Winter Migrants (WM), implying they **do not breed at the site**. Both are confirmed breeding residents in Tamil Nadu wetlands. [1, 2]

3.4 Schedule I Species Breeding Undetected

Red-necked Falcon (Schedule I under WPA 2022, provisional) is confirmed breeding at this site by the **Madras Naturalists Society**, with juvenile sightings documented over multiple seasons. Shikra (Schedule I) is confirmed breeding with display and juvenile sightings. Neither species has a breeding record in the REIA. [8]

3.5 What This Means

The REIA bird data, as currently constituted, does not assess the breeding ecology of the Kovalam-Nemmeli Wetland Complex. It assesses bird presence during the monsoon and post-monsoon window. These are two different things. The claim in the REIA that the site functions 'only for feeding and roosting during monsoon season' is not supported by breeding-season survey data, because none was conducted. Our field observations, partial and unsystematic as they are, document 47 species actively breeding here. A comprehensive assessment is required before any irreversible land-use decision is made.

4. A Wetland Complex in Full Life

The seasonal pattern of the Kovalam-Nemmeli complex divides the year into two distinct ecological phases, each as important as the other. Understanding both is essential to understanding what is at stake.

4.1 Migration Season: A Global Crossroads

Between October and March, the Kovalam-Nemmeli complex receives thousands of birds from breeding grounds across Central Asia, Siberia, and the Arctic in Central Asian Flyway (CAF). This is one of the most visible and well-documented functions of the site, reflected in its recognition within the CAF and its listing as a priority wetland under the Tamil Nadu Wetlands Mission. [15, 19]

Field	Detail
Peak bird count (2025-26 season)	Approximately 45,000 individuals documented at peak observation
Migratory species recorded	91 species
Migratory ducks (2025-26 season)	More than 16,000 individuals (Garganey, Northern Pintail, Eurasian Wigeon)
Spot-billed Pelican	Up to 600 individuals: 6 percent of the global biogeographic population
Painted Stork	Up to 500 individuals: 2 percent of the global biogeographic population
Black-headed Ibis	Up to 600 individuals: 2 percent of the global biogeographic population
SoIB High Conservation Priority species	50 species recorded at this complex
IUCN threatened species	1 Endangered (Great Knot), 7 Vulnerable, 17 Near Threatened
CMS Single Species Action Plan species	8 of 20 global priority species present [15, 19]

A site that regularly sustains more than 1 percent of the global population of multiple species meets Ramsar Criterion 6 for international importance. The Kovalam-Nemmeli complex meets this criterion for at least three species. [19] [4]

4.2 Non-Migration Season: A Cradle of Life

When the migrants depart in March and April, the attention of this landscape turns inward. The birds that remain are not waiting for the next season. They are beginning the most demanding task in a bird's year: **choosing a nest site, defending a territory, laying eggs, incubating them in the heat of a Tamil Nadu summer, and raising chicks in open ground where there is no cover except stillness and camouflage.**

This is the season the REIA did not survey. This is the season these photographs document.

Open Saltpan and Mudflat: The Ground-Nesting Community

The cracked mudflat of the Nemmeli and Buckingham Canal zones, with its sparse halophytic grasses and shell-studded substrate, hosts the most vulnerable breeding community in the complex. **Pratincoles, lapwings, stilts, thick-knees, and plovers** all nest directly on the open ground in shallow scrapes, with no structural nest and no cover beyond the cryptic patterning of their eggs and chicks.



Fig. 3: Red-wattled Lapwing (*Vanellus indicus*) ground-scape nest with three cryptically patterned eggs at the Kovalam-Nemmeli Wetland Complex documented in **May 2026**. The nest is a bare depression among mollusc shell debris and halophytic coastal vegetation. There is no structure, no burrow, no cover. The camouflage of the eggs against the substrate is the only protection available. This is what inundation destroys: not a tree, not a burrow, but a patch of open ground with three eggs in it. Image shared for conservation purpose. Red-wattled Lapwing breeding biology has been documented across multiple seasons in India, confirming ground scrape nesting with clutch sizes of three to four eggs, hatching success between 55 and 65 percent, and active parental defence as the primary protection strategy for open-ground nests. [9, 10]



Fig. 4: Black-winged Stilt (*Himantopus himantopus*) adult with chick on open ground, Kovalam-Nemmeli Wetland Complex in **May 2026**. Ground-nesting continues at this site even in the presence of low-level habitat pressures. The landscape remains functional as a breeding ground. A rise in water level to reservoir depth eliminates this habitat permanently and completely. Image shared for conservation purpose. Black-winged Stilt breeding across Indian wetlands is confirmed with clutch sizes of three to four eggs and breeding seasons extending from April to July, with human disturbance identified as the primary threat to nesting success. [11, 12]

Grassland and Scrub: Francolins and Larks

The short seasonal grassland along the Nemmeli Bridge stretch and surrounding areas supports a ground-nesting community of francolins, larks, and bushlarks. These species require grass cover with short sward height and open visibility, conditions that exist currently in the Nemmeli grassland zones.



*Fig. 5: Grey Francolin (*Ortygornis pondicerianus*) pair with chick in short grassland, Nemmeli Bridge, Kovalam-Nemmeli Wetland Complex. 17 May 2026. One adult feeds the chick while the other maintains a watch posture. This image was taken on 17 May 2026, within the breeding season that the REIA survey did not cover. Image shared for conservation purpose.*

Riparian Ridge and Mangrove Fringe: The Heronry

The Kelambakkam section of the complex supports a colonial waterbird breeding community, including Little Egret, Great Egret, Intermediate Egret, Cattle Egret, Little Cormorant, Indian Cormorant, and Black-crowned Night Heron. These species nest in trees along the Buckingham Canal embankment, mangroves, and riparian ridges, foraging in the shallow waters of the Kelambakkam marsh and Nemmeli wetland below. [6, 7]

Research across Tamil Nadu has documented 101 heronries in 22 districts, with nine in Kancheepuram district (immediately north of Chengalpattu) alone. The Little Cormorant was found at 80 heronries and the Little Egret at 67, confirming the widespread and consistent nature of colonial waterbird breeding in Tamil Nadu wetlands. The key conditions for heronry persistence are: low human disturbance, stable water bodies for foraging, and sufficient tree cover. The Kovalam-Nemmeli complex currently provides all three at the Kelambakkam end. [6]

The nearest mangrove plantation, at 0.92 km south of the project boundary, and the riparian vegetation along the canal ridges, together form the structural backbone of the heronry nesting habitat. Conversion of the Kazhuvelli and salt pan areas to a deep freshwater reservoir would permanently alter the shallow foraging conditions that sustain these colonies.

The Great Thick-knee: A Near Threatened Species with One Home



Fig. 6: Great Thick-knee (*Esacus recurvirostris*, Near Threatened IUCN) chick on open saltpan ground at night, Kovalam-Nemmeli Wetland Complex. **13 February 2021**. City lights are visible on the horizon. The Great Thick-knee is documented as a breeding resident at this site with records spanning at least five years (2021 to 2026). The Kovalam-Nemmeli complex is the only known breeding stronghold for this species in the Kelambakkam-Thiruporur-Thirukazhukundram Corridor. No assessment, survey, or mitigation plan in the Mamallan Reservoir project acknowledges this population. Image shared for conservation purpose.

The Great Thick-knee is a large wader classified as Near Threatened on the IUCN Red List. It is a strict ground-nesting species, breeding on open exposed ground, gravel banks, and saltpan margins. At the Kovalam-Nemmeli complex, the Madras Naturalists Society has confirmed it as a breeding resident and identified this site as the only breeding stronghold for the species in the entire Kelambakkam-Thiruporur-Thirukazhukundram Corridor. Breeding records span at least five years. The chick in this photograph was alive on open saltpan ground on 13 February 2021



Fig. 11: Kentish Plover (*Charadrius alexandrinus*) is confirmed breeding at this site with a chick documented on open saltpan mudflat (Fig. 11), a Tier 2 uncommon breeding record for the Tamil Nadu coastal zone. [1, 2]

Kentish Plover (*Charadrius alexandrinus*) adult with chick (circled in red) on open sandy saltpan mudflat, Kovalam-Nemmeli Wetland Complex. The chick is near-invisible against the pale substrate without the annotation circle, demonstrating the camouflage strategy that makes open ground-nesting viable at this site. This is an uncommon breeding record for the Tamil Nadu coastal zone. Image shared for conservation purpose.

5. Born on Borrowed Ground: The Oriental Pratincole at Nemmeli

5.1 Species and Observation Record

Field	Detail
Species	Oriental Pratincole (<i>Glareola maldivarum</i>)
Status at Nemmeli	Confirmed breeding resident
Rarity	Tier 1: rare breeder, Tamil Nadu coastal zone
Date of observation	24 May 2026
Location	Buckingham Canal stretch, Nemmeli
Habitat	Open cracked saltpan mud with sparse halophytic grasses and low vegetation
Evidence	Adult performing guarding display; downy chick sheltering between parent's legs; active breeding confirmed
Survey significance	24 May 2026 falls within the February to June active breeding window that was entirely absent from the REIA survey (July to November 2025)
Video documentation	'Nemmeli is Still Alive... But How Long?' Instagram Reel. https://www.instagram.com/reel/DZnVMIFvNWI/ June 2026.

5.2 Photo Evidence Register

Ref	Subject	Date	Location	Evidence Value
Fig. 7	Adult lateral wing-spread guarding display	24 May 2026	B Canal, Nemmeli	Distraction display confirming chick presence nearby
Fig. 8	Adult frontal wing-raise display	24 May 2026	B Canal, Nemmeli	Maximum threat display; bird standing its ground
Fig. 9	Adult with downy chick between legs	24 May 2026	B Canal, Nemmeli	Live chick; active breeding confirmed at Kovalam-Nemmeli complex
Fig. 10	Adult brooding chick in open ground scrape	24 May 2026	B Canal, Nemmeli	Brooding behaviour; open saltpan nest habitat documented

5.3 Photo Sequence



*Fig. 7 (left): Lateral wing-spread guarding display. Fig. 8 (right): Frontal wing-raise display. The adult Oriental Pratincole, Buckingham Canal, Kovalam-Nemmeli Wetland Complex, **24 May 2026**. The bird spreads its wings wide and faces the observer directly, making itself as conspicuous as possible to draw attention away from the chick behind it. Image shared for conservation purpose.*



*Fig. 9 (left): The reason for the display: a downy chick shelters between the adult's legs on cracked saltpan mud, with sparse halophytic plants as the only cover. Fig. 10 (right): Adult brooding the chick in the open ground-scape nest. Buckingham Canal, Kovalam-Nemmeli Wetland Complex, **24 May 2026**. Active breeding confirmed. Image shared for conservation purpose.*

5.4 The Pratincole: A Written Record

Somewhere in the Kovalam-Nemmeli Wetland Complex, on cracked saltpan mud threaded with sparse halophytic grasses, a bird smaller than your fist is trying to save its child.

It has no nest to speak of. No burrow, no tree hollow, no reed bed. It laid its eggs in a scrape in the open ground, under the open sky, trusting only that the mud-coloured down of its chick would keep it invisible long enough.

When we came close, it did the only thing it could. It spread its wings wide and made itself enormous. It stood between us and its chick and said: look at me instead. A bird smaller than your palm, on bare ground, with construction bunds rising less than a kilometre away, asking the world for just a little more time.

*The chick in these photographs was perhaps a week old on **24 May 2026**. It does not know that January 2026 brought machines and earthworks to its world. It does not know that the saltpan its parent chose as a nest site is mapped as Phase I of the Mamallan Reservoir. It knows only the warmth of the body sheltering it and the sound of its parent's heartbeat.*

These photographs were taken on 24 May 2026. The breeding season the REIA never surveyed or reported. The season when Nemmeli is not a feeding ground or a stopover or a data point. It is a home. It is the only home these birds have.

Once the reservoir fills, the scrape floods. The chick does not get a second chance. Neither does this place

6. South Chennai's Last Ground-Nesting Sanctuary

Ground-nesting birds are among the most exacting occupants of any landscape. They cannot be relocated to a compensatory wetland, placed on an artificial island, or sustained in a smaller footprint. They require specific conditions that either exist in a landscape or do not:

- A sufficiently **large open territory to detect approaching predators** early enough to respond
- **Absence of inundation** and stable ground through the incubation period of three to four weeks
- **Low enough disturbance levels** during the breeding season for adults to remain on the nest
- **Food resources** within **foraging distance** of the nest scrape
- **Absence of dense vegetation** that blocks sightlines and benefits predators

The Kovalam-Nemmeli complex currently provides all of these conditions across thousands of acres of open saltpan and coastal grassland. Research confirms that **ground-nesting species** are the **most vulnerable** to artificial wetland conditions, with breeding failure rates in reservoir and managed water environments averaging 42.9 percent higher than in natural wetland contexts. [14]

6.1 What Has Been Lost Elsewhere in South Chennai

The Kovalam-Nemmeli complex does not exist in isolation. It exists in a landscape where every other large-scale natural wetland has been substantially reduced or degraded. Pallikaranai Marshland is protected but fragmented and increasingly bounded by urban development. The wetlands at Sholinganallur, Perumbakkam, and Perungudi have contracted significantly. The open coastal habitats between Thiruvannamiyur and Kovalam have been lost to infrastructure.

For South Chennai, the Kovalam-Nemmeli complex is the **remaining large-scale landscape** where a ground-nesting bird can establish a territory, incubate eggs without the constant proximity of human activity, and give its chick a reasonable chance of reaching flight. This is not a claim based on sentiment. It is based on the documented presence of 47 breeding

species, including multiple Near Threatened taxa and several species at their range limits, in a landscape that has remained functional despite decades of incremental pressure.

6.2 Climate Change and the Role of Coastal Wetlands

Coastal wetland complexes are among the most productive ecosystems on Earth and among the most effective natural carbon stores. The Kovalam-Nemmeli complex, as a brackish coastal wetland, performs **multiple climate-relevant functions**: it **buffers storm surge** and **coastal flooding**, it **recharges groundwater**, it **filters runoff** from the upstream catchment, and it **sequesters carbon** in the organic soils and sediments of the Kazhuveli and saltpan zones.

These functions are provided by the natural hydrology of the site. A freshwater reservoir replaces a dynamic brackish ecosystem with a static freshwater one. The tidal connectivity, the salinity gradient, the sediment transport, and the intertidal habitat mosaic are all eliminated. What is lost is not merely biodiversity. It is a natural infrastructure that has been managing this coastline and its climate risk for centuries.

The **ground-nesting birds** at this site are not incidental beneficiaries of this ecosystem. They are **indicators of its health**. A landscape that can sustain breeding populations of Great Thick-knee, Oriental Pratincole, Red-necked Falcon, and Black-winged Stilt is a landscape with functioning ecology, **clean nesting substrate**, **adequate food density**, and low enough disturbance to allow vulnerable life stages to succeed. If those populations decline or disappear, the signal is clear: something fundamental has changed.

Protecting this landscape is therefore not a trade-off between ecology and water security. It is a recognition that intact coastal wetland ecosystems provide services, including flood buffering, carbon storage, and fisheries support, that a concrete-edged reservoir cannot replicate.

7. The Way Forward

The evidence presented in this report, taken alongside the companion documents on site ecology, Ramsar criteria, and raptor wintering habitat, establishes that the Kovalam-Nemmeli Wetland Complex is an ecologically active site with confirmed breeding populations of 47 species with limited study, including Near Threatened taxa, species at the limits of their Tamil Nadu range, and the only known breeding population of Great Thick-knee in the Kelambakkam-Thiruporur-Thirukazhukundram Corridor.

This evidence was not available in the REIA assessment. It does not in any way reflect on the competence of the team that conducted the assessment. It reflects the structural limitations of a three-month, dry-season survey for a site of this ecological complexity. The solution is straightforward: conduct a comprehensive assessment before any irreversible land-use decision is finalised.

We respectfully put forward the following steps as a constructive path forward:

Recommended Actions

- **Pause all construction activity** at the Kovalam-Nemmeli site pending a comprehensive ecological reassessment.
- **Commission a full annual cycle ecological survey**, covering a minimum of 12 months and all seasonal windows, with dedicated breeding season monitoring from January to June.
- **Engage recognised ecological institutions** (SACON, BNHS, Care Earth, ATREE) to conduct or peer-review the survey along with us.
- If findings confirm the ecological richness indicated by current field observations, **designate the Kovalam-Nemmeli complex** as a **protected wetland** under one or more available statutory instruments: **Conservation Reserve** under Section 36A of the Wild Life (Protection) Act 1972; **Biodiversity Heritage Site** under Section 37 of the Biological Diversity Act 2002; or **Protected Wetland** under Rule 4 of the Wetlands (Conservation and Management) Rules 2017.
- Explore water security alternatives for South Chennai that do not require the permanent conversion of a coastal ecotone. Expert engineers from the Tamil Nadu PWD Senior Engineers Association (TANSEA) have identified **viable alternatives**, and their recommendations deserve formal consideration. [19]
- Initiate the process for **Ramsar Site nomination** for the Kovalam-Nemmeli complex, which demonstrably meets Ramsar Criteria 2, 4, 5, and 6 based on documented field evidence.

Nemmeli is still alive. The breeding season documented in this report is happening now, in May and June 2026, while construction continues nearby. The Oriental Pratincole in these photographs did not wait for a survey before choosing this ground for its nest. The Great Thick-knee chick photographed on 13 February 2021 was born on this saltpan because this is the only place in this landscape where a bird of its kind can still do so. These are not small things. They are the measure of what remains.

We offer this report in the hope that it reaches the hands of those with the authority and the intent to ensure that what remains continues to do so.

Photographic Acknowledgements

The field photographs in this report were shared voluntarily by birders, naturalists, and wildlife photographers who have observed and documented the Kovalam-Nemmeli Wetland Complex over several years. Their images have been used solely for conservation purpose, with no commercial intent.

Each photograph in this report represents time spent in the field, patience, and a genuine concern for the living world this landscape supports. Without their contribution, the breeding evidence documented here would remain undescribed. We are grateful to every individual who chose to share their work in the interest of protecting this place.

All images are credited as: *Image shared for conservation purpose*

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End Note

This report is issued by Suzhal Arivom, a volunteer-driven environmental research and conservation organisation in Tamil Nadu, registered under Reg. No. BK-4/9/2025. It is prepared with the sincere intention of contributing to the protection of the Kovalam-Nemmeli Wetland Complex, a living ecosystem whose breeding bird community is documented here as a formal conservation record.

The species listed in this report were not found through months of professional survey work. They were found by people who came here because they love this place, and what they found is extraordinary. We are confident that this record, placed alongside the companion documents produced by Suzhal Arivom in 2026, will help authorities, researchers, legal bodies, and the public understand what is present here, what is at risk, and why a thorough reassessment is the right and responsible next step.

Until that reassessment confirms or refutes the richness documented here, the precautionary principle applies: where scientific uncertainty exists and irreversible loss is the consequence of error, the burden of proof lies with development, not with conservation.

suzhalarivom@gmail.com | June 2026 | Tamil Nadu, India

Kovalam-Nemmeli Coastal Wetland Complex

Media Reference Document

Documented Actions to Protect the Wetland and Oppose the Mamallan Freshwater Reservoir Project

Coastal wetlands are among the ecologically productive and critical ecosystems on Earth, sequestering carbon, buffering coastlines, and sustaining millions of livelihoods. Yet these irreplaceable landscapes remain under constant threat, their ecological value systematically underestimated and their communities consistently unheard.

The Kovalam Nemmeli Coastal Wetland Complex, known locally as the "Great Salt Lake," is one such landscape. Stretching over 25 kilometres and 8,500 acres along the Coromandel Coast between Kelambakkam and Mamallapuram, this dynamic estuarine system sits at the confluence of freshwater and the Bay of Bengal, shaped by tidal rhythms, seasonal monsoons, and centuries of ecological continuity. It supports exceptional biodiversity, delivers critical ecosystem services, and sustains fishing communities who have coexisted with this landscape for generations.

In January 2026, the Government of Tamil Nadu commenced work to convert this wetland into a freshwater reservoir, one of the largest such interventions on India's eastern coastline, despite documented opposition from scientists, naturalists, local communities, and political voices, and without transparent ecological impact assessment in the public domain.

One of the last remaining natural coastal wetland systems near Chennai, the Nemmeli Wetland Complex cannot be restored once lost. Its conversion will silence thousands of migratory birds, displace resident and breeding species, and strip the coastline of its final natural buffer against storm surges and climate change. Some decisions cannot be undone. The time to intervene is now.

This document compiles published media coverage, scientific representations, fisherfolk protests, political responses, and biodiversity records pertaining to the proposed Mamallan Freshwater Reservoir. It serves as a consolidated reference for all stakeholders concerned with the ecological and social implications of this project.

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Fisherfolk Protest Print Media

Fisherfolk oppose proposed Mamallan reservoir project

According to a community leader, the fisherfolk were not given any opportunity to raise their objections to the project that could lead to thousands of families losing their livelihoods

Deepa H. Ramakrishnan
CHENNAI

Residents of 16 fishing hamlets from Kanathur to Kokkilmedu along the East Coast Road gathered on Monday at the backwaters of Vada Nemeli to protest against the Mamallan reservoir project.

Getting into the slushy brackish waters, they raised slogans urging the State government to give up the project.

Community leader R. Narayanan of Kovalam said that the fishing community, that includes inland fishers and Irulas who fish during the daytime, was not given any opportunity to raise objections to the project that will lead to thousands of families losing their livelihoods. A day after a peace meeting was held, the Chief Minister laid the foundation stone for the project.

K. Saravanan of Urur



Voicing dissent: Residents of fishing hamlets staging a protest on Monday to urge the State government to give up the Mamallan reservoir project. DEEPA H. RAMAKRISHNAN

Kuppam, said that no public hearing was held as all these areas have been classified as CRZ IB. A section of the Buckingham Canal runs through the backwaters. During the monsoon, one cannot differentiate between the canal and the backwaters as everything including the adjacent buffer zone would be submerged in water, he said.

K. Bharathi, another

community leader, said, "Villages along the backwaters will also get flooded if the brackish water body is converted into a freshwater body. The entire ecosystem would be lost if the reservoir comes up. Seafaring fishermen fish here during the monsoon as there are not many fishes in the sea due to desalination plants and sea erosion."

Shankar, a fisherman from Padur, said that since several projects came to their area like the Muttukadu Boat House in 1983, the CMFRI field station, and the desalination plants, fishermen lost fishing grounds.

"If this one too is completed, we would lose everything and would be forced to go in search of work in other industries," he said.

Marine biologist T.D. Babu said that the backwater was a lagoon similar to that of Pulicat, with high productivity and biodiversity.

The Buckingham canal, which cuts across, is a boon as it prevents inundation in the city with excess rainwater being discharged through the canal at different points of the coast before the final discharge into the Bay of Bengal at Marakkanam. If the reservoir comes up, this lagoon will be destroyed, he said.

<https://www.thehindu.com/news/cities/chennai/fisherfolk-protest-at-site-of-proposed-mamallan-reservoir/article70611935.ece>

செங்கல்பட்டு மாவட்ட ஒருங்கிணைந்த மீனவர் பஞ்சாயத்து சபை!
(கானத்தூர் ரொட்டிக்குயம் முதல் கடயாக்கம் வரை மீனவ கிராமங்கள்)

செங்கல்பட்டு மாவட்ட மீனவமக்களின் வாழ்வாதாரத்தை அழிக்கும் வகையில் தமிழக அரசு கொண்டுவரும் மாமல்லன் நீர்த்தேக்க திட்டத்தை கைவிட வலியுறுத்தி கண்டன ஆர்ப்பாட்டம்!

நாள் : 09.02.2026 திங்கட்கிழமை ■ நேரம் : காலை 10.00 மணிக்கு
இடம் : வடநெல்மேலி உப்பங்கழி கழிவெளி

Mamallan reservoir project on wetland begins, communities fear livelihood loss

Reservoir will submerge large swathes of Great Salt Lake ecosystem; it's our workplace not empty land, say fishers

SV KRISHNA CHAITANYA @ Chennai

STANDING knee-deep in the shallow waters of the Great Salt Lake, Selvi Ramesh spends hours each day feeling through the mud with her bare hands, searching for prawns and crabs. "This wetland feeds my children," she said, during a fishermen's protest held on Monday on the banks of the lagoon. "If this water goes, we go hungry."

Selvi from Thiruvadanthai village, who belongs to the socio-economically backward Irular community, has three children, and, like several Irula families, depends entirely on the brackish backwaters for daily income. The proposed Kovalam-Mahabalipuram drinking water reservoir, she fears, will turn this wetland into a deep freshwater storage.

The protest, organised by fishing communities from 16 coastal villages, comes amid mounting opposition to the Water Resources Department's plan to build the large Mamallan Reservoir across coastal wetlands between East Coast Road and Old Mahabalipuram Road. The project will submerge more than 4,300 acres of marshes, mudflats, salt pans and backwaters, including large parts of the Great Salt Lake ecosystem.

"This is not empty land. This is our workplace," Selvi said. "We don't have boats or big nets. We survive by collecting prawns and crabs by hand."

From Pudu Kalpakkam, Sodayan D and Elumalai P stood near their small boats tied along the wetland edge. Both said their families were resettled earlier in 1964, when the original Kalpakkam village was cleared for setting up the nuclear power plant. "We lost



Fishing communities from 16 coastal villages staging a protest on the banks of the lagoon on Monday | EXPRESS



The wetlands' fate

The proposed reservoir will convert the coastal wetland into a freshwater storage. The Great Salt Lake is also listed as one of the state's 141 prioritised wetlands by a natural history research institute. The proposed reservoir poses a threat to the ecosystem as well as the animals that depend on it.

our homes then. Now the government wants to take away our fishing grounds too," Sodayan said.

"These backwaters still give us daily income," Elumalai said. "We catch live shrimp here. Big sea fishermen buy them as bait. That money feeds our families every day."

Naturalist M Yuvaraj said the Great Salt Lake is not just a livelihood zone but a critical ecological system. It has been listed by the Salim Ali Centre for Ornithology and Natural History (SACON) as one of Tamil Nadu's 141 prioritised wetlands, while the Wildlife Institute of India has identified it as an Important Coastal and Marine Biodiversity Area. Over 200 bird species, including more than 70 migratory species, have been recorded here, with winter counts running into tens of thousands.

"This backwater is a biological powerhouse," said TD Babu, Asia-Pacific environmental auditor and marine biologist.

"You cannot recreate a backwater ecosystem elsewhere. It has tidal influence every six hours, which allows shrimp, crabs and molluscs to breed. If you convert this into a freshwater reservoir, you will kill everything."

Babu stressed the hydrological role of the Buckingham Canal, which runs through the system. "It is not just a canal. It is a bypass that disperses excess water and prevents inundation in human settlements. Cutting off tidal flow here means only

sewage will remain."

TNIE visited the project site on Monday and observed active wetland fishing, hundreds of migratory birds, and early preparatory work for bund construction, with heavy machinery excavating wetland soil. Fishing nets lay scattered across mudflats alive with birds.

Former TN Fishermen Cooperative Federation chairman Arumugam Prabhu Das questioned the urgency of the project ahead of the Assembly election, adding that several affected gram panchayats, despite being led by the ruling party have resisted passing any resolutions in favour of the it.

Fishermen leader K Saravanan, who filed a petition in the southern bench of National Green Tribunal challenging the CRZ clearance issued for the project, said there is no clarity on whether Water Resources Department has obtained the mandatory no-objection certificate from fisheries department before commencing the work.

When contacted, a senior WRD official said all statutory approvals have been obtained. Fisheries commissioner KV Muralidharan was not available for comments.



"This wetland feeds my children. This is not empty land. This is our workplace. We don't have boats or big nets. We survive by collecting prawns and crabs by hand."

Selvi Ramesh

<https://www.newindianexpress.com/cities/chennai/2026/Feb/10/mamallan-reservoir-project-on-wetland-begins-communities-fear-livelihood-loss>

Political Oppositions

Pattali Makkal Katchi (PMK)

Thanthi TV



தமிழகம் தேசியம் உலகம் சிவியா விளையாட்டு ஜோதிடம் ஆன்மீகம்

தமிழக செய்திகள்

சுற்றுச்சூழல், மீனவர்களை பாதிக்கும் மாமல்லன் நீர்த்தேக்கத் திட்டத்தை கைவிடுக - அன்புமணி வலியுறுத்தல்

மாமல்லன் நீர்த்தேக்கம் அமைப்பதால் ஏற்படும் நன்மைகளை விட தீமைகள் அதிகம் என அன்புமணி தெரிவித்துள்ளார்.



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<https://www.dailythanthi.com/news/tamilnadu/abandon-the-mamallan-reservoir-project-that-will-harm-the-environment-and-fishermen-anbumani-urges>

Naam Tamilar Katchi (NTK)



JUSTIN புதிய தலைமுறை

“நீர்த்தேக்கத் திட்டத்தை கைவிடுக”

செங்கல்பட்டு மாவட்டம் திருப்போரூர், திருக்கழுக்குன்றம் வட்டங்களில் மீனவ கிராம மக்களின் கோரிக்கையை ஏற்று மாமல்லன் நீர்த்தேக்கத் திட்டத்தை தமிழக அரசு கைவிட வேண்டும்

மாமல்லன் திட்டத்தை கைவிட வலியுறுத்தி அனைத்து அறவழி போராட்டங்களையும் நாதக முன்னெடுக்கும்

- நாதக தலைமை ஒருங்கிணைப்பாளர் சீமான்

09.02.2026 Puthiyathalamurai.com

<https://x.com/i/status/2015997330605089234>

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செந்தமிழன் சீமான் @Seeman4TN

மாமல்லன் நீர்த்தேக்கத் திட்டத்திற்கு எதிராக மீனவ கிராமங்களின் சார்பில் இன்று (09.02.2026) நடைபெற்ற போராட்டத்தினை ஏற்று தமிழ்நாடு அரசு உடனடியாக இத்திட்டத்தினைக் கைவிட வேண்டும்.

@mkstalin @TThenarasu @supriyasahas @ARROffice @katpadidmk @thamoanbarasan

சென்னையின் குடிநீர் தேவையை நிறைவேற்ற மற்றும் வெள்ளத் தடுப்பு ஆகிய காரணங்களைக் கூறி, செங்கல்பட்டு மாவட்டம் திருப்போரூர் மற்றும் திருக்கழுக்குன்றம் வட்டங்களில் கிழக்கு கடற்கரை சாலை மற்றும் பழைய மகாபலிபுரம் சாலை இடையிலுள்ள கோவளம் உப்பங்குழிப் பகுதியில் ஒரு புதிய நன்னீர் தேக்கத்தை அமைக்கத் தமிழக அரசு முடிவு செய்துள்ளது. ஏறக்குறைய 471 கோடி ரூபாய் மதிப்பீட்டில், 4,375 ஏக்கர் பரப்பளவில் அமையவிரும்பும் இந்தத் திட்டத்திற்கான கடலோர ஒழுங்குமுறை மண்டல விதிகளின் (CRZ) அனுமதி கடந்த 2025ம் ஆண்டு டிசம்பர் 3ம் தேதி வழங்கப்பட்ட நிலையில், சென்ற 19.01.2026 அன்று தமிழ்நாடு முதலமைச்சர் ஸ்டாலின் அவர்களால் இத்திட்டம் அதிகாரப்பூர்வமாகத் தொடங்கி வைக்கப்பட்டது.

இத்திட்டம் அறிவிக்கப்பட்ட நாளிலிருந்து இதன் குழுவியல் மற்றும் மீனவர் வாழ்வாதார சிக்கல்களை சுட்டிக்காட்டி இதனை சுற்றுச்சூழல் ஆர்வலர்களும், பொதுமக்களும் எதிர்த்து வருகின்றனர். கடந்த 18.01.2026 அன்று நாம் வெளியிட்ட அறிக்கை முதல், இத்திட்டத்திற்கு எதிராக போராடும் பொதுமக்களுக்கு நாம் தமிழர் கட்சி தனது முழுமையான ஆதரவை வழங்கி வருகிறது. இந்நிலையில் இன்று 09.02.2026, கானத்தூர் ரெட்டிக்குப்பம் முதல் கொக்கிலிமேடு வரையிலான 16 மீனவக் கிராமங்களைச் சேர்ந்த மக்கள் தங்கள் வாழ்வாதாரப் பாதிப்புகளை சுட்டிக்காட்டி தமிழ்நாடு அரசுக்கு எதிராகவும், மீனவத்துறையைக் கண்டித்தும், மாமல்லன் நீர்த்தேக்கத் திட்டத்தை கைவிட வலியுறுத்தி கோவளம் உப்பங்குழியில் இறங்கி ஆர்ப்பாட்டம் நடத்த உள்ளனர்.

காலம் காலமாக உப்பங்குழிகளை நம்பி மீன்பிடித் தொழில் செய்து வரும் மீனவர்களின் மரபுவழி “பாடு” உரிமைகளை இந்தத் திட்டம் முற்றிலுமாகப் பறிக்கும் வகையில் அமைந்துள்ளது. அரசு தனது திட்ட அறிக்கையில் இந்த இடங்களை “வெற்று நிலம்” என்று குறிப்பிட்டிருப்பது மீனவ சமூகத்தை வஞ்சிக்கும் செயலாகும். இயற்கை வளங்களையும் மீனவ மக்களின் வாழ்வாதாரத்தையும் பலிகொடுத்து உருவாக்கப்படும் இந்தத் திட்டத்தை அரசு உடனடியாகக் கைவிட வேண்டும். மக்களின் கருத்துகளுக்கு மதிப்பளிக்காமல் திட்டத்தை நடைமுறைப்படுத்துவது மக்களாட்சிக்கு எதிரான செயலாகும். இதுவரை அளித்துவரும் ஆதரவின் நீட்சியாக, மீனவகுடி பெருமக்களின் இன்றையப் போராட்டத்திலும் நாம் தமிழர் கட்சியின் திருப்போரூர் சட்டமன்றத் தொகுதி வேட்பாளர் ஐயா அம்பேத்ராஜன் அவர்கள் தலைமையில் கட்சியின் அனைத்து நிலை பொறுப்பாளர்களும் பங்கெடுப்பார்கள் எனவும், இத்திட்டம் நடைமுறைக்கு வராமல் தடுப்பதற்கான அனைத்து அறவழி போராட்ட வடிவங்களையும் நாம் தமிழர் கட்சி முன்னெடுக்கும் என்றும் அறிவிக்கிறேன், மீனவ மக்களின் அறப்போராட்டம் வெற்றியடையும்.

★ Last edited 9:46 pm - 09 Feb 26

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Amma Makal Munnetra Kazhagam (AMMK)

Controversy Sparks Over Chennai's Mamallan Reservoir Project

Tamil Nadu's CM M K Stalin inaugurated the Mamallan reservoir project seeking to enhance Chennai's water supply. The project, however, faces criticism from environmentalists and local fishermen over potential ecological impacts and livelihood threats, urging for further study before proceeding.

Devdiscourse News Desk | Chennai | Updated: 19-01-2026 14:27 IST | Created: 19-01-2026 14:27 IST

Despite the project's promise to secure Chennai's water future, it has sparked opposition. Critics, including AMMK's T T V Dhinakaran and environmental group 'Poovulagin Nanbargal,' argue that insufficient hydrological studies were conducted, potentially threatening the environment and local communities.

(With inputs from agencies.)

<https://www.devdiscourse.com/article/science-environment/3774588-controversy-sparks-over-chennais-mamallan-reservoir-project>

Neithal Makal Katchi



நெய்தல் மக்கள் கட்சி

@bharathi_ku



Show translation

வட இந்தியாவிற்கு ஆரவள்ளி மலைத்தொடர் எப்படியோ, அதுபோல செங்கல்பட்டு மாவட்ட மீனவர் களுக்குக் கோவளம் உப்பங்கழி. வாழ்வாதாரமும் பல்லுயிர் குழல் சிறப்பும் கொண்ட எங்கள் உப்பங்கழியைச் சிதைக்கும் நீர்த்தேக்கத்திட்டத்தை உடனே கைவிடுங்கள்; அடிக்கல் நாட்டு விழாவை ரத்து செய்யுங்கள்.

#DontGoStalin



M.K. Stalin

https://x.com/bharathi_ku/status/2012861369083638227?s=48&t=ukavWB/bEHinP2Q18lxHw

பிரச்னை • தகீர்த்திகா

சதுப்புநிலத்தில் நீர்த்தேக்கம், பாழாகும் பறவைகளின் வாழ்விடம், பறிபோகும் மீனவர்களின் வாழ்வாதாரம்!

தடுக்குமா தமிழக அரசு?

செங்கல்பட்டு மாவட்டத்தில் உள்ள கேளம்பாக்கம் மற்றும் மாமல்லபுரம் ஆகிய பகுதிகளுக்கு இடையே அமைந்துள்ளது, நெம்மேலி ஈர நிலப்பகுதி. கோவளம் மற்றும் கோகிலமேடு ஆகியவற்றின் நீர்ப்பிடிப்பு பகுதிகளின் முகத்துவாரங்கள் இங்குதான் இணைகின்றன. வங்காள விரிகுடாவை ஒட்டி இயற்கையாக அமைந்த இந்த ஈர நிலத்தில் கடல்நீரும் நன்னீரும் ஒன்றாகக் கலப்பதால், இவ்விடம் பல்லுயிர்ப் பெருக்கத்துக்கான மிக முக்கியமான இடமாக உள்ளது.

இந்த ஈர நிலத்தில் தென் சென்னை மக்களின் குடிநீர்த் தேவைக்காக நீர்த்தேக்கம் அமைக்கும் திட்டத்தை முந்தைய தி.மு.க அரசு கொண்டு வந்தது. அதற்குப் பல தரப்பிலிருந்தும் கடுமையான எதிர்ப்புகள் கிளம்பினாலும் அவற்றை கண்டு கொள்ளாமல்... கடந்த ஜனவரி 19-ம் தேதி, இந்தத் திட்டத்துக்கு அடிக்கல்

நாட்டப்பட்டது. தற்போது, முதல்கட்டமாக 4,375 ஏக்கர் பரப்பில் 342.6 கோடி ரூபாய் மதிப்பீட்டில் நீர்த்தேக்கத்துக்குக் கரைகள் அமைக்கும் பணிகள் நடந்து கொண்டிருக்கின்றன. இதற்கு, சுற்று வட்டாரப் பகுதியைச் சேர்ந்த மக்களும் சுற்றுச்சூழல் செயற்பாட்டாளர்களும் கடும் எதிர்ப்பு தெரிவித்து வருகின்றனர்.

இரட்டைச் சகோதரிகள்!

இதுகுறித்து நம்மிடம் பேசிய, 'சூழல் அறிவோம்' அமைப்பின் ஒருங்கிணைப்பாளர் திபக் வெங்கடாசலம், 'The Great Salt Lake' என அழைக்கப்படும் நெம்மேலி சதுப்புநிலப் பகுதியும், பள்ளிக் கரணையில் உள்ள சதுப்புநிலப் பகுதியும் 'இரட்டை சகோதரிகள்' எனப் போற்றப்படுகின்றன. சுமார் 8,500 ஏக்கர் பரப்பளவு கொண்ட நெம்மேலி சதுப்புநிலப்பகுதி... கடல்நீரும் நன்னீரும் கலக்கும் தனித்துவமான



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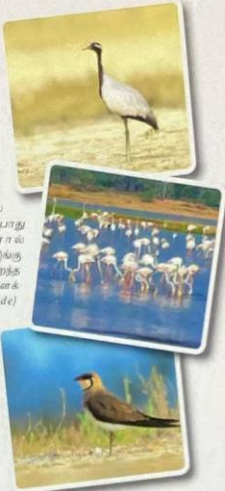
பக்கம்: 10 | 10.6.2026 | vikatan.com

<https://www.vikatan.com/environment/living-things/reservoir-in-a-swamp>

குழலியைக் கொண்டுள்ளது. இந்த 18 திலத்தின் நீர்ப்பிடிப்பு பகுதியில் 69 சதுரகிலோமீட்டர் ஏரிகள் உள்பட 121 நீர்த் திண்டைகள், 20 காப்புக்கான ஆய்வு உள்ளன. அகண்ட நீர்ப்பிடிப்பு பகுதியின் வெள்ளநீர் வடிகாலாகவும் நெய்மேலி சதுப்புநிலம் விளங்குகிறது. பூயல் காலங்களில் ஏற்படும் கடல் சீர்திருத்தினால் திலத்துக்குப் புகும் கடல்நீரைத் தாவி, உள்வாங்கும் ஓர் இயற்கையான அரணாகவும் இப்பகுதி இருக்கிறது.

மேற்குப் பகுதியில் உள்ள நீர்ப்பிடிப்புப் பகுதிகளில் இருந்து வரும் நீர், நெய்மேலிப் பகுதியை அடைவதுபோது கடற்கரையோரம் தீண்டுள்ள மணல்மேடுகளால் தடுக்கப்படுகிறது. இவ்வாறு பல துறை ஆண்டுகளாக இங்கு நீர் தேங்கிச் செல்வதால் இதைப் பகுதி பாலுமீரிகள் திலத்தை ஒரு பரந்த 18 திலமாக உருவெடுத்துள்ளது. வங்காளக் கடலின் அலைகளால் உயர்த்தி ஒதம் (High Tide) ஏற்படும்போது, கடல்தீர் உட்புகுந்து இதை உவர் திலமாக (brackish wetland) மாற்றுகிறது.

பருவகாலம், மழைப் பொழிவு, அன்றாட கடல் ஒது அலைகள் ஆகியவற்றின் கழற்சிக் கெடும், நெய்மேலிச் சதுப்புநிலத்தின் தன்மை மாற்றி கொண்டு இருக்கும். ஆழம் குறைந்த தீர்திலம், சதுப்புநிலம், பரந்த புல்வெளி, மண் திடீருகள், கைவிடப்பட்ட உப்பளங்கள், வறண்ட மண் பகுதி, தன்னர் - உவர் நீர்ப்பகுதி, அலையாத்திச் காடுகள் எனப் பலவற்றையும் உள்ளடக்கியதாக நெய்மேலி சதுப்புநிலப்பகுதி அமைந்துள்ளது.



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வலசை வரும் பறவைகள்!

மத்திய ஆசிய பறவைகளின் வழித்தட (Central Asian Flyway) பகுதியில் இந்த சதுப்புநிலப்பகுதி அமைந்து இருப்பதால், ஆயிரக்கணக்கான பறவைகள் இங்கு வலசை வருகின்றன. இப்படியாக, பல்வேறு சிறப்புக் களைக் கொண்ட, ஒரு தனித்துவமான குழுவை அழித்து, இங்கு தமிழக அரசு 'மாமல்லன் தன்னார் தோக்கம்' என்ற பெயரில் ஒரு நீர்த்தேக்கத்தை உருவாக்குவது பலவாழ் அநிர்ச்சியில் ஆழ்ந்துள்ளது.

உயிரியல் புகழிடம்!

சதுப்புநிலங்களுக்கு வழங்கப்படும் 'ராமசார்' (RAMSAR) அங்கீகாரத்துக்குத் தேவையான ஒன்பது தகுதிகளில் ஐந்து தகுதிகளை நெய்மேலி சதுப்புநிலப் பகுதி கொண்டுள்ளது. நன்னீரும் உப்புநீரும் கலக்கும் நெய்மேலியின் தனித்துவமான சூழலமைப்பு இப்பகுதியின் முதன்மையான உயிரியல் புகழிடமாகத் திகழ்கிறது. அழிந்து வரும் நிலையில் உள்ள அங்கு அச்சுறுத்தக் குள்ளான உலகனாவிய உயிரினங்களுக்குப் புகழிடம் அளிக்கும் இடமாகவும் இது உள்ளது. அழிவு நிலையில் உள்ள அரிய வகை பூச்சி புண்ணித் தாவரமான 'சன்ஷியூ' (Drosera) உள்பட்ட வற்றின் வாழ்விடமாகவும் இது உள்ளது. பல்வேறு உயிரினங்களின் இடப் பெயர்வு, இனப் பெருக்கம் ஆகியவற்றுக்கு ஆதரவளிக்கக் கூடிய இடமாகவும் இது உள்ளது.

மத்திய ஆசியப் பறவைகளின் இடப் பெயர்வுப் பாதையில் பயணிக்கும் 88 வலசைப்பறவைகளுக்கு இது ஒரு முக்கிய உணவுத் தளமாகவும் உணவுப்பூண்ப் பகுதிகளாக, 'டெமொசெல் கிரேன்' (Demoiselle Crane) போன்ற அரிய வகைப் பறவை இனங்களின் குளிர்காலத் தங்குமிடமாகவும் இது விளங்குகிறது.



● தீக் வெங்கடேசன்

20,000 பறவைகளின் வாழ்விடம்!

கிட்டத்தட்ட 20,000-க்கும் மேற்பட்ட தீர் வாழ் பறவைகளின் வாழ்வாதாரமாகவும் இது திகழ்கிறது. தீர் வளத்துறையின் கற்றுச்சூழல் தாக்கம் மதிப்பீட்டு 45,000-க்கும் மேற்பட்ட பறவைகள் இருப்பதாகவும் குறிப்பிடப்பட்டுள்ளது. தெற்காசியாவில் காணப்படும் மிகவும் அரிதான, மிகப் பெரிய பறவை இனங்களில் ஒன்றான சாமல் கழைக்கடா பறவைகள், நெய்மேலி சதுப்புநிலப்பகுதியில் அதிக எண்ணிக்கையில் காணப்படுகின்றன. மஞ்சள் மூக்கு தாளை, கருத்தலை அரிவான் மூக்கன் ஆகிய பறவை இனங்களும் கணிசமான எண்ணிக்கையில் இங்கு வாழ்ந்து வருகின்றன.

பாழ்மய மீன்பிடித் தொழில்!

நெய்மேலி சதுப்புநிலத்தைச் சுற்றியுள்ள 16 கடலோரக் கிராமங்களைச் சேர்ந்த மீன்பவர்களின் முதன்மையான வாழ்வாதாரமாகவும் இதைப் பகுதி திகழ்கிறது. ஆழமில்லாத இந்தச் சதுப்புநிலங்களில் பாரம்பரிய முறையில் மீன்பிடித் தொழில் மேற்கொண்டு தங்குமிடம் வரும் மீன்களை வசூலிக்கும் நடைமுறை இங்கு நடைபெறுகிறது. மீன்பிடிக்க குறிப்பாக, இரண்டு பழம் குடியினர் இனத்தினங்கள் இறங்கி, சதுப்புநிலச் சேற்றுக்குள் கைகளால் தேடி இறாங்களைப் பிடிக்கும் தங்களின் தனித்துவமான பாரம்பரிய வாழ்விடப் முறையை இன்றளவும் கடைப்பிடித்து வருகிறார்கள்.

பல துறாற்றுக்களாக இங்கு வாழ்ந்து வரும் மீன்கள், பறவைகள் மற்றும் தீர்வாழ்

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உயிரினங்களின் வாழ்விடம் குறுக்குப் பாதிப்பு ஏற்படுத்தாத வகையில் இயற்கையுடன் இயைந்து வாழ்ந்து வருகின்றனர்.

எனவே, நெய்மேலி சதுப்புநிலப் பகுதியை அதன் இயல்புத்தன்மையுடன் பாதுகாத்துத் தக்க வைப்பதே நோக்கம்... உயிரியல் பன்மையம், மக்களின் வாழ்வாதாரம், பண்பாட்டு மரபு மற்றும் சுற்றுச்சூழல் நிலைத்தன்மை ஆகியவற்றை சரப்பதற்கு மிகவும் அவசியமானது என்ற நிலை வெவ்வேடசமம், நீர்த்தேக்கம் அமைவதால் ஏற்படும் பாதிப்புகள் குறித்துச் சொன்னார்.

இங்கு வரிகளும் பறவைகளின் பெரும் பாலானவை, குறைந்த நீர்மட்டத்தில்தான் உணவு தேடுகின்றன. நீர்த்தேக்கம் அமைப்பதற்காக, தீரின் ஆழம் அதிகரிக்கப்பட்டால், அவற்றின் உணவுப் பகுதியை மறைத்து பறவைகள் அந்த இடத்தை இழக்க நேரிடும். இந்த இடத்தை நன்னீர் பகுதியாக மாற்றினால், இறாங்களை இனப்பெருக்கம் பாதிக்கப்படும் மீனவர்களின் வாழ்வாதாரமும் கடுமையாகப் பாதிக்கப்படும். கடல் தீர் புகும் பாதையை மறித்து

நீர்த்தேக்கம் கட்டப்படுவதால், கடலுள் இருந்து வரும் கடல்வாழ் உயிரினங்கள் அங்குள்ள குடியிருப்புகளில் கடுமையான வெள்ளப்பெருக்கு ஏற்படும்.

இந்த இடத்தில் தீண்டாமை தலையிடும் உப்புநிலம் அமைந்துள்ளது. அங்கு பதிவாக நன்னீர் நீர்த்தேக்கத்தை உருவாக்குவது மிகவும் கடினம். இந்த இடம் வெற்றிகரமாக அமைவதற்குக் கண்டிப்பாக வாய்ப்பில்லை. பல துறை கோடி ரூபாய் பணமும் அரசு அதிகாரிகளின் நேரமும் தொழிலாளர்களின் உழைப்பும் வீணடிக்கப்படுகிறது. அநித்தேர், அநித்தேர்... தேவையற்ற இடம் முயற்சியில் முத்தைய திருக அரசு இறங்கி விட்டது.

மாமல்லன் நீர்த்தேக்கத் திட்டப்பணிகளால் நீர் வழிப் பாதைகளும் கடல் ஒதுக்களும் முடங்கிப் போய், நீர்மட்டம் சரிந்துள்ளது. இன்னும் மீன்வளம் குறைந்து மீனவர்களின் வாழ்வாதாரம் பாதிக்கப்பட்டதோடு, பறவைகளின் வாழ்விடங்களும் சிதைந்துள்ளன. எனவே, தற்போதைய அரசு இடத் திட்டத்தை முழுமையாகக் கைவிட்டு, நெய்மேலி சரதிலப் பகுதியைப் பாதுகாக்கப்பட்ட சூழல் மண்டலமாக அறிவிக்க வேண்டும்.

நெய்மேலி கடலோர சரதிலம் என்பது வெறும் காலியாகக் கிடக்கும் நிலப்பரப்பு அல்ல. இது உயிரியல் பன்மையம், மீன்வாழ்வாதாரம், வெள்ள வடிகாலம் மற்றும் இயற்கை பாதுகாப்பின் உயிர் தாடி. எனவே, இயற்கை அமைப்பை பாதிக்கும் மாமல்லன் நீர்த்தேக்கத் திட்டத்தைக் கைவிட்டு, பணிகளையும் உடனடியாக நிறுத்துவது மிகவும் அவசியம். நெய்மேலி சரதிலத்துக்குச் சட்டபூர்வமான பாதுகாப்பு வழங்கி, உள்நாடு சமூகங்களுடன் இணைந்து அவதாரம்மாந்தளமாக அறிவிக்கும் நடவடிக்கைகள் மேற்கொள்ளப்பட வேண்டும்" என்ற நிலை வெவ்வேடசமம் நிறைவாக,

"மாமல்லன் நீர்த்தேக்கத் திட்டத்தைக் கைவிட்டால், தென்சென்னை மக்களின் குடிநீர் தேவையை எப்படிப் பூர்த்தி செய்வது என அரசு அதிகாரிகளும் முத்தைய ஆட்சியாளர்களும் கேள்வி எழுப்புகிறார்கள். இது பிரச்சனையைத் தீர்த்திருக்கும் முயற்சி.

vikatan.com | 10.6.2026 | பகலம் விடன் | 73



இந்தப் பகுதியில் கடல்தரைக் குடிநீராகும் நிலையங்கள் இரண்டு செயல்பட்டு வருகின்றன. மேலும், சென்னைவின் குடிநீர் தேவைக்காக நெய்மேலி அருகே உருவான ஒட்டியப் பகுதியில் நெய்மேலி ஆகியா விமேய மீன்பெரிய கத்திரிப் நிலையம் அமைப்பதற்கான பணிகள் தற்போது நடைபெற்று வருகின்றன. தென்சென்னை மக்களின் குடிநீர் தேவையைப் போக்குவதற்கு இவையே பொதுமனவை எனவே, நெய்மேலி சதுப்புநிலப் பகுதியில் நீர்த்தேக்கம் அமைப்பதென்பது ஆக்கபூர்வமற்ற முயற்சி" என்றார்.

இந்தத் திட்டத்துக்குத் தமிழ்நாடு பொதுப் பணித்துறை மூத்த பொறியாளர்கள் சபையும்



● வீரபன்

எதிர்ப்பு தெரிவித்து வருகிறது. இந்தத் திட்டத்துக்குப் பதிலாக, வேறொரு மாற்றுத் திட்டத்தை வடிவம் முன் வைக்கிறது. இச்சமம்.

இதுகுறித்த நம்மிடம் பெரிய சங்கத்தின் நிர்வாகியும், தமிழ்நாடு பொதுப் பணித்துறையின் முன்னாள் சிறப்புத் தலைமைப் பொறியாளருமான வீரபன், "புதிய நீர்த்தேக்கம் கட்டுவதற்கு பதிலாக, அநிக் செலவில்லாத, குறைந்த செலவு மூலமாக மாற்றத்தீர்வு உள்ளது.

தமிழ்நாடு அரசின் தீர்வாழ்வுறையின் கீழ், சென்னை மற்றும் இன்ன சுற்றுலாடாரப் பகுதிகளில் உள்ள குறிப்பிட்ட ஏரி மற்றும் குளங்களைத் தேர்ந்தெடுத்து, அவற்றின் சூழலியல் பாதிக்காதவாறு 25% வரை தூர்வாரினாவே போதுமானது. இதன்மூலம் நீர்திலைகளின் கொள்ளளவும், மழைநீர் சேமிப்புத் திறமும் கணிசமாக உயரும். இது, சென்னை நகரின் நீர்த்தேவைக்கும், வெள்ள மேலாண்மைக்கும் தீண்டாமைத் தீர்வாக அமையும்" என்றார்.

இந்தப் பிரச்சனை தொடர்பாக செய்கல் படட்டு மாவட்ட ஆட்சியர் மாண்புமிகு சென்னை தொடர்புகொண்டு பேசியபோது, "இந்தத் திட்டத்துக்கும் எனக்கும் சம்பந்தம் இல்லை, தீர்வாழ்வுறையின் கீழ் இத்திட்டம் பொறுப்பு" என்று முடித்துக்கொண்டார்.

தமிழ்நாடு சுற்றுச்சூழல் மற்றும் காலநிலை மாற்றத்துறையின் இயக்குநர் ராஜசுந்தரிடம் பேசியபோது, "மக்களின் குடிநீர் தேவையைப் பூர்த்தி செய்வதற்காகவே இந்தத் திட்டம் உருவாக்கப்பட்டுள்ளது. இந்தச் செயல்படுத்தவதற்குத் தேவையான கற்றுச்சூழல் ஆய்வுகளை நடத்தி அனுமதி வழங்கிவிட்டோம். தமிழ்நாடு நீர்வளத் துறையின், தற்போது உடனான பணிகளைத் தொடங்கிவிட்டனர்" என்றார்.

தீவிரம் அடைந்து வரும் பருவநிலை மாற்றச் சவால்களைக் கருத்தில் கொண்டு... புதிய அரசு, இந்தத் திட்டத்தை முறுபிசிலை செயல் வேண்டும் என்பதே மீனவர்கள் மற்றும் சூழல் செயற்பாட்டாளர்கள் கோரிக்கை.

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With love, from Kazakhstan: Ringed harrier makes Nemmeli seasonal home

Asha.Prakash@timesofindia.com

Chennai: Earlier this year, Suzhal Arivom, an environmental research and conservation collective, spotted a ringed adult male Montagu's harrier (*Circus pygargus*) at Nemmeli in Chennai. Now it's been confirmed from the ring number that the bird was originally ringed in Rajasthan by the Ashoka Trust for Research in Ecology and the Environment (ATREE) under their Harrier Watch programme in 2019. "We ringed it as a juvenile in its first year," says Arjun Kannan, researcher at ATREE. "And there might be other such birds as well at Nemmeli as they are communal roosters."

The birds migrate from Kazakhstan to India, first to Rajasthan and later southwards as the sea-

son progresses, when the western Indian grasslands become dry during winter. Afterwards, they fly back to Kazakhstan directly along the Central Asian Flyway (CAF).

"After more than a week of observation, the ringed male bird was found to engage in the full range of wintering behaviours that the site evidently supports; perching on open ground and low vegetation in the seasonal grassland and actively hunting over the grassland-wetland mosaic, a habitat type that falls under India's threatened Open Natural Ecosystems (ONEs)," says Deepak V from Suzhal Arivom. "Roosting at the site, it was seen with an adult female Montagu's Harrier, an apparent pair."

It shows that the Nemmeli coastal



RINGED BY ATREE: IT perched on open ground and low vegetation in the grassland

tal wetland complex is not just an incidental stopover for this species, says Deepak. "It is supporting the complete suite of behaviours that define a functional wintering ground."

They are known to come back to the same wintering sites every year, says Arjun. "There might be predictable resources at Nemmeli for them to forage in. If something happens to that site, they might be

pushed to other suboptimal habitats where they might not have enough experience to be able to forage well."

Nemmeli is known for a mix of grassy and wetland habitats, ideal for harriers. "The Nemmeli coastal grassland-wetland complex supports pallid harrier, western marsh harrier, eastern marsh harrier, pied harrier, as well as peregrine falcon, red-necked falcon, Eurasian kestrel, osprey, fish eagles and spotted eagles. It's significant as a diverse raptor wintering habitat," says Deepak.

Harriers have been established as a grassland-dependent species group that has shown documented declines of more than 30 years across India due to grassland loss, as documented by ATREE's published research.

"We seek the recognition of the Nemmeli seasonal grassland coastal wetland complex as a documented wintering site for long-distance migrant raptors, in any habitat-mapping or site-prioritization work undertaken under the Tamil Nadu Raptor Research Foundation," says Deepak. "Guidance from the Advanced Institute for Wildlife Conservation (AIWC) on the appropriate process by which a site such as Nemmeli can be brought to the attention of the Tamil Nadu forest department for habitat assessment, with a view to influencing future land-use and conservation decisions." The Mammallan freshwater reservoir project at Nemmeli, he says, is a threat and will lead to destruction of this thriving ecosystem.

<https://timesofindia.indiatimes.com/city/chennai/ringed-harrier-makes-nemmeli-seasonal-home/articleshow/131445059.cms>

Rare bird sighting revives call to protect Nemmeli-Illalur wetland

SV KRISHNA CHAITANYA @ Chennai

THE sighting of a globally endangered Indian Skimmer at Illalur Lake near Chengalpattu has sparked fresh calls from conservationists to protect the ecologically fragile Nemmeli-Illalur wetland complex.

Birders documented a lone Indian Skimmer (*Rynchops albicollis*) at Illalur lake on May 10 between 7.55 am and 8.30 am, marking the only the second confirmed record of the species from the lake and only the 20th documented observation event in the state over the last 11 years. The species is estimated to have fewer than 3,000 individuals globally.

The observation was made by birders Ravichandran, I Abinash and Madhan. According to the observers, the bird was seen foraging in knee-deep water amid extensive mudflats exposed by low water levels at the lake. "We assume skimmers and other pratincoles chose the site because of the extensive mudflats available for roosting and foraging. These mudflats should not be removed in the name of future lake restoration," the group said.

Illalur lake, located adjacent



Indian Skimmer | EXPRESS

to the Nemmeli coastal wetland, has long served as a seasonal habitat for several waterbirds including Small Pratincole, Little Ringed Plover, Black-winged Stilt, Spot-billed Duck and Fulvous Whistling Duck. Birders say the lake's exposed mudflats and shallow waters create ideal stopover conditions for migratory birds along the Central Asian Flyway.

The latest sighting comes amid growing concerns over the proposed Mammallan Reservoir project, which conservationists fear could alter the hydrology of the wetland complex. Illalur and Nemmeli are hydrologically connected and lie barely 4 km apart. "Destroying or altering one wetland will affect the entire connected eco-

system," said Deepak Venkatachalam, founder of Suzhal Arivom, a grassroots nature conservation group.

Data compiled from eBird records show Indian Skimmer sightings in Tamil Nadu are exceptionally rare. Only 19 observation events were documented between 2015 and 2024, with 89% of sightings recorded at Pulicat lake. Six of those years had zero sightings.

Conservationists also pointed to the degradation of the nearby Sirudavoor wetland as a warning. Once known for grasslands and mudflats used by migratory raptors and pratincoles, the site reportedly lost its ecological value following sand mining and habitat modification. "This record is an indicator of the ecological health and international importance of these wetlands. Protecting wetlands means protecting entire migratory pathways," said another member of Suzhal Arivom.

The Suzhal Arivom recommends declaring the Illalur-Nemmeli wetland complex an Important Bird Area and initiating long-term monitoring to document migratory bird usage.

<https://www.newindianexpress.com/cities/chennai/2026/May/17/rare-bird-sighting-revives-call-to-protect-tns-nemmeli-illalur-wetland>



Experts say Kovalam-Nemmeli backwaters function as tidal marsh ecotone hydrologically connected to Bay of Bengal via Kovalam and Kokilamedu inlets | EXPRESS

Mamallan dam will damage backwater ecosystem: Experts

EXPRESS NEWS SERVICE
@ Chennai

A group of scientists, ecologists and conservation experts has urged Chief Minister MK Stalin to withdraw the proposed Mamallan reservoir project, warning it could cause irreversible damage to the Kovalam-Nemmeli backwater ecosystem.

In a letter, the signatories, including contributors to national and global climate assessments, said scientific evidence shows the project would harm one of Tamil Nadu's important coastal wetlands.

The experts stressed the Kovalam-Nemmeli backwaters function as a tidal marsh ecotone hydrologically connected to the Bay of Bengal through the Kovalam and Kokilamedu inlets, and are not an inland freshwater depression. Restricting tidal flow, they warned, would alter salinity, temperature and circulation patterns, ultimately limiting marine biodiversity.

They noted the southern stretch near Mamallapuram remains ecologically healthy due to continued tidal inflow, while parts of the Nemmeli stretch already show early signs of degradation because of partial blockage by roads and bunds.

wetland supports seagrass patches, mudflats used by migratory waders, and brackish habitats essential for juvenile fish and shrimp. Converting the system into a freshwater reservoir could destroy these functions within a single season.

The group also flagged hydrological risks, pointing out the Environmental Impact Assessment itself attributes flooding in western villages to drainage bottlenecks along Old Mahabalipuram Road and the Kelambakkam-Kovalam Link Road. The proposed reservoir, they said, does not address these choke points and could create a rigid basin vulnerable to overtopping during cyclones.

Calling for an alternative approach, the signatories urged the government to instead declare the area a protected lagoonal wetland, 'Mamallan Lagoon', and pursue restoration based on scientific and community knowledge.

The appeal was endorsed by over 20 experts, including Nityanand Jayaraman, Asad Rahmani, Romulus Whitaker and Ravi Chellam.

PUBLIC NOTICE
My client intends to purchase all that

Nemmeli...

just a place illa, it's a living ecosystem



Naan personal ah anga poi paathathu —
Flamingos, Lapwings, Thick-knees,
Raptors, Pipits, Pelicans, Egrets, Spoonbills...
vera level variety of ducks... innum neraya birds.



Idhu just "some birds varra place" illa...
100+ species easy ah paaka mudiyum...
sila naal la 200+ kooda cross aagum.



Recent ah, rare ah Demoiselle Crane kooda
anga vandhurukku —
adhuyum North Tamil Nadu la first record nu
sollalaam.

IPPO ENNA NADAKUTHU NA...

indha natural ah irukura brackish wetland ah
freshwater reservoir ah maathura plan nadakuthu.

HONESTLY SOLLANUM NA —

idhu nadandha, indha ecosystem
full ah collapse aagum.

- ✗ Flamingos varaadhu
- ✗ Ducks varaadhu
- ✗ Migratory birds stop pannidum...
- ✗ anga irukura biodiversity
completely impact aagum.



LAPWING

THICK-KNEE

RAPTOR

EGRET

SPOONBILL



Water venum... adhu correct.

Aana nature ah destroy panniitu kidaikkara water,
long term la namakku help pannaadhu.

**NEMMELI NEEDS PROTECTION,
NOT CONVERSION.**



Indha place ah protect pannina —
birds kooda, anga irukura fishing communities kooda
survive pannum.

**Ithu oru request illa...
oru awareness.**

SAVE NEMMELI WETLAND



Let's protect what makes Nemmeli unique.

For Our Birds. For Our Future.

Scrap Mamallan Reservoir



Endorse the letter demanding withdrawal of the project

Scan to sign the public endorsement now !!!

tinyurl.com/MamallanReservoir



#SaveWetlands

#StandwithNemmeliFishers



8807278544



chennaiwetlandscollective@gmail.com



[cwac_wetlands](https://www.instagram.com/cwac_wetlands)

<https://forms.gle/ThzRzGm2UnV1aXuP6>

End Note

This document is compiled in the interest of public awareness and collective environmental stewardship.

The Kovalam-Nemmeli Coastal Wetland Complex is a shared ecological heritage, sustaining rich biodiversity, traditional coastal livelihoods, and natural flood defences vital to the greater Chennai region. Its preservation is a matter of public responsibility. The concerns documented here call for transparent, science-informed governance and careful consideration of all environmental, social, and economic implications before any irreversible intervention on this ecologically sensitive landscape is allowed to proceed.

Contact: wetlandconservationnetwork@gmail.com