

BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI
Original Application No.152 of 2023 (SZ)

In the matter of:

Thiru. Kumaresan Sooluran
Thiruvallur.

... Applicant(s)

Versus

The Tamil Nadu Coastal Zone
Management Authority,
Rep by its Member Secretary,
Chennai and ors.

...Respondent(s)

REPORT FILED BY 4TH RESPONDENT-
TAMILNADU STATE WETLAND AUTHORITY

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Through
Dr. D. Shanmuganathan
Standing Counsel for Government of Tamil Nadu
National Green Tribunal
Southern Zone, Chennai

DATE: 28.07.2025

**BEFORE THE HON'BLE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI**

Original Application No. 152 of 2023 (SZ)

IN THE MATTER OF:

Kumaresan Sooluran

Aged about 44 Years,

Kathivakkam,

Ennore Thermal Station,

Thiruvallur-600057.

...Applicant(s)

-Vs-

The Tamil Nadu Coastal Zone Management Authority,
Rep by its Member Secretary,
Chennai and others.

...Respondent(s)

**STATUS REPORT FILED BY THE 4th RESPONDENT/MEMBER
SECRETARY, TAMIL NADU STATE WETLAND AUTHORITY**

I, Srinivas R.Reddy, S/o Late T. Ramachandran Reddy, aged about 59 years, working as the Principal Chief Conservator of Forests (Head of Forest Force) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) at Panagal Maligai, Saidapet Chennai-600 015 do hereby solemnly affirm and sincerely state as follows: -

1. It is respectfully submitted that I am the 4th respondent herein and, as such I am well acquainted with the facts and circumstances of the case based on official records, and as such, authorized and competent to file this report.
2. It is respectfully submitted that, this office functions as the nodal coordinating body to facilitate inter-departmental convergence and ensure compliance with the Hon'ble Tribunal's order and the objective to manage the invasive species.



**Principal Chief Conservator of Forests and
Member Secretary
Tamil Nadu State Wetland Authority
Chennai-15**

3. It is respectfully submitted that the Ennore Creek area, where the ongoing control and management measures for the invasive Charru Mussel (*Mytella strigata*) are being undertaken, is not a notified wetland under the Wetlands (Conservation and Management) Rules, 2017. As per Rule 3 of the said Rules, the regulatory framework applies only to wetlands that are formally notified by the State Government under these Rules. Therefore, the provisions of the Wetlands Rules, 2017 are not applicable in this case. The Tamil Nadu State Wetland Authority is coordinating these efforts in its capacity as the competent coordinating body for wetland-related matters. However, the present activities are being carried out in compliance with the directions of the Hon'ble Tribunal and through inter-departmental coordination though the area does not come under the regulatory scope of the Wetlands Rules.
4. It is respectfully submitted that combating the invasive species is both scientifically challenging as well as a difficult task on the ground due to various factors. It is submitted that there is an inter-departmental joint effort which is being undertaken with numerous variables
5. It is respectfully submitted that, in compliance with the directions of this Hon'ble Tribunal and in furtherance of the objectives relating to the control and management of the invasive Charru Mussel species in the Ennore Creek, this office has undertaken the responsibility to facilitate and coordinate the execution of three key components, namely: (i) Mapping of the invasive Charru Mussel, (ii) Implementation of eradication/control measures, and (iii) Exploring value addition opportunities for the invasive Charru Mussel.
6. It is respectfully submitted that the task of mapping was assigned to the National Centre for Sustainable Coastal Management (hereinafter referred to as NCSCM), being the competent expert institution in this domain. The task of eradication/control of the invasive species and exploring value addition possibilities of the invasive Charru Mussel was assigned to Dr. M.G.R.



Principal Chief Conservator of Forests and
Member Secretary
Tamil Nadu State Wetland Authority
Chennai-15



Fisheries College, Ponneri. Accordingly, NCSCM and Dr. M.G.R. Fisheries College, Ponneri, are at the forefront of operations to address the issue by providing sound technical expertise on the subject.

7. It is respectfully submitted that this Hon'ble Tribunal, by its order dated 09.07.2025, made the following observations (copy enclosed as Annexure-1):

" 3. It is pertinent to note that the desilting carried out by the Water Resources Department over a stretch of 1200 meters was solely intended for the removal of fly ash (funded by the TANGEDCO) and not for addressing the issue of Charru Mussels.

4. It was also submitted that the final report from the NCSCM on this matter is still awaited. It is important to point out that even after more than two years, a conclusive study has not yet been completed. All further actions are proposed to be taken based on the findings of this pending report.

5. We only hope that the Member Secretary, Tamil Nadu State Wetland Authority, who appeared through Video Conference today, will take up the matter with the Government and come back with a feasible solution accompanied by a definite timeline for its implementation.

6. Post the matter on 29.07.2025.

8. It is respectfully submitted that, in compliance with the above direction, this office issued letters to all the Respondents on 17.07.2025, requesting them to furnish a detailed status report on the aforementioned aspects. (Copy of the letter is enclosed as Annexure-2.)



9. It is respectfully submitted that Dr. M.G.R. Fisheries College, Ponneri, has undertaken a pilot study titled "Controlling the Spread of Invasive Mussel (*Mytella strigata*) in Dredged Areas of Ennore Creek." The study focuses on recurrence assessment, eradication strategies, and ecosystem restoration. Key activities include routine biological sampling to monitor plankton and benthic species diversity, observation of mussel bed formation and spread, experimental translocation of native species to assess ecological interactions, and the development of a standardized eradication protocol. The study is expected to be completed by 31.10.2025, and its outcomes are anticipated to support environmentally sustainable and replicable strategies for the long-term management of the invasive mussel. (Copy of the report is enclosed as Annexure-3.)
10. It is respectfully submitted that the National Centre for Sustainable Coastal Management (NCSCM) has undertaken the mapping of the invasive Charru Mussel (*Mytella strigata*) in Ennore Creek area work is currently in progress and is being executed in three phases. Field surveys and participatory mapping have been completed across the affected regions, and GIS-based integration along with vulnerability assessments are presently underway. A comprehensive action plan has been formulated, incorporating evidence-based removal strategies, community engagement involving the local fishermen, and ecologically synchronized methods. The final phase, which includes stakeholder consultations and submission of the draft report, is scheduled for completion by September 2025. (Copy of the report is enclosed as Annexure-4.)
11. It is respectfully submitted that, in addition to the above, dredging operations in the affected regions of Ennore Creek are currently being undertaken by the Water Resources Department (WRD), which is the competent and responsible authority for initiating necessary measures in this regard. As per the report



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Member Secretary
Tamil Nadu State Wetland Authority
Chennai-15

received from the National Centre for Sustainable Coastal Management (NCSCM), a hotspot identification study was conducted over a 24 km stretch, identifying areas with high, low, and no infestation of the invasive Charru Mussel. Based on this report, the WRD prepared a cost estimation proposal by dividing the stretch into six segments. The estimated costs for these segments are ₹70 crore, ₹19 crore, ₹9 crore, ₹20.85 crore, ₹24 crore, and ₹7 crore, covering key locations such as Ennore, Ash Pipeline Road, Puzhuthivakkam, Puzhuthivakkam–Kattupalli, Kalanji, and the Pulicat Lake Mouth. The proposal by WRD aligns with NCSCM's mapping, both identifying the need for targeted intervention in the Charru Mussel-infested areas. Recent reports from NCSCM have further refined this by clustering the identified 1.70 km stretch into 5 distinct zones based on infestation severity. Fund prioritization is therefore recommended for these specific zones, ensuring focused removal efforts. This approach will help avoid large-scale dredging and preserve traditional paadu fishing practices like Karukkumara Paadu and Kandanchedi Paadu, crucial for sustaining native fisherfolk livelihoods. (Copy of the report is enclosed as Annexure-5.)

12. It is respectfully submitted that the Water Resources Department has prepared a detailed action plan for the systematic removal of the invasive Charru Mussels (Kakka Aazhi) through targeted dredging operations. The plan prioritizes a critical 2200-meter stretch in the Puzhuthivakkam–Kattupalli region and outlines a phased approach, including pre-dredging surveys, execution of dredging, and post-restoration monitoring. Necessary permissions and identification of suitable disposal sites are currently under process, in coordination with the Forest Department. It is submitted that the dredging work is proposed to commence post-monsoon, following the completion of tendering procedures. This project is in alignment with the objectives of the Tamil Nadu Wetland Mission and aims to restore native



biodiversity, improve water quality, and enhance the livelihoods of dependent fishing communities.

13. It is respectfully submitted that the dredging operations fall exclusively within the purview of the Public Works Department (Water Resources Department – WRD). Although the dredging is primarily undertaken in areas impacted by fly ash deposits, it is submitted that these areas also coincide with regions affected by the invasive Charru Mussel species. Therefore, the dredging serves a dual purpose—addressing both fly ash accumulation and invasive species control—thereby contributing positively to the ongoing efforts to combat the spread of the invasive Charru Mussel in Ennore Creek.

14. It is respectfully submitted that, in pursuance of the directions issued by this Hon'ble Tribunal, the Tamil Nadu State Wetland Authority (TNSWA) convened a coordination meeting on 23.07.2025 with the concerned line departments and expert institutions to review and expedite the implementation of action points pertaining to the control and management of the invasive Charru Mussel in Ennore Creek. (A copy of the minutes of the said meeting is enclosed as Annexure-6). During the meeting, the following discussions and deliberations were carried out by this office;

- 1. The Executive Engineer, Water Resources Department informed that the works taken of 1.7 km, only 200 m is pending and it will be completed by end of August, 2025. He also informed that the proposal for Rs. 90 cr. was prepared and submitted to the Secretary, Water Resources Department and necessary orders, funds are awaited for dredging in the area for removal of Charu mussel.***
- 2. The Joint Director, Fisheries Department informed that occupational hazards in the creek area noticed due to the Charru mussel. The Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) requested the details on the fishing community affected, number of***



complaints received and particulars to the loss of income to fishing community due to Charru mussel. He emphasized that Fisheries Department has pivotal role in protecting the interest of the fishing community and have to take responsibility ensuring the integrity of the channels for sustainable fisheries. He called for the proactive intervention and requested to submit a report on affected fishing area and type of fish catch impacted, number of compliances received and grievances made to the Fisheries Department.

- 3. The NCSCM scientist shared that they reviewed international literature and case studies on similar invasive species, though not specific to *Mytella strigata*. It was noted that the Kerala coast is more severely impacted than Tamil Nadu due to the high dependence on yellow clam and mussel fisheries for local livelihoods and consumption. An experiment by CMFRI in 2019 tested the use of pearl spot fish (*Eetroplus suratensis*) to control mussels, but this was limited to laboratory conditions and is unlikely to be effective in the wild. The scientist emphasized that, globally, including in the case of zebra mussels in the U.S., no robust or permanent removal methods exist, and reinvasion is a common challenge.*
- 4. The NCSCM scientist informed that the primary report has been submitted and final report will be submitted by September 2025 as per the sechedule. Dr MGR Fisheries university will be submitting the report by Jan 2026 as per schedule. Further the NCSCM informed that the hotspots have been identified where the removal efforts can be concentrated.*

15. It is respectfully submitted that, based on the coordination meeting convened on 23.07.2025, a letter has been sent to the Secretaries of both the Fisheries Welfare Department and the Water Resources Department, requesting the mobilization of funds and initiation of the dredging work. (A copy of the letter is enclosed as Annexure-7.)

16. It is respectfully submit that the 3rd, Respondent is the Department of Fisheries and Fishermen Welfare, is the competent authority to lead the eradication, control, and



Principal Chief Conservator of Forests and
Member Secretary
Tamil Nadu State Wetland Authority
Chennai-15

sustainable management of the invasive Charru Mussel (*Mytella strigata*), as the infestation has direct impact on the fisheries resources and the livelihood of the local fishing community. The Department is responsible for assessing the impact, formulating removal strategies, engaging with affected communities, and ensuring ecologically sound interventions.

17. It is respectfully submitted that the 3rd Respondent be designated as the nodal agency for managing the Charru Mussel in Ennore Creek. This office has requested details regarding the impact on fisherfolk, including the extent of affected fishing areas, species impacted, number of complaints received and the estimated income loss to the fishing community. However, this information has not yet been provided.

18. It is respectfully submitted that the 5th Respondent filed a status report on 22.07.2024 stating that *“It is respectfully submitted that, the only reason for exotic presence of charru mussel in Kosasthalaiyar Backwater and Buckingham Canal is the failure of Indian Coastal Regulation of Port Authorities to stringently monitor the discharged ballast water regulation on ships enters into the Kamarajar Port Limited”* (Copy of the Report enclosed as Annexure-8) Therefore, it is prayed that suitable directions may be issued to the Indian Coastal Regulatory and Port Authorities to coordinate with the other Respondents for the timely execution of the dredging work.

19. It is respectfully submitted that as per the NCSCM report, the 24 km stretch includes zones with no infestation, low infestation, and high infestation of the invasive Charru mussel. Notably, the report indicates that there is no evidence of Charru mussel presence near the Karungali mouth, despite its occurrence in adjacent stretches. This underlines the need for detailed, site-specific studies before initiating any removal operations. In areas with low infestation, mechanical, manual, or biological methods may be employed for removal. However, expert guidance and scientifically sound recommendations from reputed institutions and organizations are essential to ensure that removal and dredging activities do not negatively impact the Ennore ecosystem and



its biodiversity. Hence, a methodical, well-planned, and ecologically sensitive approach is critical for the effective management and control of the Charru mussel.

I therefore humbly submitted that the above said fact may kindly be taken into consideration by this Hon'ble National Green Tribunal (SZ), Chennai and pass necessary orders as it deems fit and thus render justice.



DEPONENT

Principal Chief Conservator of Forests and
Member Secretary
Tamil Nadu State Wetland Authority
Chennai-15

VERIFICATION

I Srinivas R.Reddy, S/o Late T. Ramachandran Reddy the above named deponent do hereby verify that the contents of the above affidavit are true and correct on the basis official record maintained by the respondent no.4, no part of it is false and nothing material has been concealed there from.

Verified at Chennai on this the 23th day July, 2025.



DEPONENT

Principal Chief Conservator of Forests and
Member Secretary
Tamil Nadu State Wetland Authority
Chennai-15

Item No.13:-

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

[Through Physical Hearing (Hybrid Option)]

Original Application No.152 of 2023 (SZ)



IN THE MATTER OF:

Kumaresan Sooluran
Thiruvallur

...Applicant(s)

Versus

Tamil Nadu Coastal Zone Management Authority
Rep. by its Member Secretary
Chennai and Ors.

... Respondent(s)



Date of hearing: 09.07.2025

CORAM:

HON'BLE Smt. JUSTICE PUSHPA SATHYANARAYANA, JUDICIAL MEMBER

HON'BLE Dr. SATYAGOPAL KORLAPATI, EXPERT MEMBER

For Applicant(s): Mr. A. Yogeshwaran.

For Respondent(s): Dr. D. Shanmuganathan for R1 to R5.

Official present: Mr. R. Srinivas Reddy, Member Secretary,
Tamil Nadu State Wetland Authority.

ORDER

1. Mr. R. Srinivas Reddy, Member Secretary of the Tamil Nadu State Wetland Authority, appeared today through Video Conference and highlighted the findings of the NCSCM report, which do not support either manual or mechanical dredging.

2. However, the report unfortunately fails to propose any alternative mechanism for the removal of invasive Charru Mussels.

3. It is pertinent to note that the desilting carried out by the Water Resources Department over a stretch of 1200 meters was solely intended for the removal of fly ash (funded by the TANGEDCO) and not for addressing the issue of Charru Mussels.

4. It was also submitted that the final report from the NCSCM on this matter is still awaited. It is important to point out that even after more than two years, a conclusive study has not yet been completed. All further actions are proposed to be taken based on the findings of this pending report.

5. We only hope that the Member Secretary, Tamil Nadu State Wetland Authority, who appeared through Video Conference today, will take up the matter with the Government and come back with a feasible solution accompanied by a definite timeline for its implementation.

6. Post the matter on **29.07.2025**.

Sd/-
Smt. Justice Pushpa Sathyanarayana, JM

Sd/-
Dr. Satyagopal Korlapati, EM

O.A. No.152/2023(SZ)
09th July, 2025. Mn.



-4-

Annexure - 2



தமிழ்நாடு மாநில ஈரநில ஆணையம்
TAMIL NADU STATE WETLAND AUTHORITY



From

Thiru.Srinivas R. Reddy, I.F.S.,
Principal Chief Conservator of Forests (HoFF)
and Member Secretary,
Tamil Nadu State Wetland Authority (FAC),
Panagal Maaligai, Saidapet,
Chennai – 600 015.

To

The Tamilnadu Coastal Zone
Management Authority,
Rep by its Member Secretary,
No.1, Jeenis Road, Panagal Building,
Ground Floor, Saidapet,
Chennai-600 015
Email: tndoe@tn.nic.in

The District Collector
Thiruvallur District,
First Floor, Collectorate,
Tiruvallur-602001
E mail: colirtir@nic.in

The Department of Fisheries and
Fishermen welfare,
Rep by Commissioner of Fisheries and
Fishermen Welfare,
3rd Floor, Integrated Animal Husbandry and
Fisheries Building,
Nandanam, Chennai-600 035
E-Mail: ahsec@tn.gov.in.

The Public Works Department
Government of Tamilnadu
Rep by its Secretary, Fort St George, Chennai
E-mail: pwdsec@tn.gov.in.

The Superintending Engineer,
Water Resources Department,
Palar Basin Circle,Chepauk,
Chennai-600005.

The Director,
National Centre for Sustainable Coastal
Management (NCSCM),
Chennai.

The Dean,
Dr. MGR Fisheries College & Research Institute,
Ponneri.

Ref.No.TNSWA2/236/2024, Dated 17-07-2025

Sir / Madam,

Sub: Tamil Nadu Wetlands Mission – Court case - Filing of Status Report on Dredging Works and Invasive Mussel Removal – Compliance with NGT (SZ) Order dated 09.07.2025 in respect of O.A.No.152 of 2023 – Reg.

Ref: Orders of the Hon'ble National Green Tribunal (SZ) in O.A.No.152 of 2023, Dated: 09.07.2025.

With reference to the above, it is informed that the Hon'ble National Green Tribunal (Southern Zone), in respect of O.A. No.152 of 2023, has delivered the order on 09.07.2025 (Copy enclosed) regarding the removal of invasive *Charru Mussels* and associated dredging activities in coastal wetland areas and the during the hearing, the Hon'ble Tribunal observed the following:

" 3. It is pertinent to note that the desilting carried out by the Water Resources Department over a stretch of 1200 meters was solely intended for the removal of fly ash (funded by the TANGEDCO) and not for addressing the issue of *Charru Mussels*.

4. It was also submitted that the final report from the NCSCM on this matter is still awaited. It is important to point out that even after more than two years, a conclusive study has not yet been completed. All further actions are proposed to be taken based on the findings of this pending report.

5. We only hope that the Member Secretary, Tamil Nadu State Wetland Authority, who appeared through Video Conference today, will take up the matter with the Government and come back with a feasible solution accompanied by a definite timeline for its implementation.

6. Post the matter on 29.07.2025."

2) In view of the above, it is requested to furnish a detailed status report on the following aspects to this office on or before 18.07.2025 so as to apprise the matter before the Hon'ble National Green Tribunal (Southern Zone) during the next hearing on 29.07.2025.

Encl: As above

O/c

Yours faithfully

Digitally signed by
Srinivas R Reddy

Date: 17-07-2025

08:22:41

Principal Chief Conservator of Forests (HoFF)
and Member Secretary
Tamil Nadu State Wetland Authority (FAC)

Email sent on 17.07.25
(3.17PM)

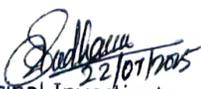


**Progress Report****A Pilot Study on Controlling the spread of Invasive Mussel, *Mytella strigata* (Hanley, 1843) in Dredged Areas of Ennore Creek, Chennai through Recurrence assessment, Eradication strategies and Ecosystem restoration**

1. **Site Selection for Monitoring: Three sampling plots** (1- PuliyaMaram; 2- Samuthra Munai II; 3 – Lock Munai) and **one control plot** (Attipattu Puthunagar Bridge) were investigated for the plot deployment
2. **Larval and Associated Species Diversity:** Identification of collected eggs & larval samples were continuing in parallel with generation of occurrence and abundance data for biodiversity analysis using PRIMER v7 software
3. **Equipment Purchase:** Equipment purchase was initiated in GeM portal for the project
4. **Species Translocation and Plot Trials:** Spots will be identified along the Ennore creek for the collection of native species such as yellow clam, green mussel, mud crab and white shrimp for species translocation into plot enclosures with different species combinations

Date of Start: 01.05.2025**Project Period: 6 Months (01.05.2025 to 31.10.2025)**

Note: The Administrative sanction for the project was issued by the University on 15.04.2025. The project likely to be completed on January, 2026.


Principal Investigator

Dr. C. Sudhan, M.F.Sc., Ph.D., (FRM)
Assistant Professor
Department of Fisheries Resource Management
M.G.R. Fisheries College & Research Institute
Dr. J. Jayalalitha Fisheries University
Ponneri - 601 204, Tiruvallur Dist. Tamil Nadu.


Dean
22/7/2025
TJNFU-Dr. M.G.R. FC&RI
Ponneri - 601 204

Timeline for the Proposed Plan of Action

S.No.	Plan of Work	Jul 25	Aug' 25	Sep' 25	Oct' 25	Nov' 25	Dec' 25	Jan' 26
1.	Enclosure set up for sampling plots: Establish boundary fencing using wooden poles (10m x 10m x 4m) and polyethylene webbing in all four sampling plots							
2.	Species Translocation and Plot Trials: Collection of native species such as green mussel, mud crab and white shrimp, followed by translocation into pen culture enclosures using different species combinations.							
3.	Environmental parameters monitoring: Regular monitoring of hydrodynamic parameters, Water and Sediment Quality Parameters							
4.	Biodiversity and Biological Sampling: Routine sampling to assess plankton including larvae and species diversity in each sampling plot followed by observation of mussel bed formation across various substrates, with documentation of reoccurrence and spread patterns							
5.	Protocol Development: Formulation of a standardized protocol for eradication strategies specific to <i>Mytella strigata</i>							
6.	Documentation: Preparation of a comprehensive Standard Operating Procedure (SOP). Compilation of findings and submission of technical reports to Wetland Authority.							

Sudhan
Principal Investigator

Dr. C. Sudhan, M.F.Sc., Ph.D., (FRM)
Assistant Professor
Department of Fisheries Resource Management
Dr. M.G.R. Fisheries College & Research Institute
Tamil Nadu Dr. J. Jayalalithaa Fisheries University
Ponneri - 601 204, Tiruvallur Dist. Tamil Nadu.

S. Balasubramanian
Dean - 22/7/2025

TNJFU-Dr. M.G.R. FC&RI
Ponneri - 601 204

- 9 -

Progress Report

**Value addition of Invasive Charru Mussel from Ennore Creek as Biofertilizer
and Mineral mix**

1. **Weight composition of charru mussel:** Commonly shell contains 60.7% and meat contains 39.25% in the total body weight (wet weight).
2. **Fertilizer nutritional composition in mussel meat:** Analyzed the bio-nutritional potential of various components of the invasive Charru mussel. Mussel meat powder exhibited a high organic matter content of 82.73%, total nitrogen at 10.88%, and beneficial levels of phosphate (3.26%), potash, manganese, and magnesium. In addition, C/N ratio of 5.4:1 in mussel meat indicates high nitrogen content. So, it requires external carbon addition during biofertilizer formulation for agriculture application.
3. **Mineral composition in mussel shell:** The shell powder analysis showed high calcium content (26.37%), along with phosphorus (3.68%) and magnesium (638 ppm). Trace minerals such as selenium, zinc, copper, sodium, and manganese were also present in the sample. These results confirm the feasibility of converting this invasive biomass into a sustainable mineral mix for aquaculture applications.
4. **Heavy metal concentration in mussel meat and shell:** All heavy metals, including arsenic, lead, nickel, and chromium, is within acceptable limits in both the meat and shell as per the FCO Order, 1985. However, strontium levels are exceptionally high in the mussel shell (Pulicat shell: 1437.43 ppm; Ennore shell: 1335.15 ppm). Strontium is generally regarded as having low toxicity in its common forms. Therefore, its presence is not expected to negatively impact the aquaculture ecosystem when the shell powder is converted into a mineral mix.

Date of start: 01.05.2025

Project period: One year (01.05.2025 to 28.02.2026)

Note: The administrative sanction for the project was issued by the University on 15.04.2025. The project likely to be completed on February 2026.

K. Masilan

Principal Investigator
Dr. K. Masilan
Assistant Professor
TNJFU – PPIFT
Madhavaram -51

S. Balasubramanian

Dean *22/7/2025*
TNJFU-Dr. M.G.R. FC&RI
Ponneri – 601 204

Plan of Action

Value addition of Invasive Charru Mussel from Ennore Creek as Biofertilizer and Mineral mix"

Mussel-Based Organic Fertilizer: The mussel meat, being nitrogen-rich with a low carbon-to-nitrogen ratio, will serve as the core ingredient for organic fertilizer production. To balance the high nitrogen content and adjust the C:N ratio to a suitable range for agricultural application, carbon-rich compost will be blended with the mussel meat powder. Clay will be incorporated to improve the physical texture and facilitate the formation of granules. This mixture will then be processed to form granules or pellets, which will be dried and cured to ensure stability and ease of application. The prepared fertilizer will undergo field trials at the agricultural demonstration plots of TNAU-KVK, Tiruvallur. These trials will evaluate the performance of the fertilizer in terms of plant growth promotion, yield enhancement, and soil nutrient improvement. Based on field trial outcomes, the fertilizer formulation will be optimized, and the most effective blend of mussel meat, compost, and clay will be standardized. Upon finalization, standard operating procedures (SOPs) will be developed.

Mineral Mix for Aquaculture Application: The mussel shells, which are rich in calcium and phosphorus, will be processed into fine powder for use as a base material in the mineral mix formulation. Since the shell powder lacks certain essential micro-minerals like zinc, potassium, and copper, these will be supplemented externally to develop a balanced mineral mix suitable for aquaculture, particularly shrimp farming. Various formulations will be prepared using different inclusion levels of micro-minerals. This mineral mix will then be incorporated into shrimp feed at different dosages. Controlled shrimp feeding trials will be conducted at the TNJFU farm facility in Madhavaram to evaluate the impact of the mineral-supplemented feed on shrimp growth, survival rate, shell hardness, and overall health.

Technology Transfer and Livelihood Promotion: Following standardization and successful validation of both products, the developed technologies will be transferred to local user groups in the Ennore region. If the mussel biomass gains a market value of Rs. 5–10 per kilogram, fishermen will be incentivized to collect it from the water. This approach aims to convert the invasive Charru mussel biomass into commercially viable products, contributing to both environmental management and livelihood improvement in the Ennore region.

Timeline for the Proposed Plan of Action

S.No.	Plan of Work	Jul 25	Aug' 25	Sep' 25	Oct' 25	Nov' 25	Dec' 25	Jan' 26	Feb' 26
1.	Mineral Mix Development for Aquaculture: Processing of mussel shells; formulation with added micro-minerals (Zn, K, Cu, Mn); pilot mixing trials.								
2.	Shrimp Feeding Trials with Mineral Mix: Feeding trials at TNJFU farm, Madhavaram; assessment of shrimp growth, survival, and SOP preparation.								
3.	Mussel-Based Organic Fertilizer Development: Preparation of nitrogen-rich mussel meat powder; blending with compost and clay; granule formation.								
4.	Field Trials for Fertilizer: Application of fertilizer granules in TNAU-KVK, Tiruvallur demonstration plots; monitoring plant growth, yield, and soil health.								
5.	Optimization of Fertilizer Formulation & SOP preparation: Data analysis from field trials; Prepare Standard Operating Procedures (SOPs) for mussel-based fertilizer, and production								
6.	Report submission: Compilation of trial results, and socio-economic outcomes into a comprehensive project report for submission to the TNSWA.								

K. Masilan

Principal Investigator
Dr. K. Masilan
Assistant Professor
TNJFU – PPIFT
Madhavaram -51

S. Balasubramanian
22/7/2025

Dean
TNJFU-Dr. M.G.R. FC&RI
Ponneri – 601 204

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Search mail



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Status report and recommendations

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Deepak Samuel

to me, Purvaja, Abhilash, Robin, Joyson

Sir,

Please find attached the action plan with status report and NCSCM's recommendations for your kind perusal.

Kind regards

Deepak

—
Deepak Samuel V Ph.D.

Scientist E

Conservation of Coastal and Marine Resources Division

National Centre for Sustainable Coastal Management

Ministry of Environment, Forest and Climate Change

One attachment • Scanned by Gmail

PROBELY DETAILS
Project Name: Conservation of Coastal and Marine Resources Division
Project Location: National Centre for Sustainable Coastal Management
Project Duration: 2023-2025
Project Budget: ₹ 1000000000
Project Status: In Progress
Project Manager: Deepak Samuel
Project Contact: 9876543210

Action Plan_23 Ju.

Reply Reply all Forward

Upgrade

PROJECT DETAILS

Project Name: Mapping of Invasive Charru Mussel (*Mytella strigata*) in Ennore Creek, Tamil Nadu

Client: Tamil Nadu State Wetland Authority (TNSWA)

Project Execution: National Centre for Sustainable Coastal Management (NCSCM), Chennai

Project Duration: Six months

ACTION PLAN OUTLINE

Phase – 1 (First Two months: April to May):

- Conducted participatory mapping exercises with local communities to identify areas invaded by *Mytella strigata* within the Ennore Creek
- Carried out field surveys to assess the density and biomass of *Mytella strigata* populations across Ennore Creek and Pulicat Lake stretch, guided by insights from participatory mapping.

Phase – 2 (June to July):

- Integrate and map *Mytella strigata*-invaded areas using GIS tools, overlaying data from field surveys, participatory mapping, CRZ zones, land use, dredging sites, fishing zones, and other relevant layers (IN PROGRESS).
- Identify and map regions within the creek that are high vulnerable to further invasion, based on hydrodynamic connectivity, anthropogenic activities, and ecological parameters (IN PROGRESS).

Phase – 3 (August to September):

- Stakeholder consultation with relevant departments (YET TO BE DONE).
- Preparation and submit a draft report to the client (YET TO BE DONE).
- Finalize the report incorporating comments and suggestions from the client (YET TO BE DONE).

Comprehensive overview of ongoing and planned removal efforts against the invasive Charru mussel (*Mytella strigata*) in the Ennore–Pulicat wetland region of Tamil Nadu, India

No	Location & Date	Method/Action	Status & Outcome
1	Ennore & Pulicat (2022–present)	Government-commissioned micro-plan: manual removal + bathymetry study; DPR drafted	Initial efforts began but showed minimal improvement; infestation spread from ~7 km to ~24 km by June 2025 (The New Indian Express , Reddit , The New Indian Express)
2	Kosasthalaiyar backwater, Buckingham Canal (~July 2024)	Proposal: dredging 700 m (~₹8.5 cr); total funding requested ~₹160 cr from Kamarajar Port under “polluter pays”	Dredging approved for limited stretch; broader funding pending (The Hindu , dtnext)
3	Kattupalli & Puzhuthivakkam (since May 2025)	Mechanical dredging: removed ~2.6 lakh m ³ mixed sediment + mussel biomass (~8%) over 1.05 km	Work ongoing; scheduled to complete by August 2025; native species showing early signs of recovery (The New Indian Express , dredgewire.com)
4	Pilot manual removal (2024)	Manual scraping using single fisherman + one earthmover at select sites	Criticised by NGT for inadequate scale; flagged need for more manpower and machinery (dtnext , The Hindu)
5	Ennore–Pulicat wetlands (July 2025 NCSCM survey) – actual PCRA and field surveys completed in May, 2025	Field surveys and mapping across 24 km stretch; dredging interventions underway	Surveys show heavy infestation (800/m ² density), dredging uneven; concerns raised over ecological damage & need for alternative methods (dredgewire.com) – current survey analysis 2240/ m ²

Indian Case Studies: Charru Mussel Status

No	Location & Period	Method(s) Applied	Outcome & Lessons	Source
1	Ashtamudi Lake, Kerala, India (2018–present)	Monitoring & awareness; no eradication actions implemented	Severe infestation (up to ~11,384 mussels/m ²), displacement of native bivalves; urgent management recommended (The Hindu)	Kerala Univ. Journal (The Hindu)
2	Veerampuzha backwaters, Kerala, India (2019)	Biological control in fish cages using native cichlid (<i>Etroplus suratensis</i>)	Pearlspot removed ~287% more fouling; fish production improved; method deemed promising for aquaculture (CMFRI)	CMFRI (CMFRI)
3	Ennore–Pulicat wetlands, Tamil Nadu, India (2022–present)	Mechanical dredging, manual removal, pilot-scale programs; mapping; exploring ballasting regulations	Spread from ~7 km (2023) to ~24 km (2025); dredging showed partial success but posed ecological risks; NGT seeking robust roadmap; mapping supports targeted dredging and value addition for mussel biomass (The New Indian Express, dredgewire.com)	Multiple (The New Indian Express, The New Indian Express, dredgewire.com, The Hindu)
4	Tamil Nadu coast (Puducherry–Parangipettai) (2022)	Surveillance for transport vectors (marine debris, ballast water)	Confirmed debris and ballast as spread vectors; emphasized need for regulation under IMO Ballast Water Management – India not yet a party (The Hindu, Vajiram & Ravi)	Marine Pollution Bulletin / Vajiram & Ravi (The Hindu, Vajiram & Ravi)

Evidence-based recommendations for the total removal of Charru mussels from Ennore Creek

Evidence from Zebra Mussels eradication from Australia¹ & US²

Identify & Treat Key Areas

Isolating the infested area and applying highdose treatments sodium hypochlorite followed by copper sulfate, to kill every life stage

Installation of temporary benthic barriers around heavily infested sectors. Once isolated, flood the area with approved chemicals or biocides at calibrated doses.

Manual & Mechanical Removal

Post-chemical treatment, clear remainders manually: divers or community volunteers scrape, suction, or hydroblast mussels from hard surfaces. These residuals can serve as reinvasion hotspots.

Alternative Chemical Treatments

Beyond copper sulfate, explore other proven agents: biologically targeted bacteria (e.g., Zequanox® from *Pseudomonas fluorescens*).

Engage Communities & Build Capacity

Equip and train fisher folk with basic removal tools and safety gear.

Use Containment & Innovative Physical Covers

Where chemical use is constrained, temporarily smother mussel beds with impermeable covers/tarps to starve and suffocate organisms.

NCSCM Recommendations:

- Mapping infestation hotspots and Isolate high-density zones (In progress)
- Train local fishers and villagers to conduct periodic manual removals, monitor for larvae, and equip them with basic removal tools and safety gear.
- Mobilizing communities for removal and monitoring and provide incentives for the physical removal activity.
- Removing the charru mussels to be undertaken just before monsoon season
- Undertaking post-action surveillance to confirm eradication.

¹ <https://maritime-executive.com/editorials/how-australia-managed-to-eradicate-its-zebra-mussel-infestation>

² <https://ucanr.edu/sites/default/files/2013-12/178929.pdf>

Community-Based Management Strategy for Controlling the Invasive Charru Mussel

1. Periodic Community Removal Drives

- **Engagement of Local Communities:** Mobilize and train local village communities in affected estuarine and brackish water zones to periodically remove Charru Mussels.
- **Timing:** Schedule removal operations just before the onset of the monsoon, when water levels are manageable and access to mussel clusters is feasible.
- **Incentives:** Introduce incentive mechanisms (e.g., buy-back schemes, ecosystem stewardship payments) to encourage sustained community involvement.

2. Freshwater Flushing Strategy

- **Utilizing Seasonal Inflows:** Leverage natural monsoonal freshwater inflows to dislodge mussel fragments and larvae from critical habitats, reducing recolonization.
- **Post-Removal Flushing:** Immediately after community removal campaigns, coordinate controlled freshwater flushing to maximize removal of residual mussels and biofouling agents.
- **Ecological Synchronization:** Align flushing operations with ecological calendars to minimize disruptions to native species.

3. Controlled Discharge Interventions

- **Dam Infrastructure Utilization:** Where feasible, temporarily increase freshwater discharge from upstream reservoirs or barrages to enhance estuarine flushing efficiency.
- **Regulatory Coordination:** Involve dam authorities and water resource departments for planned releases, ideally supported by ecological flow assessments.
- **Monitoring & Evaluation:** Use flow and salinity sensors to track the effectiveness of freshwater pulses in reducing mussel biomass.

Subject: Progress Report on NGT Order concerning Charru Mussel Infestation in Kosasthalaiyar Backwater - O.A. No. 152/2023 (SZ) - Kumaresan Sooluran Vs The Tamilnadu Coastal Zone Management Authority and Others.

Date: July 22, 2025

1. Background of the NGT Case:

Brief Case Title: Charru Mussel (*Mytella strigata*) an invasive species from South America infestation in Kosasthalaiyar Backwater.

NGT Original Application (OA) No.: O.A. No. 152/2023 (SZ). Dated- 22.09.2023

Case Name: Kumaresan Sooluran vs The Tamilnadu Coastal Zone Management Authority and others.

Core Issue(s) addressed by NGT: Proliferation of invasive Charru Mussels in the Kosasthalaiyar Backwater, impacting the ecosystem and local livelihoods.

Key Directions Issued by NGT: The Court has ordered dredging in Puzhuthivakkam, Kattupalli, and Athipattu reaches to control Charru Mussel.

2. Current Status of Compliance/Action Taken:

Initial DPR & Funding Proposal:

Action Taken: WRD initially prepared a DPR for 8.00 Crore for dredging 700m of mussels in the backwater and submitted it to the State Wetland Mission in 2023.

Current Status: State Wetland Mission replied, indicating a potential grant of approximately 20% of the requested funds in 2023.

Scientific Studies & Expert Consultation:

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Current Status: State Wetland Mission replied, indicating a potential grant of approximately 20% of the requested funds in 2023.

Scientific Studies & Expert Consultation:

Action Taken: Fisheries Department conducted a series of meetings and engaged Ponneri Fisheries College to conduct a study on mussel control in biological aspects.

Current Status: Central Institute of Brackishwater Aquaculture (CIBA) has provided a report recommending commencement of dredging and highlighted the scope for a biological study, noting it as a first-time opportunity in India.

Athipattu Reach - Fly Ash Dredging vs. Mussel Control:

Clarification: NGT has noted that the desilting carried out by WRD over 1700 meters in Athipattu, which commenced in December 2021 as a deposit work by TANGEDCO (based on OA 08/2016), was solely for the removal of fly ash and not specifically for Charru Mussel.

Current Status: Along with flyash considerable mussels quantity also dredged and the dredging work is ongoing and expected to complete before the onset of North East Monsoon-2025.

Revised DPR for Heavily Infested Reaches:

Action Taken: Based on a joint inspection by Wetland Mission, WRD, Ponneri Fisheries College, and NCSCM, a revised estimate of 20.85 Crore has been formulated by WRD. This estimate covers dredging for severe infestation in Kattupalli (6300m to 8000m) and Puzhuthivakkam including a branch channel of 500m and also from LS 550 m from creek to 2000 m of Ennore railway bridge dredging proposal has been prepared for an estimated cost of Rs.70.00 crore.

Current Status: The revised estimate of Rs.20.85 has been sent to Government, TNPCB (Manali Ennore Restoration Company), TANGEDCO, and the State Wetland Mission. Funds are currently awaited from these entities and the estimate of Rs.70.00 cr has been sent to government for further fund allocation.

Ecological Considerations & Comprehensive Mapping:

Action Taken: NCSCM has advised that full dredging up to Pulicat may cause ecological disturbance.

Current Status: NCSCM is currently undertaking a comprehensive mapping of Charru Mussels up to Pulicat. This mapping is expected to be completed before September 2025.

3. Inter-Departmental Coordination:

Active coordination with Fisheries Department, Ponneri Fisheries College, CIBA, NCSCM, State Wetland Mission, TNPCB (MERC), and TANGEDCO is ongoing for technical inputs, studies, and funding.

4. Way Forward / Future Actions:

Expedite Funding for Revised DPR: Follow up vigorously with TNPCB (MERC), TANGEDCO, and State Wetland Mission for early release of the 20.85 Crore for dredging in Kattupalli and Puzhuthivakkam.

Await NCSCM Report: Closely monitor the completion of Charru Mussel mapping by NCSCM (expected before September 2025).

Prepare Comprehensive Estimate: Upon receipt of NCSCM's report, WRD will immediately prepare a scientifically sound and ecologically sensitive estimate for the remaining affected reaches, including up to Pulicat.

Implement Biological Study: Explore the feasibility and funding for the unique biological study on Charru Mussel control as highlighted by CIBA.

6. Recommendations for Chief Secretary's Consideration:

Convene a Joint Meeting: A high-level meeting chaired by the Chief Secretary with concerned Secretaries (WRD, Environment, Fisheries, Finance, Energy, and Directors of TNPCB, TANGEDCO, State Wetland Mission, NCSCM) to review the funding status for the 20.85 Crore DPR

and strategize for future funding requirements, and accelerate project implementation.

Direct Agencies to Prioritize Funding: Issue a directive to TNPCB (MERC), TANGEDCO, and State Wetland Mission to prioritize the release of funds for the immediate dredging work in Kattupalli and Puzhuthivakkam.

Facilitate Inter-Agency Cooperation: Emphasize the need for seamless coordination among all involved departments and scientific institutions to ensure a holistic and effective approach to Charru Mussel management.



Fisherman Holding Charru mussels

Notes on current Intervention

<i>Intervention Area/Phase</i>	<i>Action Taken</i>	<i>Status / Progress</i>	<i>Funding & Challenges</i>
Dredging - Athipattu Village	Initial dredging commenced on a 1,700-meter stretch. 1,200 meters completed, removing approximately 260,000 cubic meters of mixed sediment (fly ash and mussels). 15 workers engaged.	Projected completion before Onset of North-East Monsoon 2025. Early indicators show positive ecosystem restoration, with the presence of native species larvae in dredged plots.	
Proposed Dredging LS.6300m to Ls 8000m Kattupalli Village and 500m Branch Channel Puzhuhivakkam Village	Field studies by TNWRD and Wetland Mission Authority confirmed significant mussel spread. WRD developed an estimate of Rs. 20.85 Crores for dredging these 2.2 km stretches.	Funds are being sought from TANGEDCO, TNPCB, Tamil Nadu Wetland Mission, and the Government.	Timely release of funds is critical to initiate these priority dredging operations given the confirmed infestation.
Deepening by dredging the	Phase-1 = Creek to 550 m was dredged under	Estimate was prepared, and	

<p>Ennore creek from LS 550 m to LS 2000 m upto the railway bridge</p>	<p>KPL deposit fund. The Phase-2 estimate cost- 70.00 crore</p>	<p>planned to acquire funds in either Vadachennai Valarchi Thittam/Government/MERRC</p>	
<p>Mapping of Mussel Spread</p>	<p>Work awarded to the National Centre for Sustainable Coastal Management (NCSCM) to map the extensive spread of mussels up to Pulicat Lake. Interim report identified infested areas and conducted sampling across a 20 km stretch.</p>	<p>Final report from NCSCM is expected by September 2025. This detailed mapping is crucial for strategic, rather than continuous, dredging of the estimated 24 km infested stretch, which is deemed a potential habitat disaster and economically prohibitive.</p>	<p>Integration of comprehensive mapping data into WRD's detailed action plans is essential upon receipt.</p>
<p>Research & Control Measures</p>	<p>Dr. M.G.R. Fisheries College, Ponneri, conducting studies on: 1. Value addition of mussel as biofertilizer (Rs. 11.11 Lakhs). 2. Controlling spread in dredged areas (Rs. 22.63 Lakhs).</p>	<p>Research confirms potential for sustainable biofertilizer and mineral mixes. Progress reports show notable absence or minimal presence of Charru Mussels in dredged areas,</p>	<p>Continued research application to support long-term management and resource utilization.</p>

		validating dredging as an effective control method.	
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தமிழ்நாடு மாநில ஈரநில ஆணையம்
TAMIL NADU STATE WETLAND AUTHORITY



From

Thiru.Srinivas R.Reddy, I.F.S.,
Principal Chief Conservator of Forests
(HoFF) and Member Secretary,
Tamil Nadu State Wetland Authority (FAC),
Panagal Maaligai, Saidapet,
Chennai – 600 015.

To

The Tamilnadu Coastal Zone
Management Authority
Rep by its Member Secretary,
CMRL Building, 9th floor,
Anna salai,
Chennai.
Email: tncoe@tn.nic.in

The Department of Fisheries and
Fishermen welfare
Rep by Commissioner of Fisheries and
Fishermen Welfare
3rd Floor, Integrated Animal Husbandry and
Fisheries Building,
Nandanam, Chennai-600 035
E-Mail: ahsec@tn.gov.in.

The Public Works Department Government of
Tamilnadu
Rep by its Secretary, Fort St George, Chennai
Email: Email: pwdsec@tn.gov.in.

The Superintending Engineer,
Water Resources Department,
Palar Basin Circle,Chepauk,
Chennai-600005.

The Director, National Centre for Sustainable
Coastal Management (NCSCM), Chennai.

The Dean, Dr. MGR Fisheries College &
Research Institute, Ponneri.

Ref. No. TNSWA2/236/2024, Dated17-07-2025

Sir / Madam,

Sub: Tamil Nadu Wetlands Mission – Order of the Hon'ble National Green Tribunal (SZ) in O.A.No.152 of 2023 – Discussion on the removal of invasive Charru Mussel presiding by the Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) to be conducted – Scheduled on 23.07.2025 - Regarding.

Ref: Order of the Hon'ble National Green Tribunal (SZ) in O.A.No.152 of 2023 Dated 09.07.2025.

With reference to the above, it is informed that the court case in respect of O.A.No.152 of 2023 regarding the spread of invasive Charru mussel (*Mytella strigata*) in Ennore creek came up for hearing on 09.07.2025 before the Hon'ble National Green Tribunal (SZ) (Copy enclosed) . During the hearing, the Principal Chief Conservator of Forest (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC), appeared before the Hon'ble National Green Tribunal (SZ) and apprised the

actions taken to control the infestation of invasive Charru mussel (*Mytella strigata*) in Ennore creek under the Tamil Nadu Wetlands Mission and by the Water Resources Department (WRD).

2) In this regard, the Hon'ble National Green Tribunal (SZ) has delivered the Orders and active portion of the orders is as follows: -

" 3. It is pertinent to note that the desilting carried out by the Water Resources Department over a stretch of 1200 meters was solely intended for the removal of fly ash (funded by the TANGEDCO) and not for addressing the issue of Charru Mussels.

4. It was also submitted that the final report from the NCSCM on this matter is still awaited. It is important to point out that even after more than two years, a conclusive study has not yet been completed. All further actions are proposed to be taken based on the findings of this pending report.

5. We only hope that the Member Secretary, Tamil Nadu State Wetland Authority, who appeared through Video Conference today, will take up the matter with the Government and come back with a feasible solution accompanied by a definite timeline for its implementation.

6. Post the matter on 29.07.2025."

3) In compliance of the above orders, it is informed that a meeting regarding to control / eradicate invasive Charru mussel (*Mytella strigata*) in Ennore creek, is scheduled to be conducted on 23.07.2025 at the Office of the Principal Chief Conservator of Forests (HoFF), Forest Department Headquarters at Conference Hall in Guindy-Velachery Road, Guindy, Chennai -32 at 11.30 A.M. along with the following Departments and Institutions.

- a) The Tamil Nadu Coastal Zone Management Authority.
- b) The Public Works Department.
- c) Water Resources Department.
- d) The Department of Fisheries and Fishermen Welfare.
- e) The National Centre for Sustainable Coastal Management (NCSCM), Chennai .
- f) Dr. MGR Fisheries College & Research Institute, Ponneri.

4) Hence, it is requested to make it convenient to attend the above said meeting without fail. The draft agenda for the above said meeting is enclosed herewith.

Encl: As above

Yours faithfully,

Digitally signed by
Srinivas R Reddy
Date: 17-07-2025
19:40:23

Principal Chief Conservator of Forests (HoFF)
and Member Secretary
Tamil Nadu State Wetland Authority (FAC)



Email sent on 18-07-25
(11.58 AM)

Minutes of the Meeting convened by the Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC), on removal of invasive Charru Mussel (Mytella strigata) along with concerned departments Officials held on 23.07.2025 at 4th floor, the Mini Conference Hall, Office of the Principal Chief Conservator of Forest (HoFF), Forest Headquarters, Chennai.

The List of Participant / Official:

1. Thiru. Srinivas R. Reddy, I.F.S.,
Principal Chief Conservator of Forests
(HoFF) and Member Secretary,
Tamil Nadu State Wetland Authority (FAC).
2. Dr.D.Guru Swamy Dabbala, I.F.S
Deputy Conservator of Forest (I/C)
Tamil Nadu State Wetland Authority.
3. Thiru.R. Vidyadhar, I.F.S.,
Wildlife Warden
Chennai.
4. Thiru.V.Subbaiah,
District Forest Officer,
Tiruvallur.
5. Dr.D.Shanmuganathan,
Standing Council,
Hon'ble National Green Tribunal
Southern Zone,
Chennai.
6. Tmt.P.Reena Selvi,
Joint Director,
Fisheries Department.
7. Thiru.G.Karthigeyan,
Executive Engineer,
Water Resources Department.
8. Tmt.R.Kalarani,
Assistant Engineer,
Department of Environment and Climate Change.
9. Thiru.M.Naveen Kumar,
Assistant Engineer,
Water Resources Department.

10. Dr. Deepak Samuel,
Scientist,
National Centre for Sustainable Coastal Management, Chennai
11. Dr. Athulash K.R
Scientist,
National Centre for Sustainable Coastal Management, Chennai
12. Thiru. K. Masilan,
Assistant Professor,
Dr. MGR Fisheries College, Ponneri
13. Dr. C. Sudhan,
Assistant Professor,
Dr. MGR Fisheries College, Ponneri

The Principal Chief Conservator of Forest (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC), welcomed the Officials and emphasised upon the urgency on controlling / eradicating invasive Charru mussel (*Mytella strigata*) in Ennore creek. In obedience to Orders of the Hon'ble National Green Tribunal (SZ) in respect of O.A. No.152 of 2023 (SZ), Dated 09.07.2025, review of the progress was done and after detailed deliberation the following instructions were issued:

1. The Executive Engineer, Water Resources Department informed that the works taken of 1.7 km, only 200 m is pending and it will be completed by end of August.2025. He also informed that the proposal for Rs.90 cr. was prepared and submitted to the Secretary, Water Resources Department and necessary orders, funds are awaited for dredging in the area for removal of Charru mussel.
2. The Joint Director, Fisheries Department informed that occupation hazards in the creek area noticed due to the Charru mussel. The Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) requested the details on fishing community affected, number of complaints received and particulars to loss of income to fishing community due to Charru mussel. He emphasized that Fisheries Department has pivot role in protecting the interest of the fishing community and have to take responsibility ensuring the integrity of the channels for sustainable fisheries. He called for the proactive intervention and requested to submit a report on affected fishing area and type of fish catch impacted, number of compliances received and departmental grievance made.

3. The NCSCM scientist shared that they reviewed international literature and case studies on similar invasive species, though not specific to *Mytella strigata*. It was noted that the Kerala coast is more severely impacted than Tamil Nadu due to the high dependence on yellow clam and mussel fisheries for local livelihoods and consumption. An experiment by CMFRI in 2019 tested the use of pearl spot fish (*Etroplus suratensis*) to control mussels, but this was limited to laboratory conditions and is unlikely to be effective in the wild. The scientist emphasized that, globally, including in the case of zebra mussels in the U.S., no robust or permanent removal methods exist, and reinvasion is a common challenge.
4. The NCSCM scientist informed that the primarily report has been submitted and final report will be submitted as per the stipulated time. Dr MGR Fisheries university will be submitting the report by Jan 2026 as per schedule. Further The NCSCM informed that the hotspots have been identified where the removal efforts can be concentrated.
5. The Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) expressed concern over the progress done for the last 2 years and insisted the Water Resources Department and Fisheries Department to pursue on Funding for the scientific dredging. The Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) directed the NCSCM to make hotspot analysis on how the Fisherman affected by mapping and validation by Fisherman. The Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) urged to fasten the works in those areas immediately and reminded of the Tribunal orders on time bound action.
6. On urgent basis, the NCSCM was requested to map the selected hotspot areas , identify specific places that would be limited and fasten the works to make incremental progress. He requested the Water Resources Department to coordinate with NCSCM and come with strategy to remove the mussel area wise rather than 200 m. stretch and start the works immediately. The Proposal for Rs.90 cr. to be followed scrupulously for sanctioning of funds by Water Resources Department and a methodology be followed for surface dredging of charru mussel removal scientifically.
7. A detailed report shall be submitted by the Water Resources Department, NCSCM, concern departments and institutions regarding the progress made in the

project shall be submitted to this office on or before 24.07.2025 for compiling in the status report to be filed in the Hon'ble Green Tribunal (SZ)

The meeting ended with the thanks to and from the chair.


Principal Chief Conservator of Forests(HoFF)
and Member Secretary
Tamil Nadu State Wetland Authority (FAC)



தமிழ்நாடு மாநில ஈரநில ஆணையம்
TAMIL NADU STATE WETLAND AUTHORITY



From

Thiru. Srinivas R. Reddy, I.F.S.,
Principal Chief Conservator of Forests
(HoFF) and Member Secretary,
Tamil Nadu State Wetland Authority
(FAC),
No.1, Jeenis Road, Panagal Building,
Saidapet, Chennai - 600 015

To

The Secretary to Government,
Animal Husbandry, Dairying, Fisheries
and Fishermen Welfare Department,
Secretariate,
Chennai – 600 009.

Ref.No.TNSWA2/236/2024,Dated: .07.2025

Sir,

Sub: Wetlands - Tamil Nadu Wetlands Mission – Order of the
Hon'ble National Green Tribunal(SZ) in O.A.No.152 of 2023 –
Removal of invasive Charru Mussel (Kaaka Aazhi) in Ennore
Creek –Regarding.

Ref:

1. Order of the Hon'ble National Green Tribunal (SZ) in
O.A.No.152 of 2023, Dated :09.07.2025.
2. Minutes of the Meeting conducted by the Principal Chief
Conservator of Forests (HoFF) and Member
Secretary, Tamil Nadu State Wetland
Authority(FAC),Dated:23.07.2025.

With reference to the above, it is stated that the Hon'ble National Green Tribunal (SZ) court case in respect of O.A.No.152 of 2023 regarding the spread of invasive Charru mussel (Mytellastrigata) in Ennore creek came up for hearing on 09.07.2025 before the Hon'ble National Green Tribunal (SZ) (Copy enclosed) During the hearing, the Principal Chief Conservator of Forest (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) has appeared before the Hon'ble National Green Tribunal (SZ) and apprised the actions taken to control the infestation of invasive Charru mussel (Mytellastrigata) in Ennore creek under the Tamil Nadu Wetlands Mission and by the Water Resources Department (WRD).

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3. It was also submitted that the final report from the NCSCM on this matter is still awaited. It is important to point out that even after more than two years, a conclusive study has not yet been completed. All further actions are proposed to be taken based on the findings of this pending report.
4. We only hope that the Member Secretary, Tamil Nadu State Wetland Authority, who appeared through Video Conference today, will take up the matter with the Government and come back with a feasible solution accompanied by a definite timeline for its implementation.
5. Post the matter on 29.07.2025,"

3) In compliance of the above orders, A meeting was conducted by the Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) on 23.07.2025 with the following Departments i.e., Public Works Department, Water Resources Department, Department of Fisheries and Fishermen Welfare, National Centre for Sustainable Coastal Management (NCSCM) and Dr. MGR Fisheries College & Research Institute regarding to control / eradicate invasive Charru mussel (*Myteillastrigata*) in Ennore creek. A copy of the meeting of minutes enclosed herewith.

4) In continuation of the above meeting, it is requested that the Fisheries Department may kindly prepare and submit a detailed scientific report highlighting the livelihood issues, the types of catch likely to be impacted and the overall implications of the infestation, ensuring the integrity of the channels for sustainable fisheries is a core responsibility of the department and necessary funds may also be

sanctioned for the removal of invasive Charru Mussel (KaakaAazhi) in Ennore Creek. This may be treated as most urgent.

Encl: As above

Yours faithfully,

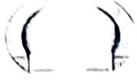
o/c

24/7/25

Principal Chief Conservator of Forests (HoFF)
and Member Secretary
Tamil Nadu State Wetland Authority (FAC)

Copy to The Additional Chief secretary to Government, Environment, Climate Change and Forests Department, Secretariate, Chennai – 600 009 for favour of kind information.

24/7/25



தமிழ்நாடு மாநில ஈரநில ஆணையம்
TAMIL NADU STATE WETLAND AUTHORITY



From

Thiru. Srinivas R. Reddy, I.F.S.,
Principal Chief Conservator of Forests
(HoFF) and Member Secretary,
Tamil Nadu State Wetland Authority (FAC),
No.1, Jeenis Road, Panagal Building,
Saidapet, Chennai - 600 015.

To

The Secretary to Government,
Water Resource Department,
Secretariat,
Chennai - 600 009.

Ref.No.TNSWA2/236/2024,Dated: 25.07.2025

Sir,

Sub: Wetlands - Tamil Nadu Wetlands Mission – Order of the Hon'ble National Green Tribunal(SZ) in O.A.No.152 of 2023 – Removal of invasive Charru Mussel (Kaaka Aazhi) in Ennore Creek –Regarding.

Ref:

1. Order of the Hon'ble National Green Tribunal (SZ) in O.A.No.152 of 2023, Dated :09.07.2025.
2. Minutes of the Meeting conducted by the Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority(FAC),Dated:23.07.2025.

With reference to the above, it is informed that the Hon'ble National Green Tribunal (SZ) court case in respect of O.A.No.152 of 2023 regarding the spread of invasive Charru mussel (Mytellastrigata) in Ennore creek came up for hearing on 09.07.2025 before the Hon'ble National Green Tribunal (SZ). During the hearing, the Principal Chief Conservator of Forest (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority (FAC) has appeared before the Hon'ble National Green Tribunal (SZ) and apprised the actions taken to control the infestation of invasive Charru mussel (Mytellastrigata) in Ennore creek under the Tamil Nadu Wetlands Mission and by the Water Resources Department (WRD).

2) In this connection, the Hon'ble National Green Tribunal (SZ) has delivered the Orders and active portion of the orders is as follows(Copy enclosed).-

"3. It is pertinent to note that the desilting carried out by the Water Resources Department over a stretch of 1200 meters was solely intended for the removal of fly ash (funded by the TANGEDCO) and not for addressing the issue of Charru Mussels.

4. It was also submitted that the final report from the NCSCM on this matter is still awaited. It is important to point out that even after more than two years, a conclusive study has not yet been completed. All further actions are proposed to be taken based on the findings of this pending report.

5. We only hope that the Member Secretary, Tamil Nadu State Wetland Authority, who appeared through Video Conference today, will take up the matter with the Government and come back with a feasible solution accompanied by a definite timeline for its implementation.

6. Post the matter on 29.07.2025,"

3) In the compliance of the above order, a meeting was conducted by the Principal Chief Conservator of Forests (HoFF) and Member Secretary, Tamil Nadu State Wetland Authority(FAC) on 23.07.2025 with the following Departments i.e., Public Works Department, Water Resources Department, Department of Fisheries and Fishermen Welfare, National Centre for Sustainable Coastal Management (NCSCM) and Dr. MGR Fisheries College & Research Institute regarding to control / eradicate invasive Charru mussel (*Myteillastrigata*) in Ennore creek for the funding source for dredging to be undertaken by the Water Resource Department (WRD) in Ennore creek. A copy of the minutes of the meeting is enclosed herewith.

4) The Water Resource Department has informed that the 1700 m stretch dredging is under progress. They also informed that the works taken for 1.7 km and only 200m is pending and it will be completed by end of August 2025. A status report was filed by Water Resource Department to the Hon'ble National Green Tribunal (SZ) in OA. No 152 of 2023, Dated : 03.10.2024 stated that " the map and photos produced at the Tribunal on 30.09.2024 that the following places were identified to remove the deposited Charru Mussel obstructing the free flow of fresh water in Kosasthalayar river:-

1. Kattupalli
2. Puzhuthivakkam
3. Athipattu

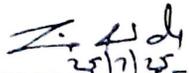
By the beginning of next week in the above said places either by manually or mechanically work will be commenced to remove the deposit of Charru Mussel in order for the free flow of fresh water."

For which the proposal of Rs.90 cr. was prepared and submitted to the Secretary, Water Resources Department and necessary orders, funds are awaited for dredging in the area for removal of Charu mussel.

5) In view of the above, to remove/ eradicate the invasive Charru mussel in Ennore creek, it is requested that necessary funds may kindly be sanctioned for the dredging work carried out by the Water Resource Department in Ennore creek to complete the work at earliest.

Encl: As above

Yours faithfully,


Principal Chief Conservator of Forests (HoFF)
and Member Secretary
Tamil Nadu State Wetland Authority (FAC)

Copy to the Additional Chief Secretary to Government, Environment, Climate Change and Forest Department, Secretariat, Chennai – 09 for favour of kind information.

BEFORE THE NATIONAL GREEN TRIBUNAL
SOUTHERN ZONE, CHENNAI
Original Application No.152 of 2023 (SZ)

In the matter of:

Thiru. Kumaresan Sooluran
Thiruvallur.

... Applicant(s)

Versus

The Tamil Nadu Coastal Zone
Management Authority,
Rep by its Member Secretary,
Chennai and ors.

...Respondent(s)

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2	12.05.2023	Communication letter- From, Executive Engineer, WRD To, The Superintending Engineer, WRD	4-5

(Note: The page numbers are at the top centre of every page)



Through

Dr. D. Shanmuganathan
Standing Counsel of Tamil Nadu
National Green Tribunal
Southern Zone, Chennai

DATE: 23.07.2024

1
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BEFORE THE HONBLE NATIONAL GREEN TRIBUNAL
SOUTH ZONE AT CHENNAI

Original Application No. 152 of 2023

IN THE MATTER OF

Thiru. Kumaresan Sooluran

.....Applicant

Vs

The Executive Engineer PWD WRD

Araniyar Basin Division Chepauk

Chennai -05 And Others

Respondents

Report filed by the Fifth Respondent

1) I, G.R. Radhakrishna, Son of Thiru.Ramalingam Aged about 50 years and officiating as Executive Engineer, PWD, WRD, Araniyar Basin Division, Chepauk, Chennai-05 and having office at Chennai, do hereby solemnly affirm and sincerely state as follows.

2) It is respectfully submitted that the Hon'ble the National Green Tribunal (SZ) has directed to file a status report on invasive species "Mytella strigara"(Charru Mussels) spread over along the stretch of the Kosasthalaiyar backwater, Buckingham canal and Pazhaverkadu mouth.

3) It is respectfully submitted that, in this regard, a status report has been submitted on December 14 2023 to Hon'ble the National Green Tribunal (SZ) based on the factual observation made in the site inspection.

4) In pursuance to the direction of the Hon'ble the National Green Tribunal (SZ). It is respectfully submitted that, the proliferation of Charru Mussels, Microbes and allgaes which is harmful impact on the water bodies and marine eco system and the growth of Charru Mussels leads severe threaten to endemic species diversity of brackish water.

5) It is respectfully submitted that, Invasive species Charru mussels "Mytella strigara" native to South and Central Coast of America and it is already spread over the Indian shores by the movement of ship hulls. It is further submitted that the Kamarajar Port Limited, Ennore is the main reason for spread over the Charru mussels to the North Buckingham Canal, Kosasthalaiyar backwater and Pazhaverkadu Mouth by lack of ballasted water regulation for ship movement from South and Central coast of America to Indian Shores.

6) It is respectfully submitted that, the estimate has already been prepared for dredging the backwaters of the Kosasthalaiyar river upto 700m for an amount of Rs.8.5 Crores. This proposal has been sent to the Additional Principal Chief Conservator of Forest and Member secretary, Tamilnadu Wetland Authority, Chennai on 12.05.2023.

7) Further, It is respectfully submitted that as per the petitioner affidavit, it is observed that, the species like Charru Mussels have been spread beyond Karukumaram - Kandachedi Paadu till Pazhaverkadu mouth spanning for a length of 16km, between Ennore Creek to Palaverkadu. The dredging work need to be continued till the Pazhaverkadu mouth for facilitation of tidal exchange nourishing the growth of crustacean species such as crab, prawns and mullets, etc.

8) It is respectfully submitted that, unchecked discharge of ballast water from ships enters into the Kamarajar Port Limited has resulted in the spread of an invasive species to the Kosasthalaiyar Backwater and Buckingham Canal.

9) It is respectfully submitted that, the only reason for exotic presence of charru mussel in Kosasthalaiyar Backwater and Buckingham Canal is the failure of Indian coastal regulation of port authorities to stringently discharged ballast water regulation on ships enters into the Kamarajar Port Limited.

10) It is respectfully submitted that, In polluter pays principle is inforce to make party responsible for causing pollution responsible for paying for the damage done to the natural environment and this principle has also used for enforcing cost of pollution prevention on the polluter.

11) It is respectfully submitted that, the WRD has suggested that the Kamarajar Port Limited, Chennai as to contribute the fund for an amount Rs.160 Crore, is required for eradicating the exotic invasive species "Mytella strigara" (**Charu Mussels**) by dredging of Kosasthalaiyar Backwater, North Buckingham Canal at LS 19500m upto Pazhaverkadu Mouth. Further, It is respectfully submitted that, the dredging of Kosasthalaiyar backwater and Buckingham canal will be carried out for preventing the growth of Charu Mussels, facilitating the boat movement of the fisherfolk and finally the livelihood the fisherfolk will be safeguarded.

Solemnly affirmed and signed before me on this 22TH
July 2024 at Chennai

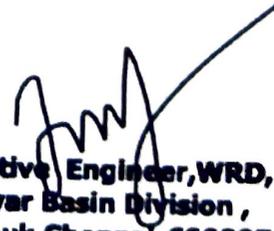


**Executive Engineer, WRD,
Araniyar Basin Division ,
Chepauk, Chennai-600005**

VERIFICATION

I, G.R. Radhakrishna, Executive Engineer, WRD, Araniyar Basin Division, Chepauk, Chennai- 5 do hereby verify that the contents of the above paragraphs are true and correct on the basis of ground truth, no part of it is false and nothing material has been concealed there from.

Date: 22.07.2024



**Executive Engineer, WRD,
Araniyar Basin Division ,
Chepauk, Chennai-600005**

Water Resources Department

From
Er. A. Jayakumari, BE.,
Executive Engineer, WRD,
Araniyar Basin Division,
Chepauk, Chennai - 600 005.

To
The Superintending Engineer, WRD,
Palar Basin Circle,
Chepauk, Chennai-5.

Letter No. DB / JDO.4 / F -402 / ESTIMATE / 2023 / Dated: 12.05.2023.

Sir,

Sub: Wetlands - Water Resources Department - Kosasthalaiyar Backwaters - Inspection Kosasthalaiyar River for Ecological Restoration of Ennore Creek part in Athipattu Village with focus on livelihood of local fisher folk - Karugumaram Padu - Desilting requested - Deposit Amount of Rs.1.50 Lakhs - Remittance - DPR Submitted - Regarding.

- Ref:** 1. The Additional Principal Chief Conservator of Forests and Member Secretary, Tamil Nadu State Wetland Authority, Chennai, Ref. No. TNSWA1 / 28723 / 2022 / Dt.07.11.2022.
2. This office Lr.No.DB / JDO.4 / F-402 / General / 2022 / Dt.13.12.2022.
3. This office Lr.No.DB / JDO.4 / F-402 / General / 2022 / Dt.19.12.2022.
4. The Additional Principal Chief Conservator of Forests and Member Secretary, Tamil Nadu State Wetland Authority, Chennai, Ref. No. TNSWA1 / 28723 / 2022 / Dt.06.02.2023.
5. The Additional Principal Chief Conservator of Forests and Member Secretary, Tamil Nadu State Wetland Authority, Chennai, Ref. No. TNSWA1 / 28723 / 2022 / Dt.17.04.2023.

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With above reference to the letters cited, I submit that the DPR has been prepared for the work of "Dredging the Backwaters of the

Kosasthalaiyar River at Karukamaram Paadu Village (LS.0 m to LS.700m) by using Dredger for Ecological Restoracion of backwater of the Kosasthalaiyar River focus on livelihood of fisher folk and facilitate Tidal Exchange" for an amount of Rs.8.50 Crore.

Hence, I request that the estimate may please be submitted to the Additional Principal Chief Conservator of Forests and Member Secretary, Tamil Nadu State Wetland Authority, Chennai for taking further necessary action please.

- Encl.: 1. Estimate - 1 No.
2. Plan Valume - 1No.

Sd/—
Executive Engineer, WRD.,
Araniyar Basin Division,
Chepauk, Chennai - 600 005.

✓ Copy submitted to the Additional Principal Chief Conservator of Forests and Member Secretary, Tamil Nadu State Wetland Authority, Chennai for information Please.

Copy submitted to the Chief Engineer, WRD, Chennai Region, Chepauk, Chennai-05 for information Please.


Executive Engineer, WRD.,
Araniyar Basin Division,
Chepauk, Chennai - 600 005.