



Paper ID 16131

## Impact of the invasive mussel, *Mytella strigata* (hanley, 1843) on fisheries and farming

Vidya R<sup>\*1</sup>, Laxmilatha P<sup>2</sup>, Geetha Sasikumar<sup>3</sup>, Anil M.K.<sup>4</sup>, Gomathi P<sup>5</sup>, Asokan PK<sup>6</sup>, Venkatesan V<sup>7</sup>, Shoji Joseph<sup>8</sup>, Jenni B<sup>1</sup>, Alloyicious P S<sup>1</sup>, Sajikumar K K<sup>1</sup>, Sunithakumari K<sup>9</sup>, Smruthu Mohan<sup>10</sup>, Raju B<sup>11</sup>, Praveen P<sup>12</sup>, Jestin Joy K M<sup>1</sup>

<sup>1</sup>Molluscan Fisheries Division, ICAR-CMFRI, Kochi, India

<sup>2</sup>Molluscan Fisheries Division, ICAR-Central Marine Fisheries Research Institute, Cochin, India

<sup>3</sup>Molluscan Fisheries Division, Mangalore Regional Centre of ICAR-Central Marine Fisheries Research Institute, Mangalore, India

<sup>4</sup>Molluscan Fisheries Division, CMFRI, Thiruvananthapuram, India

<sup>5</sup>Molluscan Fisheries Division, CMFRI, Trivandrum, India

<sup>6</sup>Shellfish Fisheries Division, Calicut Regional Station of ICAR-CMFRI, Calicut, India

<sup>7</sup>Molluscan Fisheries Division, ICAR-CMFRI, Kochi, India

<sup>8</sup>Mariculture Division, ICAR-CMFRI, Kochi, India

<sup>9</sup>Mariculture Division, ICAR-CMFRI, Kochi, India

<sup>10</sup>DST, ICAR- Central Marine Fisheries Research Institute, Mangalore, India

<sup>11</sup>Molluscan Fisheries Division, ICAR-CMFRI, Vizhinjam, Trivandrum, India

<sup>12</sup>Molluscan Fisheries Division, ICAR-CMFRI, Trivandrum, India

Rapid surveys were conducted during periods from May to August 2020 in estuaries along Central Kerala (Chettuva, Vembanad, Ashtamudi estuaries), South Kerala (Kayamkulam Lake, Poovar lake, Anchuthengu Lake, Kadinamkulam Lake) and North Kerala (Kavai backwaters, Kallai estuary, Puthiappa fishing harbour, Kadalundi estuary) to assess the extent of invasion of the species, the influence of physico-chemical parameters on its abundance, the impact of bioinvasion of this species on economically important native fauna and aquaculture activities. Settlement density of *M. strigata* in Chettuva Estuary, Vembanad Lake and Ashtamudi Lake was estimated as 32-12,400 nos/sq.m. Physical and chemical parameters of water and sediment characteristics were also analysed. *M. strigata* was found to be highly euryhaline and adaptive to anoxic conditions. In all three estuaries of Central Kerala, there was spat settlement of the species on bottom, cage ropes, cages nets etc. In Chettuva estuary, *P. viridis* and *M. strigata* population in the fishing ground necessitated additional 3 h/fishing day/boat/person for segregating *P. viridis* from *M. strigata*. As per the fishermen's perception, the fouling on cages increased the frequency of net exchange, interferes with harvesting activities and mortality of fish in cages. In Vembanad Lake, there was heavy infestation of the species on oyster rens suspended in oyster farms. There was a reduction in edible oyster spat settlement by 38% in oyster farms. More than 60% of the *M. strigata* settlement was observed on shells near the surface of the oyster rens. The potential threat of the species to bivalve farming, bivalve fisheries and finfish cage farming demands the formulation of management strategies for preventing the establishment of this non-native species that may cause ecological and economic havoc.

**Keywords:** *Mytella strigata*, Invasive Mussel