

## First report of *Photobacterium damsela* sub sp. *damsela* infection associated with VNN in cage farmed Asian seabass

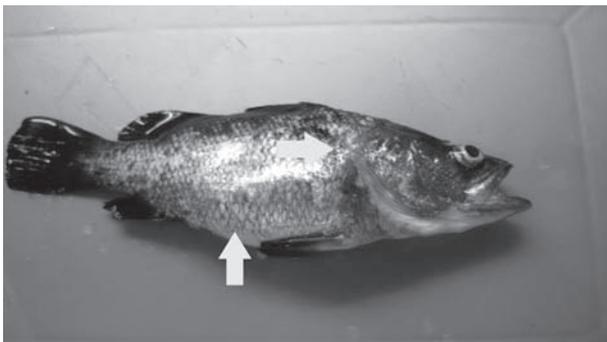
S. R. Krupesha Sharma<sup>1</sup>, Praveen N. Dube<sup>1</sup>, Sreedevi Hakkimane<sup>1</sup>, M. A. Pradeep, Sanjeev Deshpande<sup>1</sup>, N. K. Sanil<sup>2</sup> and K. K. Philipose<sup>1</sup>

<sup>1</sup>Karwar Research Centre of ICAR- Central Marine Fisheries Research Institute, Karwar

<sup>2</sup>ICAR-Central Marine Fisheries Research Institute, Kochi

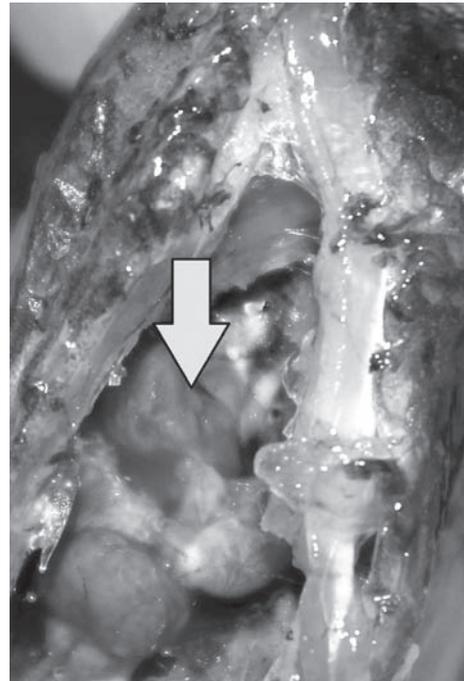
*Photobacterium damsela* sub sp. *damsela*, earlier known as *Vibrio damsela*, is a halophilic marine bacterium causing diseases in a variety of marine animals and humans. Mortality due to this pathogen has been reported in cultured Asian seabass in Thailand (Kanchanopas-Barnette *et al.*, 2009 *Fish Pathology* 44, 47-50). So far there are no reports on infection and mortality of Asian seabass caused by this pathogen from India. Viral nervous necrosis (VNN) is a fatal disease caused by betanodavirus in Asian seabass (*Lates calcarifer*). This virus can cause 100% mortality in juvenile fish.

During May 2016, 60% mortality was observed in cage farmed Asian seabass (20-25 cm) in the Marine fish farm of the Central Marine Fisheries Research Institute, Karwar. The diseased fish showed presence of haemorrhagic patches on the body with swollen abdomen which was filled with gelatinous fluid. Bacterial isolates from different organs of diseased



Swollen abdomen and haemorrhagic patches on the body of sea bass

fish was identified as *Photobacterium damsela* sub sp. *damsela* by biochemical and molecular methods. Diseased fish also exhibited neurological



Congested brain of the infected seabass

disorders like frequent surfacing with vertical and circular swimming. Brain was highly congested. Brain samples were tested for betanodavirus using  $\beta$ -nodadetect kit developed by ICAR-CMFRI and were found positive for betanodavirus. Currently, there are no efficient treatments for VNN. Surviving fish remains carrier of the virus leading to vertical and horizontal transmission. Since *P. damsela* sub sp. *damsela* is a normal inhabitant of marine environment causing infection in fish during increased water temperatures and betanodavirus being highly virulent for Asian seabass, the dual infection caused by these pathogens should merit further research interest for developing strategies to reduce mortalities during cage farming.