

A) VIBRIOSIS BY *V.alginolyticus*



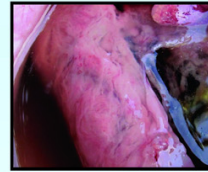
Mass mortality of cobia sub adults



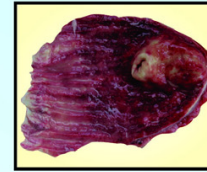
Septicaemia: Erythematous patches over the lower abdomen and tail



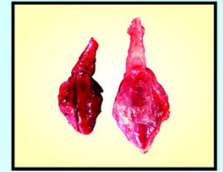
Eye : severe congestion



Peritoneal cavity: serosanguinous peritoneal fluid



Stomach: severe haemorrhages and congestion



Heart: severe haemorrhagic and fibrinous adhesion in pericardium

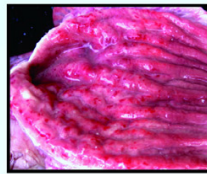
B) VIBRIOSIS BY *V.parahaemolyticus*



Dermatitis form of vibriosis by *V.parahaemolyticus*

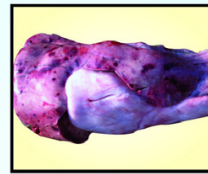


Dermatitis form of vibriosis by *V.parahaemolyticus*



Cobia stomach: Pin point haemorrhages all over the mucus layer

C) VIBRIOSIS BY *Vibrio Harveyi*



Liver dorsal view: focal haemorrhage due to *V.harveyi* infection



Liver ventral view: focal haemorrhage due to *V.harveyi* infection



Cobia stomach: Generalized haemorrhage all over the mucosa

D) VIRAL NERVOUS NECROSIS (VNN) BY *Betanodavirus*



Erythematous patches all over the skin

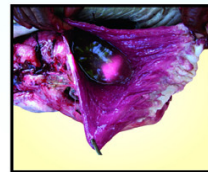


liver : severe necrosis at the caudal lobe

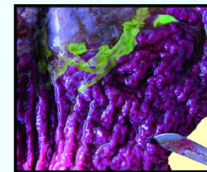


Brain : Severe congestion

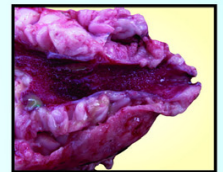
E) GASTROENTERITIS DUE TO ALGAL BLOOM *Trichodesmium Spp.*



Cobia stomach: Fluid accumulation



Cobia stomach digested algal bloom *Trichodesmium*



Cobia Pyloric caeca severe congestion and haemorrhage

F) ANOMALIES OR BIRTH DEFECTS



Undeveloped maxillary process



Pug headed cobia and Mandibular prognathism



Scoliosis

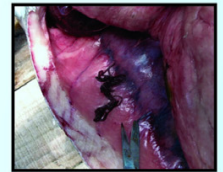
G) PARASITIC INFESTATION



Parapetalus occidentalis Wilson, 1908 with genital core.



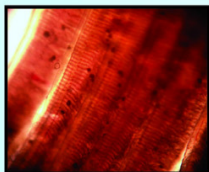
Parapetalus occidentalis Wilson, 1908 female and male



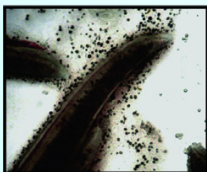
Peritoneal cavity: Nematode *Philometra* spp

H) AMYLOODINIOSIS (MARINE VELVET DISEASE)

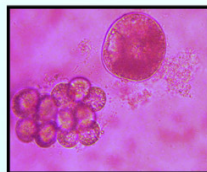
BY *Amyloodinium Ocellatum*



Wet mount; Gill-Infested with feeding stage of trophonts

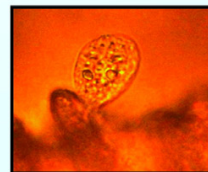


Gill: Severe infestation by adult trophonts

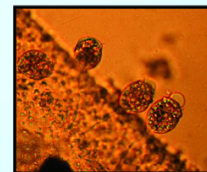


Reproductive stage - Tomont

I) *Vorticella Spp* Infestation



Wet mount: Gill-Myoneme of *Vorticella* sp.



Wet mount: Skin-Myoneme of *Vorticella* sp. stalk penetrated deep to the epithelium



Cobia larvae skin: various cell bodies of the parasites on a single stalk attachment

Prepared by P.Rameshkumar*, A.K.Samal, A.K.A.Nazar, G.Tamilmani, M. Sakthivel, R. Jayakumar, K.K.Anikuttan and G.Hanumanta Rao

Published by : **Dr. A. Gopalakrishnan**, Director, Central Marine Fisheries Research Institute, Kochi - 682 018.