

VIBRIO HARVEYI CAUSES VIBRIOSIS TO MARINE FISH

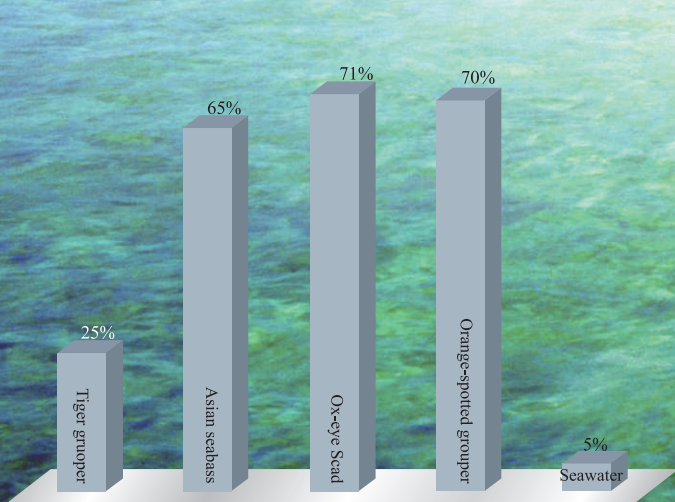
Researchers: Tamrin Mohd. Lal and Julian Ransangan

Fish diseases often occur in the aquaculture facilities. They threaten the sustainability of aquaculture production and contribute to high economic losses. Since 2009, marine fish farms in Sabah reported many fish mortalities involving both juveniles and adults of groupers, Asian seabass and snapper.

In response to these disease problems, BMRI has undertaken several investigations. One of the study involved characterization of bacteria from diseased marine fish and sea water in Sabah. These bacteria were identified using biochemical and DNA sequencing methods. The results of the study showed the presence of *Vibrio harveyi* in diseased fish specimens as well as in seawater sample (Fig. 1). This disease causes skin lesion in marine fish. However, Asian seabass was reported to be severely affected by the pathogen. It also affects visceral organs of marine fish that result in congestion, hemorrhage and edema. Our study also showed that the pathogen caused mortality to Asian seabass juveniles within 24 hour of injection challenge.

The presence of this bacterial pathogen in the seawater is worrisome since most of the commercially important marine fish species are cultured in net cages in high stocking density. This allows the pathogen to take advantage when there are sudden environmental changes. High stocking density causes stress that normally leads to skin injury, mostly in the form of wound. The wound provides entry point for the pathogen to get into the internal organs of fish and eventually cause disease that leads to heavy mortality. The pathogen is difficult to control since it exists in the culture water. Proper management of the net cage such as washing and changing nets at a regular intervals may help regulate the pathogen to a level that does not harm the cultured fish.

Our study also indicated that many of the bacterial pathogens are present abundantly in the biofilm on the net cage and not in the water column as previously thought. Although *V. harveyi* is susceptible to antibiotic treatment, the many side effects of antibiotics do not warrant their use in aquaculture. Because of the advantages of vaccine, BMRI is currently working on the development of vaccine against fish vibriosis.



V. harveyi exists in seawater



Vibrio harveyi causes vibriosis in marine fish