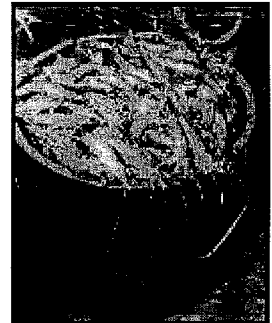




From dilemma to decision

Every year, as the rainy season ends and the land dries, salt water seeps into the rivers, canals and ditches in the Mekong delta of Vietnam. Growing of crops becomes impossible until the fresh water returns with the rain. For many poor farmers, those living on the edge of subsistence, there has been little choice during this dry season but to look for seasonal work elsewhere or try to find casual work in Ho Chi Minh City. But a few have always remained on their small plots of land and farmed a different sort of crop - shrimps.

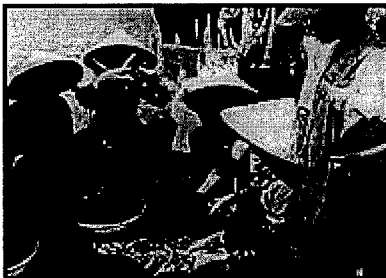
In the ditches they dig around the paddy fields, into which salt water flows, the farmers raise the shrimp in a non-intensive way. The harvests are small but sufficient to support the family until the rains return. In the last decade more and more people have chosen this way of using their land, making the best of the water resources available to them. But, if the shrimps become diseased, a reasonably secure means of livelihood suddenly becomes precarious.



White spot disease (White Spot Syndrome virus) is possibly the most damaging disease to affect shrimp, not least because of its impact on the livelihoods of poorer people in S.E. Asia. It is widely spread throughout most of the shrimp growing regions of Asia and the Indo-Pacific and has also been found in south Texas, USA. It affects all the major farmed species of marine shrimp.

Mortality can reach 100% within three to ten days of the first symptoms. These are the eponymous white spots, up to 2mm in diameter and formed of abnormal deposits of calcium salts, that are most apparent on the inside surface of the carapace.

The disease cannot be cured and, so far, no significant resistance to it has been discovered for any of the penaeid shrimp species. So what do farmers do at first sign of the disease? The pessimistic cut their losses and "emergency" harvest prematurely and sometimes unnecessarily. The optimistic wait in the hope that the disease will not spread, but they risk losing all their stock. The family's wellbeing depends upon making the right decision at the right time.



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Epidemiology is the study of disease in populations, usually in people and land-based livestock. It is far less commonly applied in the study of aquatic diseases. Can epidemiology provide realistic management solutions for shrimp farmers that do not require expensive drugs or vaccines? Although epidemiology involves sophisticated mathematics, in essence the concept is simple. The farmers who are more successful are compared with those who are less so, and the reasons for success or failure are determined. Close collaboration with the farmers is, of course, essential. Work with farmers in the Mekong delta, and another group in

Mangalore, Karnataka, India, is being carried out by the University of Liverpool and Institute of Aquaculture, Stirling University in Britain, Mangalore Fisheries College, India and Research Centre Number 2 in Ho Chi Minh City in Vietnam. Farmers collaboration has not been a problem despite the need for visits by researchers up to four times a week. From the beginning, farmers were warned that there would be no quick-fix solutions. However, they were promised information within a year of becoming involved in the project and this has been achieved in both India and Vietnam.

Epidemiological studies of different shrimp farming systems have yielded management "tools" specific to each system. For the farmers in the Mekong delta, one simple piece of advice is to walk around the pond each day and count the number of dead shrimp. If the number found dead is below a given cut off point, based on stocking density, the advice is not to harvest but wait another day and count again. If the number of dead is above the cut off point, harvest at once. Based on analysis of large quantities of painstakingly gathered data, this advice is not only scientifically robust but easy to understand and follow. It will neither prevent nor cure white spot disease but it may help farmers make what will always be a precarious livelihood a little more secure.

For further information contact [James Turnbull](#)

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