Disease:

Diseases represent the biggest obstacle to the future of shrimp farming. Farms and hatcheries have few defenses against rampaging protozoa, fungi and bacteria, but it's viral diseases that pose the greatest threat. They have caused major crashes in Taiwan, China, Indonesia, India, Panama, Honduras and Ecuador. Currently the Western Hemisphere fights a virus that arrived from the east (whitespot), and the Eastern Hemisphere fights a virus that arrived from the west (Taura). There are no medications to treat shrimp viruses, but management techniques have evolved which lessen their impact.

In Latin America, prior to the arrival of the whitespot virus in 1999, Taura Syndrome Virus was the biggest killer. Shortly after stocking, it can kill from 40 to 90% of the postlarvae in a shrimp pond. Although Taura may have been lurking in the background for years, it officially arrived on the shrimp farming scene in June 1992, near Guayaquil, Ecuador. It hit several farms, and then disappeared until March 1993, when it returned as a major epidemic, killing farm-raised shrimp throughout the Gulf of Guayaquil. Dubbed "Taura Syndrome" because it was first reported on farms along the Taura River, an area about 25 kilometers southeast of Guayaquil, it's also called "Little Red Tail" (La Colita Roja) because the tail fan and body of affected shrimp turn pale pink. Taura has spread to every country in the Western Hemisphere with the exception of Venezuela where hatcheries maintain captive broodstock and restrict the introduction of new brood-stock. Belize appears to have eradicated Taura in 1995, only to see it re-appear in 2001. Wild and captive vannamei appear to be developing some resistance to Taura.

In the Eastern Hemisphere, whitespot virus rages on, but in places like Thailand, management techniques have brought it under control. Whitespot usually strikes when the animals have been in the water for more than sixty days, a critical time for the farmer. He's invested a lot of money in the crop, but the shrimp are usually too small to harvest. In 1996, whitespot even attacked extensive farms in West Bengal, India, and the Khulna area of Bangladesh. Now common in both hemispheres, it's more lethal than Taura, kills many varieties of crustaceans and has many vectors (carriers). Fortunately, whitespot is easier to exclude from a farm than Taura because birds and insects don't appear to be carriers.

Viral attacks in both hemispheres frequently occur after periods of heavy rain, a stressful time for shrimp, when temperatures, salinities and water quality variables fluctuate wildly.

Good water quality and lower stocking densities appear to be the best defense against all diseases. When pathogen populations are low, a shrimp's defenses are normally capable of preventing disease, but when stressed by questionable water quality and high stocking densities, shrimp fall prey to "shell-loving" bacteria, fungi and viruses.

Hatcheries, which maintain concentrated stocks of live feeds and developing larvae, are particularly susceptible to diseases, which can be introduced with each new batch of wild broodstock, a known source of pathogens.

Bacteria also pose a significant threat to the future shrimp farming, as evidenced by the Philippines where Vibrios have cut production by more than 50%. In the July 15, 1999, issue of the journal Aquaculture, researchers in the United Kingdom discuss some work with Vibrio vaccines. Here's the abstract of their study: "Significant levels of protection were conferred to Penaeus indicus larvae for at least 48 hours when either fresh or freeze-dried Vibrio harveyi vaccines were administered by immersion, but not when administered orally. The degree of protection increased with the virulence of the pathogen from which the vaccine was made. Vaccination of larvae also induced cross-protection against challenge by other V. harveyi strains." Information: A.O. Alabi, Island Scallops, Ltd., 5552 West Island Highway, Qualicum Beach, B.C. Canada V9K 2C8 (email islandscallops@bcsupernet.com );

and D.A. Jones and J.W. Latchford, School of Ocean Sciences, University of Wales, Bangor,Menai Bridge LL57 5EY, UnitedKingdom.