



## Gill Discoloration in *Penaeus stylirostris*

November 16, 1994, through May 15, 1995

### Principal Accomplishments

Objective: Identify primary and secondary causes of gill discoloration in market-sized *P. stylirostris* in Guam and develop measures to prevent it.

Shrimp in the first pond investigated (Pond #1) were harvested in December.

- An examination of 25 fresh shrimp revealed black gills in two animals, a slight bluish gill discoloration in another seven and no protozoa. The shrimp had grown an average of 1.17 grams per week.
- After harvest, the shrimp were washed in freshwater, put on ice and immediately transported to restaurants and stores. No problem occurred with the sale of this crop.
- Overall, the shrimp in Pond #1 grew at a normal rate. Review of histological preparations from larvae and four monthly samples revealed no serious disease problems.
- However, the results indicated increased gill discoloration, which occurred during dry weather in October 1994. During that period, water temperatures reached as high as 36°C and pH was higher than 8.8. The high water temperatures and high pH values were less than optimal for the shrimp and probably favored the growth of disease-causing organisms.



A second experiment was undertaken with a different earthen pond. Analysis of bottom soil samples taken before the pond was filled with water did not indicate any conditions adverse to shrimp culture. The pond was stocked on January 18, 1995, but it was abandoned because problems with maintaining adequate water levels caused high shrimp mortalities. The study was switched to an adjacent earthen pond (Pond #2), which was stocked on March 7, 1995.

- The shrimp in this pond grew slowly, and a high incidence of gill disease was found in the second sample (see Table 1 on the following page).

Table 1. Mean Weight and Disease Occurrence in Shrimp Collected from Pond #2			
Date Collected	Mean Weight of Shrimp	Pathology	
5/19/95	5.52 grams	no black gill	28% protozoa (mean severity 1.43)
6/9/95	7.29 grams	52% black gill (mean severity 1.42)	8% protozoa (mean severity 1)

Samples of these animals were sent for processing and will be examined histologically.

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## Investigators

Dr. Ilse Silva-Krott,  
College of Agriculture and Life Sciences, University of Guam;

Dr. Jim Brock,  
Aquaculture Development Program,  
Hawaii Department of Land and Natural Resources;

Jeff Tellock,  
Guam Aquaculture Development and Training Center.