DISCUSSION

TECHNICAL SESSION

Discussion Leader: WAYNE M. WALLER

Discussion Panel: JOHN ROBAS, STEWART SPRINGER, JAMES BARR

Q. Springer: Is *Sicyconia* more evident in the catch than the pink shrimp? Are they marketed at present?

A. Howell: Yes, there are more *Sicyconia* in the catch than pink shrimp. Very small amounts are marketed at present and no attempts have been made to expand the fishery.

Q. Strasburger: Are the reported weight of the catch heads on or heads off shrimp?

A. Howell: Heads off.

Q. Springer: Now is a good opportunity for the biologists to keep an eye on a fishery from the time of its discovery. Have you set up such a program?

A. Howell: We are planning to do so.

Q. Schaefer: What means do you have of determining fishing effort?

A. Howell: A log book is kept on each vessel.

Q. Barr: How much does a commercial boat catch?

A. Howell: Seven to eight thousand pounds of shrimp per day.

Q. Barr: How large a volume of overwrap packages are in use?

A. Klein. These packages are used in Brownsville, Pensacola, and New Orleans.

Q. Springer: What is the costs of such packages and how is the overwrap put on?

A. Klein: The cartons and the overwrap are processed by hand, and it would not be too expensive in a large operation. There are considerable savings realized in shipping by this method.

Q. Higman: Have you studied the development of black spot in overwrap packages?

A. Klein: There was a very small amount of black spot during 12 months storage.

Q. Strasburger: What type storage room was used? What was the differential temperature in the storage room? Was the drainage time in each experiment identical?

A. Klein: An 8 x 10 walk-in freezer with a bush blower, using Freon 12 was used in the experiment. Air was circulated around each package. The room was at 0°F. and the air in front of blower was at 0°F. The drainage times were approximately the same.

Q. Barr: What is the cost of this ultra-violet light equipment?

A. Lane: The cost would be insignificant: the lamp could be bought for about $50.00.

Q. Robas: Why are crab plant operators so reluctant to use black light?

A. Lane: They don't want to know how bad their crab meat really is.

Q. Allen: Would the light tests be applicable to brown and white shrimp?

A. Lane: It has been applied to white and pink shrimp, and I see no reason why it couldn't be used for brown.

Q. Strasburger: Is it feasible that pH changes are dependent on bacterial flora?

A. Lane: I would think so. In the course of natural autolysis we got a pH change that was evident.

Q. Broadhead: Did you fail in any case to obtain phosphoresent color changes in advance of the lowering of taste panel score?

A. Lane: The color change occurred in one instance, but it did not precede the taste panel.

Q. Robas: Is it possible to determine the presence of mold organisms on fish nets with the black light?

A. Lane: I am not technically equipped to answer that question.

A. Lewis: It would probably be yes and no. Some molds phosphoresce and some don't. We found that out in our citrus work.

Q. Lane: On what basis was the trimethylamine analysis done—dry or wet?

A. Fieger: Wet shrimp.

Q. Wegman: Does moonlight affect spoilage more than sunlight?

A. Fieger: We haven't done any experimentation on that.

Q. Wegman: Were the shrimp taken from catch boats or freight boats?

A. Fieger: From the boat that caught them.

Q. W. W. Anderson: Since fishermen often leave shrimp lying on deck for hours, what effect does this have on the quality of the shrimp?

A. Fieger: In some cases, I took the word of the fishermen as to how long they left the shrimp on deck.

O. Springer: What is the cost of the aureomycin used in the tanks?

A. Higman: There have been no firm committments from drug manufacturers as to the cost of the antibiotic. It should run between $25 to $50 per tank per trip.

Q. Barr: Have you investigated the feelings of the Food and Drug Administration on this matter?

A: Higman At present there is a ruling against the use of antibiotics on food. However, it is our understanding that with proper evidence, this ruling can be altered. We are looking for the evidence.

Q. Camber: Have any observations been made on the shrimp boats?

A. Higman: We checked the shrimp from the minute they came on the boat till they came to the laboratory. We

went out on the boat and supervised the entire operation. The time on deck varied from one hour to an hour and a half.

Q. Barr: What ratio of brine to shrimp was used in the tests?

A. Puncochar: Three volumes of brine to one volume of fish were used. Ratios for brine to shrimp should be based on experimentation.

(Mr. W. L. Mingledorff, Jr., of Savannah, Ga., described experiments conducted by his company using solutions of salt and sugar as a freezing medium for shrimp).

Q. Robas: Who mixes the solution? Does the captain mix it before the cruise?

A. Mingledorff: We will give the exact weight of sugar and salt to the fishermen and they will be able to mix the solution with clean sea water at sea.

Q. Robas: How much horsepower is involved for your 300 pound unit? What is the cost of your rig installed? Has anyone made any taste panel experiments on your shrimp?

A. Mingledorff: A 25 h.p. electric system is required. The cost of installation will be around $15,000. The A & P people have run tests on the shrimp. Dr. Fieger stated that they were exceptional in quality and Mr. Duggan is considering the possibility of its use in his plants.

Q. Fieger: Does your product show any flavor differences from other methods of freezing? Couldn't your shrimp be dry frozen instead of immersion? Does the addition of the brine-sugar add a consistant weight?

A. Mingledorff: The salt is overpowered by the sugar. The tip of the shrimp will pick up a taste of sugar; however, after being washed and cooked the taste panel cannot tell the difference. No blast freezing is practical on a boat. If the shrimp are allowed to drain for one hour in the hold the weight gain will be a consistent two per cent.

Q. H. Taylor: Is there any change of color of the shrimp in your solution?

A. Mingledorff: No.

Q. Barr: What would be the Food and Drug opinion on this matter of the solution?

A. Strasburger: Since it is not an additive, Food and Drug would not be concerned.

Q. Springer: What are the effects of climatic change on the shrimp fishery?

A. Anderson: That is difficult to answer. Most Penaeids are tropical or sub-tropical creatures, so gradual climatic changes should not affect them too much. This family has a wide range of geographical distribution.

Q. Barr: Is the large run of brownies in Texas due to a climatic change?

A. Anderson: Something is happening to the population of shrimp. Brown shrimp abundance is increasing and white shrimp are decreasing in abundance. There is some indication of competition between brown and white shrimp. In the freeze of 1940 the white shrimp were almost wiped out, and there was a tremendous run of brown shrimp that year.

Q. Robas: Do you have any clues as to the barrenness of some good trawlable area on the east coast of Florida?

A. Anderson: The white shrimp is a mud bottom organism. The shelf from Ft. Pierce to Cape Lookout is hard sand and shell.

Q. Wegmann: Have you ever made a survey of the West Coast of Florida around Apalachicola?

A. Anderson: We have lost many trawls in that area. In Sarasota Bay we found the young of the brown shrimp *(Penaeus aztecus)* but we were not able to find the adults offshore. We did not tag in the Apalachicola area, so we have no data on shrimp migration in that region.

Q. Wegmann: Are you familiar with the area around New Orleans, for instance, Lake Pontchartrain?

A. Anderson: Yes, we tagged in Lake Pontchartrain and never got a return.

Q. Wegmann: Are you familiar with the new shrimp grounds off Fort Myers?

A. Idyll: It is a small area but a few boats have made good catches.

A. Greer: Ten or 15 boats are fishing in this area.

Q. Fieger: What per cent of tag recovery did you get?

A. Anderson: From zero to 40 or 50 per cent. The average was 20 per cent, which is a fairly high rate of return.

Q. Mingledorff: Do shrimp hatch in the ocean or in the rivers?

A. Anderson: Spawning occurs in the outside waters and the young move into the bays.

Q. Mingledorff: If we stopped fishing the roe shrimp would we enlarge the next year's fishery?

A. Anderson: No, shrimp have tremendous reproductive capacity and it would be unwise to attempt to stop fishery on the roe shrimp.

Q. Idyll: Did you carry on any holding experiments for natural mortalities?

A. Anderson: We tried, and various difficulties forced us to stop. We are not at all sure that the figures would mean anything.

Q. Wegmann: What happens to shrimp during their second year of life?

A. Anderson: Not many shrimp live far into the second year of life.