

Southeast Asian Fisheries Development Center

Aquaculture Department

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Journals/Magazines

Aqua Farm News

1989

Fecundity and egg quality of tiger prawn

Aquaculture Department, Southeast Asian Fisheries Development Center

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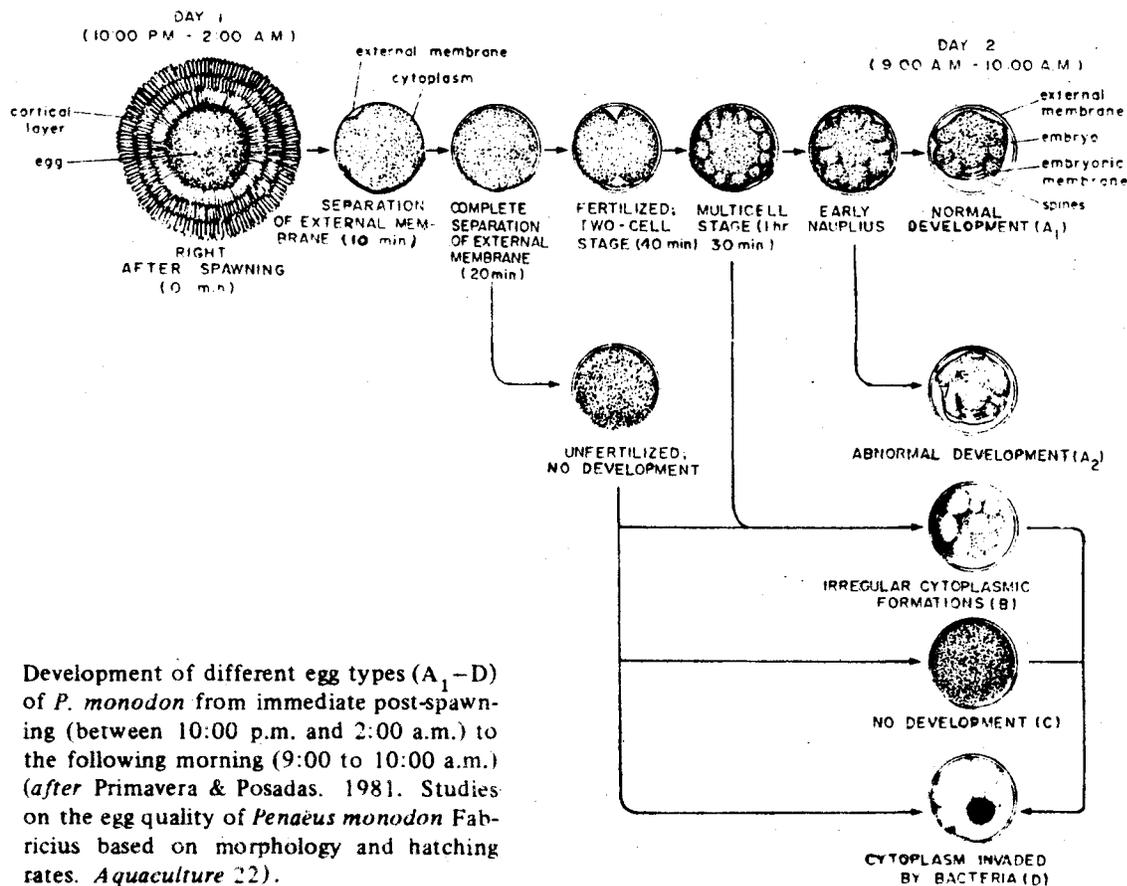
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FECUNDITY AND EGG QUALITY OF TIGER PRAWN

In the tiger prawn (*Penaeus monodon*), fecundity or number of eggs in a complete spawning averages 300,000 (range: 100,000–800,000) for ablated females, and 500,000 (range: 200,000–1 million) for wild spawners.

Both wild and ablated spawners may produce good or bad eggs. To avoid wasting time and effort in rearing inherently weak larvae, the quality of eggs from a given spawning should be determined as early as possible. Toward this end, a system of classification of *P. monodon* eggs into five different types based on appearance (figure below) has been established. Because technicians normally report to the hatchery at 8:00 a.m., the various egg types are described below according to their appearance in the morning (8:00–10:00 a.m.) after a spawning, rather than at any other time.



Type A₁ or good eggs – nauplius undergoing normal development with distinct setae or bristles (only the multicell stage may be visible if the female spawned late, e.g., 5:00 a.m.); mean hatch rate (HR) 58%; larvae strongly phototactic, i.e., swim actively toward a source of light.

Type A₂ or not-so-good eggs – development of embryo either delayed or abnormal in comparison to A₁ eggs of the same batch; mean HR, 32%; newly hatched nauplii may be weak.

Type B – bad eggs showing irregular cytoplasmic formations; 0% HR.

Type C – bad eggs with cytoplasm remaining a single undifferentiated mass; 0% HR.

Type D – bad eggs with very little remaining cytoplasm because of bacterial invasion; 0% HR.

There is a highly significant linear relationship between the proportion of A₁ eggs and hatch rates of ablated pond and wild stock.

Source: Lecture Notes of J. Honculada-Primavera, Scientist, SEAFDEC Aquaculture Department, Tigbauan, Iloilo, Philippines. 1988.



FEED HANDLING IN AQUACULTURE

Feed Storage

The quality of feedstuffs during storage will deteriorate with time. Many problems can occur during storage and some adverse effects are inevitable. To ensure that the fish and shrimp which depend on aquaculture feeds receive the best nutrients available, ingredients should be stored for as short a period as possible and compounded feeds used quickly, especially in tropical conditions.

Environmental factors such as moisture, temperature, light, chemical changes, and oxygen influence deteriorative changes and weight losses in feed ingredients and prepared feeds either directly by chemical reactions or indirectly through proliferation of insects, fungi, bacteria, and other pests.

The major factors that cause losses in quality and weight of feedstuffs during storage are rain, condensation and high temperatures, theft, fire, scavenging animals such as rats and birds, presence and breeding of insects, growth of fungi, enzymatic actions, and the development of oxidative rancidity. Larger fish farms often have a central or primary feed store with individual secondary stores and often, silos at the pond sites.

Storage Principles

In order to ensure maximum benefit from feeds, several points are worth noting and implementing wherever possible:

– Provide a proper, well-insulated and -secured building for storage. Ensure that the roof will protect the feed from rain and that surface water cannot enter the store. Provide it with ventilation entry points (windows are not necessary nor recommended). The ventilation points should be low on the side facing the prevailing winds and high on the opposite side. Orient the buildings so that one of the long sides faces the prevailing winds. Ensure that all entry points are meshed to prevent entry of birds, rats, etc. The drier and cooler the store, the better the feed quality will be.