

Session 18. Theory: Eye stalk ablation techniques

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Introduction

- **Eyestalk ablation** is the removal of one (unilateral) or both (bilateral) eyestalks from a crustacean.
- It is routinely practiced on female shrimps (or prawns) in almost every marine shrimp maturation or reproduction facility in the world, both research and commercial.
- The aim of ablation under these circumstances is to stimulate the female shrimp to develop mature ovaries and spawn.

- Most captive conditions for shrimp cause inhibitions in females that prevent them from developing mature ovaries.
- Even in conditions where a given species will develop ovaries and spawn in captivity, use of eyestalk ablation increases total egg production and increases the percentage of females in a given population that will participate in reproduction.
- Once females have been subjected to eyestalk ablation, complete ovarian development often ensues within as little as 3 to 10 days.

- The most commonly accepted theory of why eye ablation reduces this inhibition is that a gonad inhibitory hormone (GIH) is produced in the neurosecretory complexes in the eyestalk.
- This hormone occurs in nature in the non-breeding season and is absent or present only in low concentrations during the breeding season.
- It has been reported that in the tiger prawn (*Penaeus monodon*), the eyestalks fully regenerate in less than 6 months

Techniques

- Techniques for eyestalk ablation include:
- **Pinching the eyestalk**, usually half to two-thirds down the eyestalk. This method may leave an open wound.
- **Slitting one eye with a razor blade**, then crushing the eyestalk, with thumb and index fingernail, beginning one-half to two-thirds down the eyestalk and moving distally until the contents of eyes have been removed. This method, sometimes called enucleation, leaves behind the transparent exoskeleton so that clotting of haemolymph, and closure of the wound, may occur more rapidly.

- Cauterizing through the eyestalk with either an **electrocautery** device or an instrument such as a red-hot wire or forceps. If performed correctly, this method closes the wound and allows scar tissue to form more readily. A variation of this technique is to use scissors or a sharp blade to sever the eyestalk, and then to cauterize the wound.
- Ligation by tying off the eyestalk tightly with surgical or other thread. This method also has the advantage of immediate wound closure.