# Preliminary Health Assessment of Cultured Hard Clams, *Mercenaria mercenaria*, in Florida

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# Objectives

- Objective 1:  To provide introductory training in shellfish pathology to Florida aquaculture veterinarians and extension specialists.
- Objective 2:  Establishment of a health monitoring program for cultured hard clams in Florida

# Health Monitoring Program: Sampling

- 60 animals collected from 3 lease sites winter and summer.
- These sites represent the majority of the clam production in FL

# Specimen Processing

- Each animal weighed and measured.
- 30/60 prepared for Dermo (Perkinsosis) culture in Ray's fluid thioglycollate medium
- The other 30 were preserved in 10% buffered formalin with seawater and then processed for histological slides.
  - These slides were examined for any sign of QPX, other pathogens and abnormal tissue

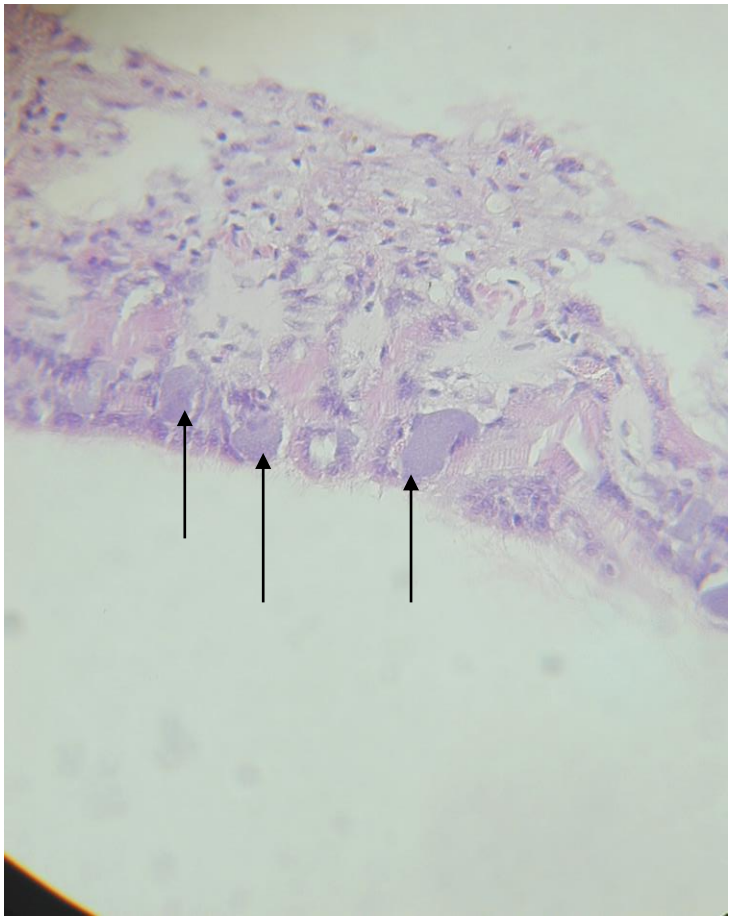
# Results of Dermo Culture

Photomicrograph of hypnospores

| Site | Season | Total Number of Hypnospores | Percentage of Affected Animals |
|---|---|---|---|
| Gulf Jackson | Winter | 0 | 0 |
| | Summer | 15 | 23.3 |
| Indian River | Winter | 0 | 0 |
| | Summer | 12 | 6.7 |
| Southwest Florida | Winter | 1 | 3.3 |
| | Summer | 396 | 66.7 |

# Results of Histopathology

- Rickettsial-like organisms (RLO)
  - Frequently seen in bivalves
  - Usually located in gills
  - Associated with mortality in high density culture

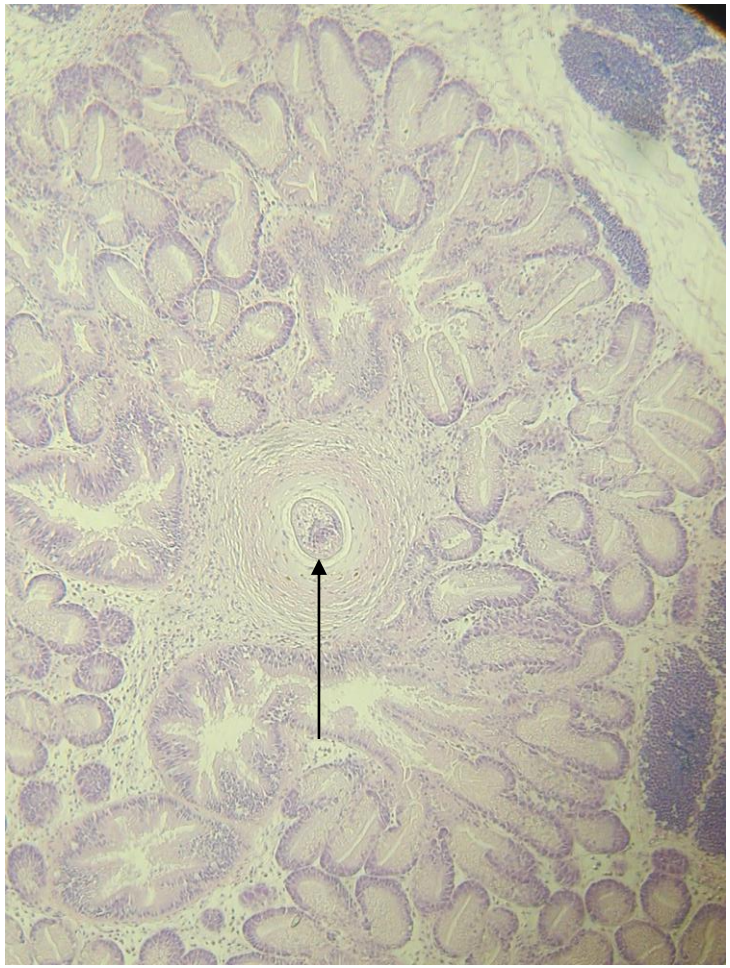


# Rickettsial-like Organisms

| | Season | Number Observed | Percentage of Animals |
|---|---|---|---|
| Gulf Jackson | Winter | 18 | 60 |
| | Summer | 0 | 0 |
| Indian River | Winter | 14 | 46.7 |
| | Summer | 4 | 13 |
| Southwest Florida | Winter | 10 | 33.3 |
| | Summer | 0 | 0 |

# Results of Histopathology

- Granulomas
  - Result when a source of chronic inflammation is surrounded by fibrotic tissue
  - Occasionally may involve a trematode (flatworm)



# Granulomas

| | Season | Number Observed | Percentage of Animals |
|---|---|---|---|
| Gulf Jackson | Winter | 4 | 13.3 |
| | Summer | 12 | 40 |
| Indian River | Winter | 9 | 30 |
| | Summer | 6 | 20 |
| Southwest Florida | Winter | 12 | 40 |
| | Summer | 16 | 53.3 |

# Results of Histopathology

Other results:

- Concretions in kidney tissue
- Non-granulomatous inflammation
- *No QPX observed*

# Results of Histopathology

| Site | Season | RLO | % Animals | Granuloma | % Animals | Metazoans | % Animals | Non-gran. Inflam. | % Animals | Kidney concretions | % Animals |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Gulf Jackson | Winter | 18 | 60 | 4 | 13.3 | 0 | 0 | 6 | 20 | 1 | 3.3 |
| | Summer | 0 | 0 | 12 | 40 | 2 | 6.7 | 2 | 6.7 | 5 | 16.7 |
| Indian River | Winter | 14 | 46.7 | 9 | 30 | 5 | 16.7 | 0 | 0 | 3 | 10 |
| | Summer | 4 | 13 | 6 | 20 | 7 | 23.3 | 1 | 3.3 | 1 | 3.3 |
| South west Florida | Winter | 10 | 33.3 | 12 | 40 | 8 | 26.7 | 20 | 67.7 | 0 | 0 |
| | Summer | 0 | 0 | 16 | 53.3 | 0 | 0 | 3 | 10 | 4 | 13.3 |

# Synopsis of Findings: Dermo Culture

- Numbers of Perkinsus hypnospores higher in the summer months in clams from all sites
- Southwest Florida had higher numbers of hypospores than other sites

# Synopsis of Findings: Histopathology

- RLOs frequently occurred in winter collected clams from all sites. Summer collected Gulf Jackson and SW Florida clams did not.
- Granulomas were common in clams from all sites and seasons.
- Lower incidence of metazoans in Gulf Jackson clams.
- Higher number of winter collected SW Florida clams had non-granulomatous inflammation.
- The incidence of kidney concretions was low but occurred in clams at all sites.
- No QPX was observed in any clams from any site