2022 – The Last Annual Stakeholder Cruise
December 15, 2022
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Georgia’s Fisheries & Black Gill

Economic value 2021
$23,598,968

- Shrimp (food)
- Crabs (hardshell)
- Bait Shrimp
- Misc.
- Invertebrates
- Finfish
- Soft shell crabs
- Oysters

Fall (Sept - Dec) White Shrimp Landings (lbs x 10^3)

Avg % Black Gill (Sept - Nov)

YEAR


0.0 0.5 1.0 1.5 2.0 2.5 3.0 3.5

Global price of Shrimp

U.S. Dollars per kilogram


Shaded areas indicate U.S. recessions.

Source: International Monetary Fund
Black Gill is the Shrimp’s Immune Response to an Offending Invader or Toxin
Meet *Hyalophysa lynni* n. sp. A newly described Apostome ciliate.

- Unique life history
- Apostome morphology
- Unique genetic phylogeny
- Pathogenic

Registered new species (ZooBank)


Black Gill is Not Harmful To Humans

If you’ve eaten local Georgia shrimp since the mid-1990’s you’ve almost certainly eaten shrimp with black gill
Understanding the causes of this variability may lead to better seasonal forecasts that may help us to manage the fishery to avoid economic catastrophes such as the one that occurred in 2013.
Seasonal Occurrence and Detection of Black Gill (2014-2015)
Seasonal Occurrence and Detection of Black Gill (2016-2020)

Recent Changes in Prevalence and Intensity of Black Gill Infections
Environmental Drivers?

Black Gill Prevalence Correlated with Climate Conditions

Kendrick et al (2021)
The Influence of Environmental Factors in Shrimp Black Gill: Management and Fishery Adaptation Options?

NEW GA CRD Project funding from the 2013 Disaster Relief Payout

Data Sets:

- Fishery Independent (GA CRD EMTS program) – CPUE + environmental data (1976 – present, monthly by location and species)
- Fishery Dependent (GA Landings – 1957 – present, monthly, statewide)
- Long-term environmental data (temperature, salinity, oxygen, rainfall, river discharge. Some date back to early 1900’s)

Black Gill monitoring:

- Visible (GA CRD EMTS program) - 1996 – present, monthly by location
- PCR (MAREX educational trawl program and GA CRD EMTS) - 2014 – 2021, at least monthly

Climate Data:

- Climate indices (e.g. ENSO, AO, PDO, etc)
- Drought indices (e.g. PDI, PHDI, NADM, NCEI, etc)

Understanding The Relationships between the Fishery (Landings), Shrimp Stocks (CPUE), and Environmental Conditions. Forecasting and Adapting Fishery to Ongoing Changes (Black Gill & Climate)
August Landings & CPUE
(1976 - 2015)

August CPUE vs Landings
(1976 - 2015)

P = 0.58