# Institute of Marine Affairs - 7th Community Symposium

CENTRAL TRINIDAD

*Assessment of the Fishery Resource*

# *Bacteriological Quality Of Oyster Harvesting Sites in the Caroni Swamp*

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Community and Ecosystem Connections

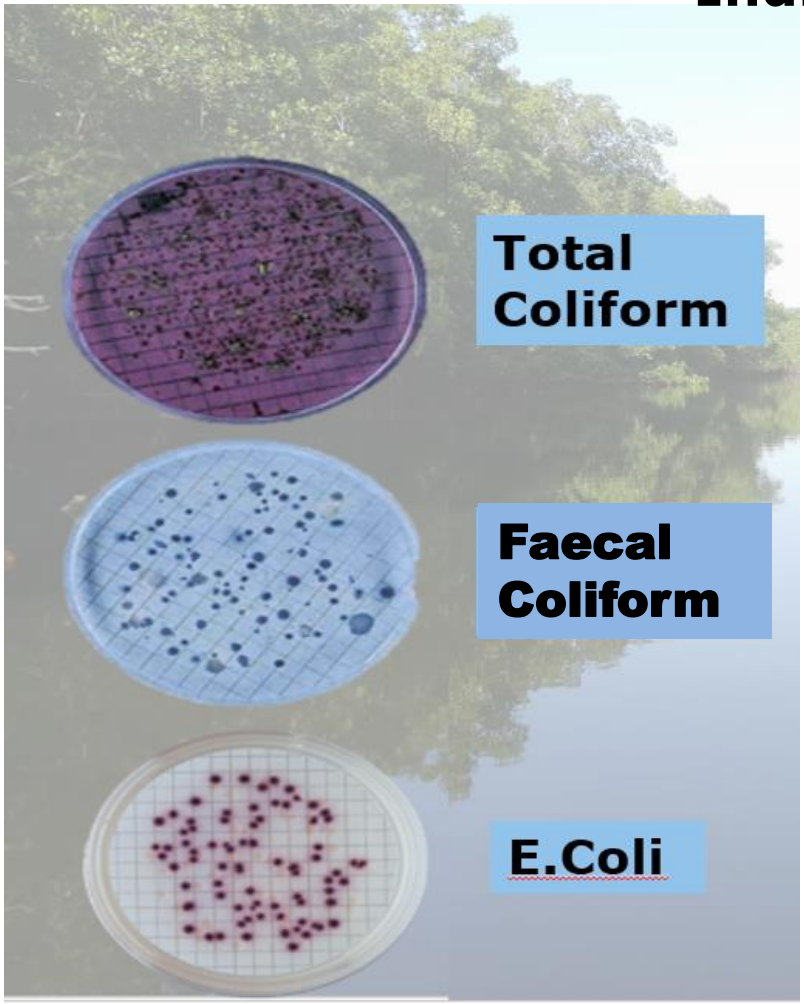
Improving Human Wellbeing Sustaining Livelihoods

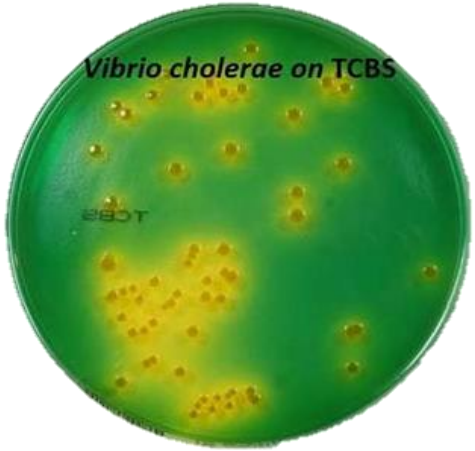
**20th September 2022** Warrenville Regional Complex, Trinidad, W.I.

# Potential Sources of Sewage

| Pollutant | Sources |
|---|---|
| Domestic / Industrial | • Unplanned communities (no septic tank)<br>• Malfunctioning sewage plants |
| Agricultural | • Unregulated farm waste<br>• Improper manure treatment<br>• Non domesticated animals ( wildlife) |

# Indicator Organisms




Vibrio

| | |
|---|---|
| Symptoms Within 24hrs | Diarrhoea<br>Vomiting<br>Abdominal cramps<br>Fever<br>Nausea<br>Headaches<br>Leg cramps |

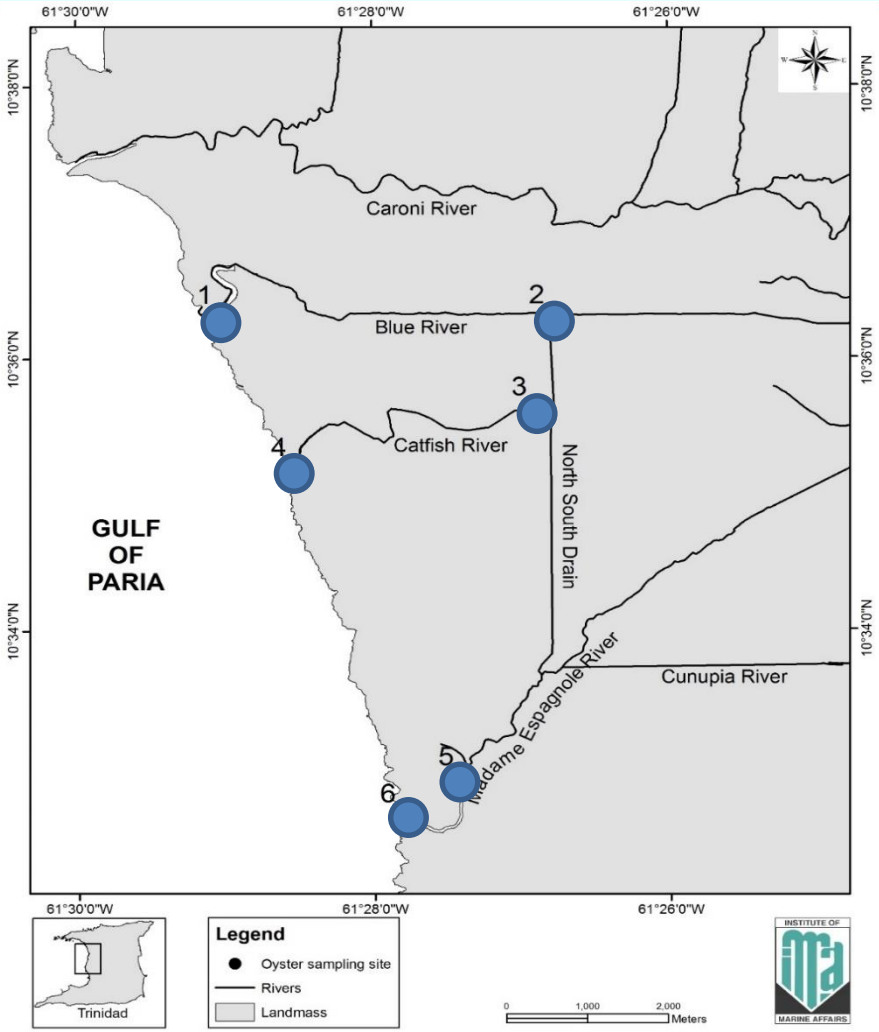
# Water Quality

| CFU (colony forming unit) /100ml water | Geometric mean (average of 5 days)<br><br>**TTWPR and USEPA Limit** | Single day sampling<br><br>**USEPA Limit** |
|---|---|---|
| Enterococci | 35 | 104 |
| E.coli | 126 | 235 |
| Faecal Coliform | 200 | 800 |

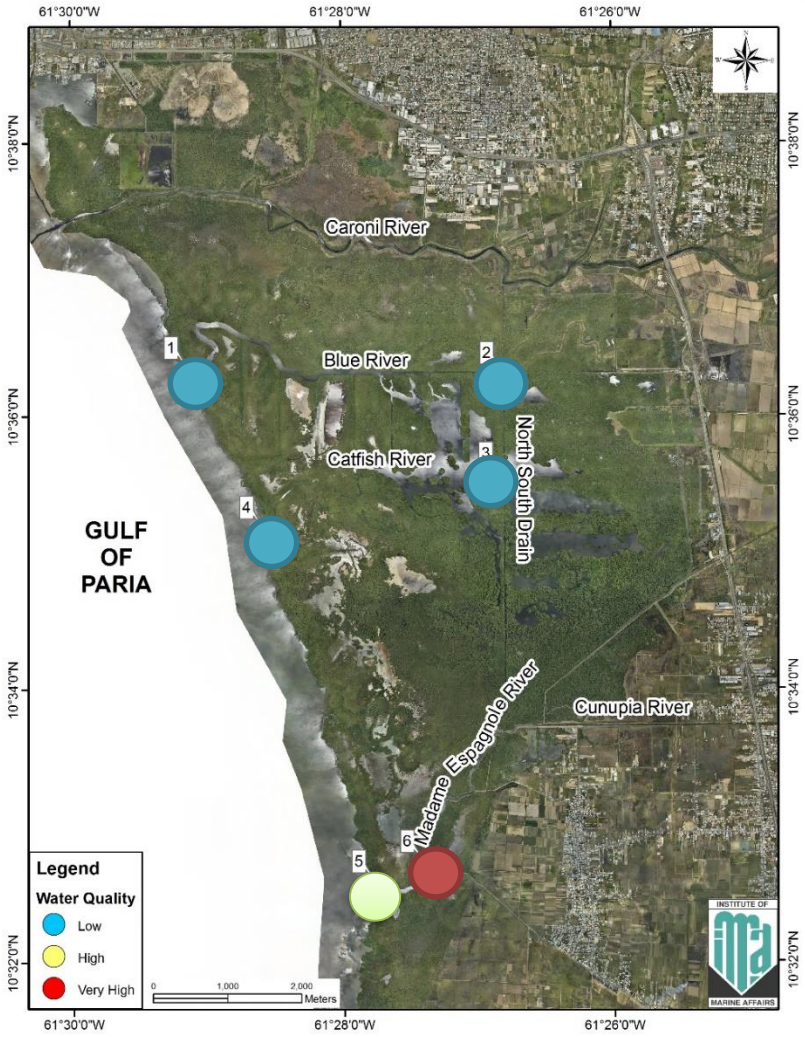
# *Mangrove Oysters*

**Filter Feeders**

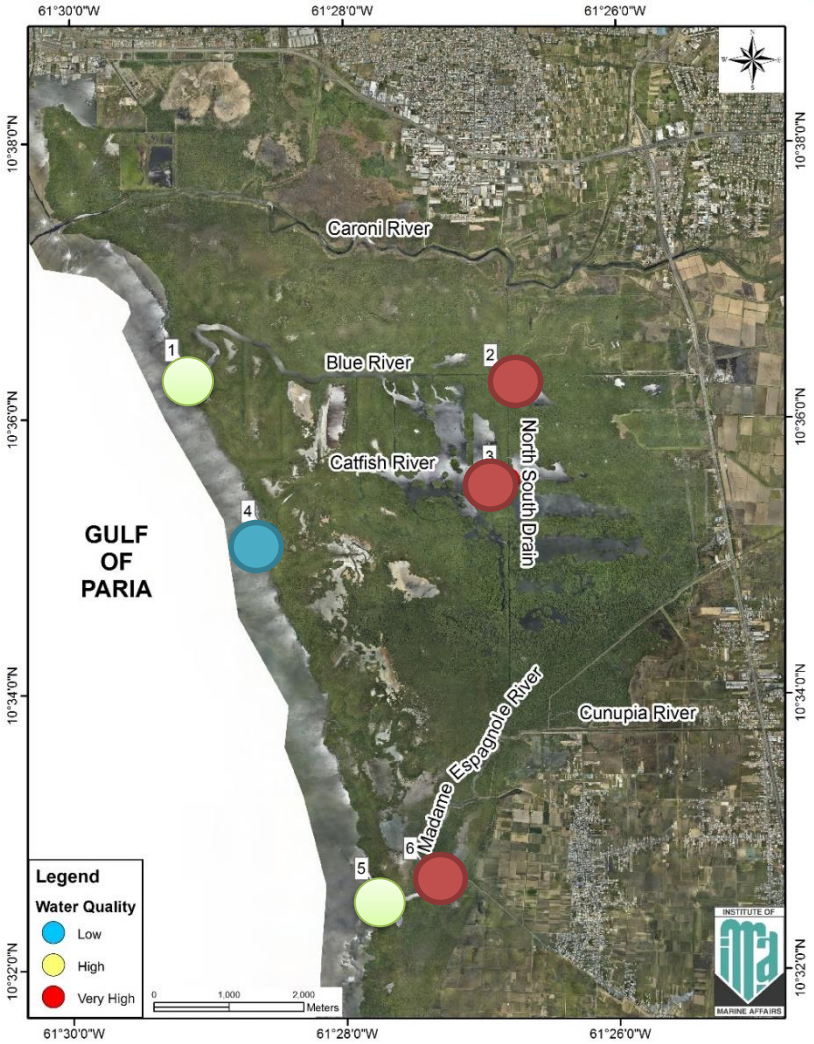
| | E.coli 100g shellfish | Faecal coliform 100g shellfish | Faecal coliform 100ml water | Advice |
|---|---|---|---|---|
| **A** | <230 | <300 | <31 | Direct Consumption |
| **B** | <4600 | <6000 | <163 | Mitigation |
| **C** | <460000 | <60000 | No data | Mitigation |
| **D** | >460000 | >60000 | No data | No consumption |




- **Physio-chemical**
  - Dissolved Oxygen (DO)
  - Temperature
  - pH
  - Salinity
  - Conductivity
- **20-30 Oyster/site**
- **Water sample**




# Dry Season Water Quality




# Wet Season Water Quality

**"Identifying the primary sources of fecal contamination along the beaches and rivers of Trinidad"**

Bridgemohan et al. 2020

Primary Faecal Sources at Caroni Swamp

Human; Bird; Chicken; Cattle

# Way Forward : Addressing Issues

## Limit inputs of sewage

**Agriculture sewage**

- Proper disposal of farm waste
- Proper manure treatment

**Domestic sewage**

- Ensure a connection to a septic tank

**Practices**

- Harvest at nearshore sites
- Avoid harvesting after heavy rainfall
- Mitigation - Ice, Boiling, Depuration

## Safe Oyster Consumption

# MITIGATION

**Boiling**

**Depuration**

**Keep on ice**

From harvesting –
Bacteria x300 at room temperature

**Microbial quality of oysters sold in Western Trinidad and potential health risk to consumers** (Rampersad et al. 1999) Condiments ? Vinegar ?  Low pH?

# MYTHS ABOUT RAW OYSTERS

| MYTH | FACT |
| --- | --- |
| An experienced oyster lover can tell a good oyster from a bad one | *Bacteria can't be seen, smelled, or even tasted* |
| Alcohol kills harmful bacteria in oyster | *Alcohol doesn't destroy harmful bacteria* |

# Thank You!

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