

## Introduction

- Fish kill is defined as the death, naturally or human-induced, of a significant number of individuals belonging to a single or different species of wild or cultured fish at a specific location.
- A fish kill event involves several individuals to several millions of dead fish.
- This study accounts for the temporal, seasonal and spatial distributions of fish kill events occurring in natural bodies, both marine and freshwater, including lagoons, intertidal pools, estuaries, barachois, rivers, lakes and reservoirs in Mauritius island from 2013 to 2018.

## Methodology

- The Albion Fisheries Research Centre attends to cases of fish kill events to determine the causes and coordinate activities for effective management of such occurrences.
- During the study period, the fish kill investigations involved collection of data related to:
  - a) physico-chemical parameters, namely tide, weather, sea and wind conditions, water temperature, dissolved oxygen, nitrate, phosphate, chemical oxygen demand, salinity, pH and conductivity;
  - b) pesticide residues in dead fish samples; and
  - c) diseases, injuries or physical abnormalities on dead fish samples.
- These data were compiled to determine the distributions of fish kill events in Mauritius.

## Mauritius Island

- 1864.8 km<sup>2</sup> land area
- Found on the Mascarene Plateau
- Has a coastline of approximately 330km comprising both sandy and rocky shores
- 240.4km<sup>2</sup> of coral reefs
- 92 rivers, 11 man-made lakes and 2 natural lakes
- Summer (November-April); Winter (May-October)
- Average day maximum temperature in summer: 29.2°C
- Western region is the driest and hottest region



Figure 1: Map of Mauritius

## Results

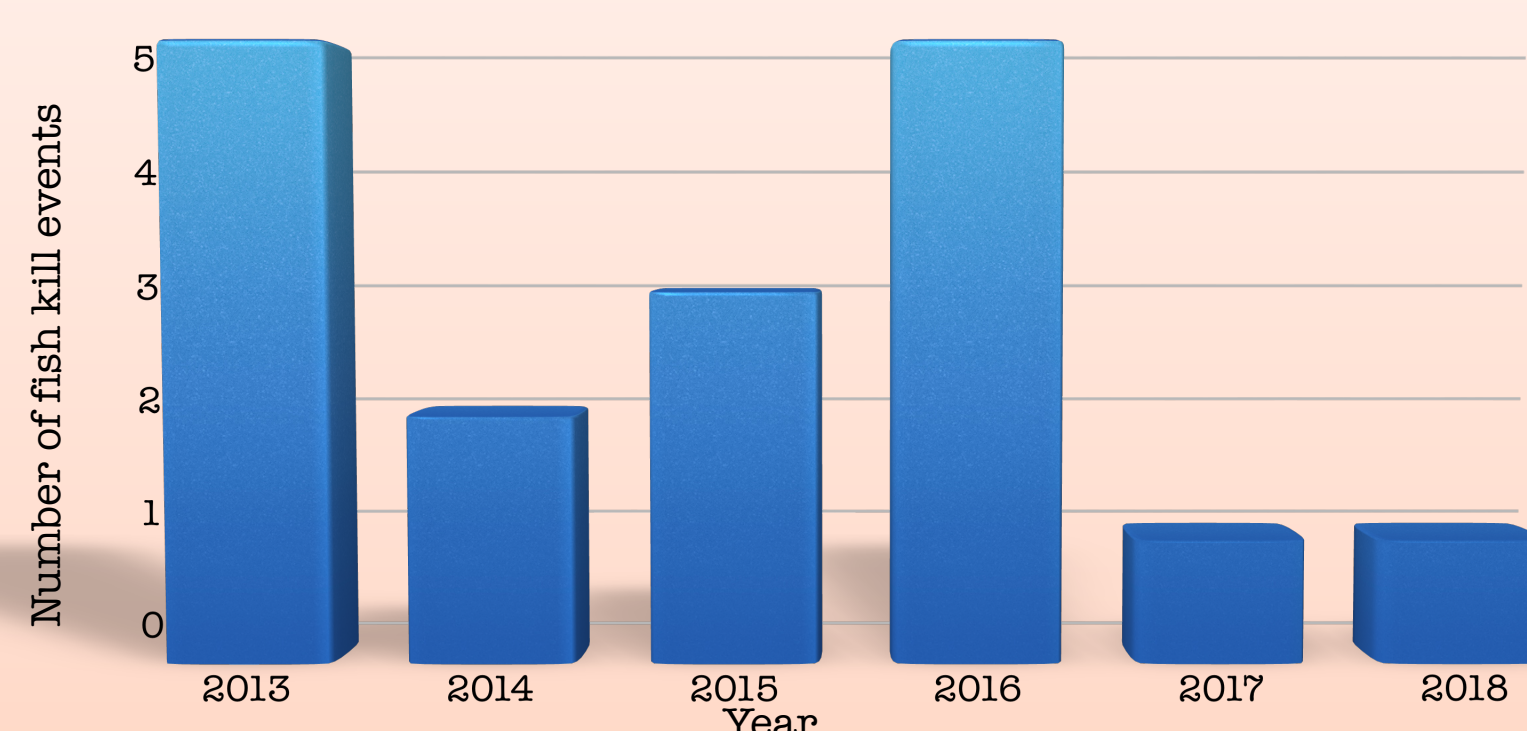


Figure 2: Frequency of fish kill events for the period 2013 to 2018

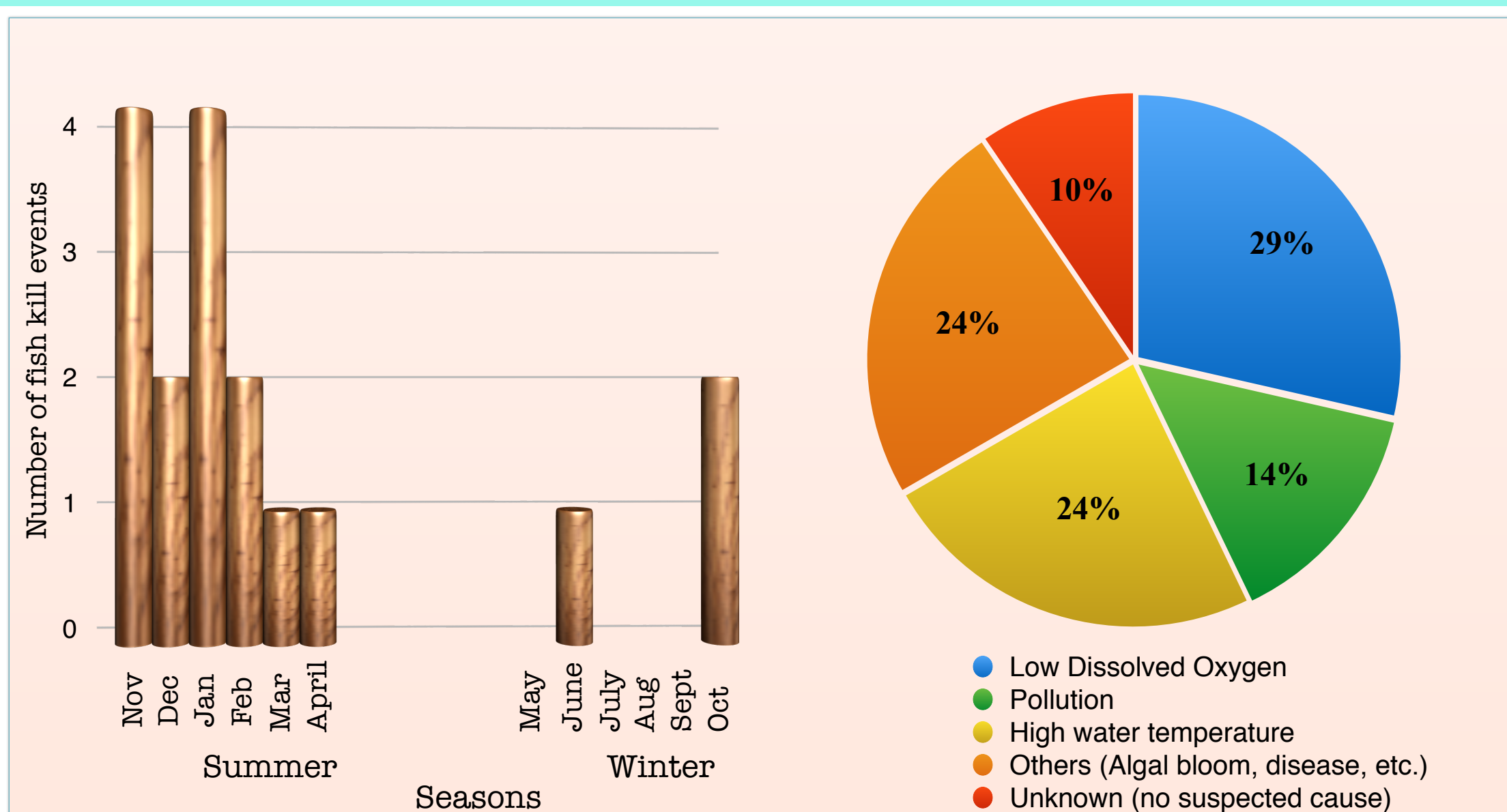


Figure 3: Seasonal distributions of fish kill events for the period 2013 to 2018

Figure 4: Causes (%) attributed to fish kill events in Mauritius for the period 2013 to 2018

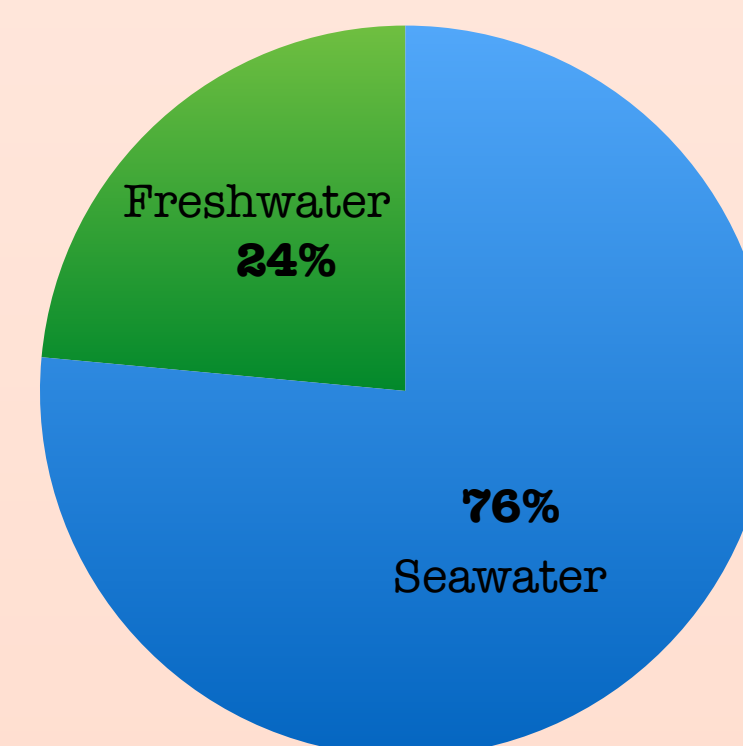


Figure 5: Fish kill events (%) in fresh and marine waters for the period 2013 to 2018

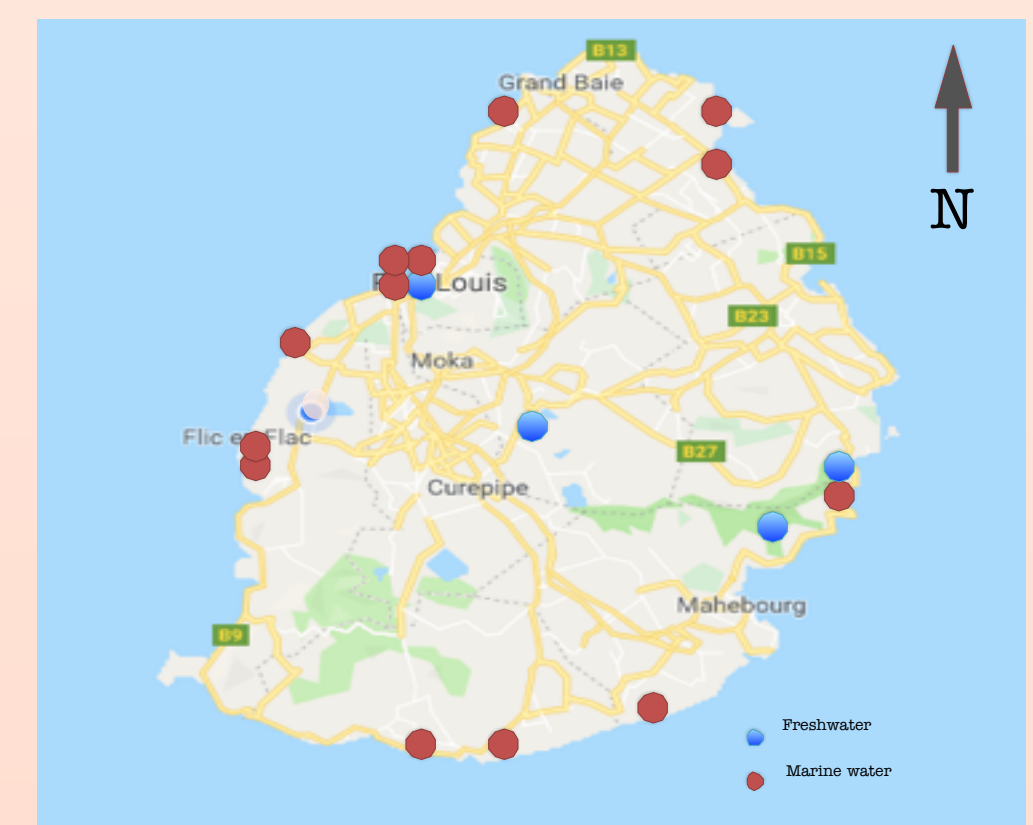


Figure 6: Spatial Distribution of fish kill events around the island of Mauritius for the period 2013 to 2018

- ◆ 17 Fish kill events were recorded during the study period;
- ◆ Fish Kill events occurred mostly in marine waters;
- ◆ Highest number of fish kill events was observed in 2013 and 2016;
- ◆ Occurrence of fish kill events was frequent in summer and the western region;
- ◆ Low Dissolved Oxygen, high water temperature and pollution were the most common attributed causes; and
- ◆ Common dead fish species observed were the *Caranguidae* spp., *Siganus* spp., *Sardinella* spp., *Mugil* spp., *Scarus* spp., *Obstracion* spp., *Synanceia* spp., *Gerres* spp., *Gymnothorax* spp. and *Diodon* spp. in marine water and *Oreochromis* spp. and *Hypostomus* spp. in freshwater.

## Conclusion

- The study demonstrated that fish kill events occurred mostly in the marine environment in the western region of Mauritius and were triggered mainly by high water temperature during summer seasons.
- Further investigations are warranted including post mortem examination of fish for better management and preparedness.
- In-depth studies should be carried out to mitigate socio-economic impacts of fish kill events.

## Acknowledgement

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