Spatial and Temporal variation of salinity in the southern coastal areas of Bangladesh

Background:

1. In the coastal area of Bangladesh, salinity is considered one of the major challenges, while it is projected to increase with time due to multiple reasons, including climate change.
2. The variation in soil salinity from season to season is pronounced; topsoil salinity often rises in January, peaks in April or May, and then progressively declines as the monsoon season shower starts.
3. Salinization can directly affect coastal agriculture and livelihood since it affects primary productivity.

Objectives:

In this study, we explore spatial-temporal variability of salinity in the south central coast of Bangladesh.

Methodology:

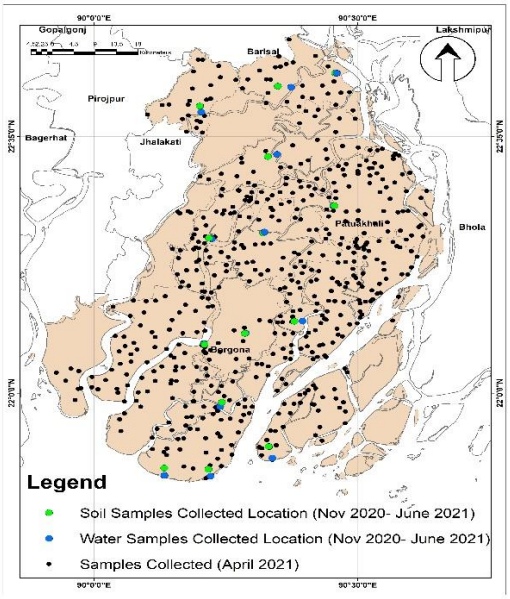
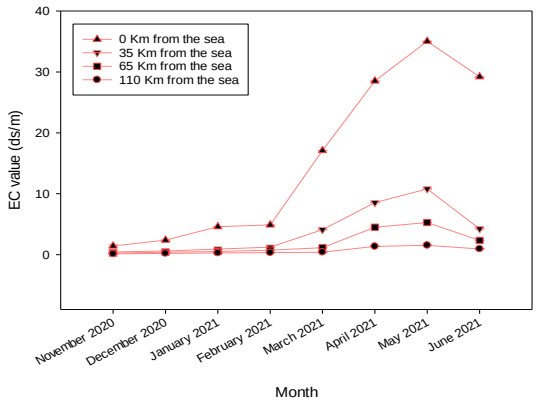
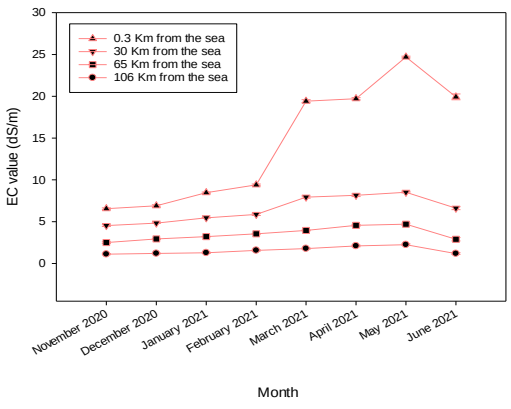


Fig.1 Soil and water samples collection points for different locations of southern coastal districts.

Results:



a



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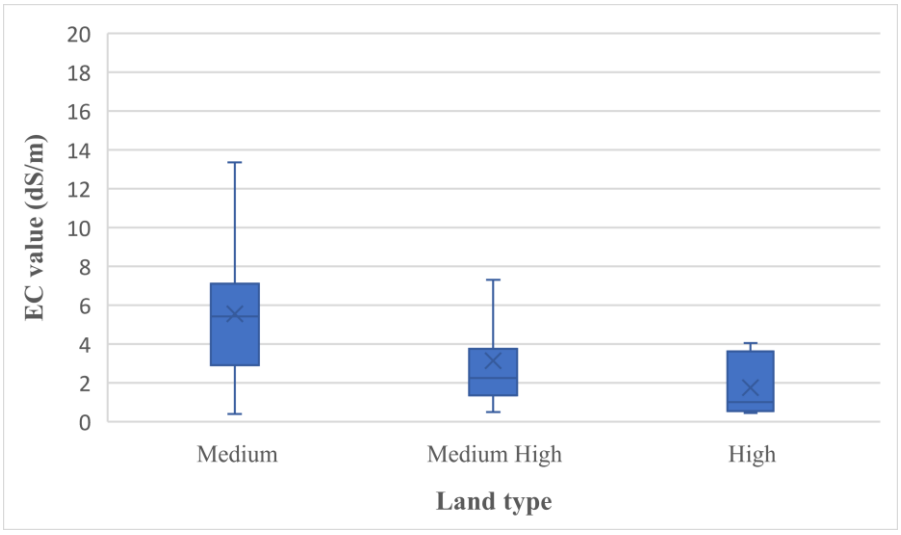
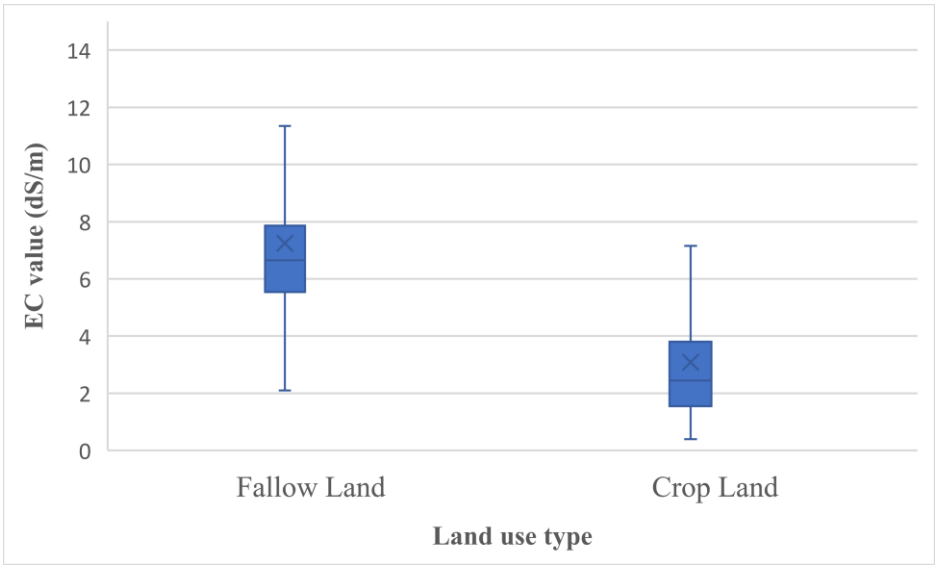


c



d

Fig. 2 Monthly variations of water (a) and soil salinity (b) with distances from the sea (Km) as well as spatial distribution of soil salinity based on land types (c) and land uses (d).

Main conclusion:

1. We observed that surface water salinity and soil salinity varied seasonally, which was very high near the coast. These findings suggest that near the shoreline is unsuitable for crop cultivation, especially during the dry seasons.
2. Spatial soil salinity levels varied on the land types and land uses in different Upazilas. This information will help to manage the soil for crop production efficiently. Overall, this research findings will also help the stakeholders make adaptation plans for sustainable crop production in the southern coastal areas of Bangladesh.