



MONITORING MANGROVE SYSTEMS

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Mangrove ecosystem uses.

Maintenance of coastal water quality.

Reduction in the severity of coastal storm, wave and flood damage

Nursery areas and feeding grounds for commercial and artisanal fisheries.

Important habitat and feeding grounds for a range of benthic and pelagic marine animals and bird species

Production of timber and other forest products.

Many Environmental factors may influence the diversity and productivity of mangrove ecosystems. These include climate, geomorphology, tidal range, freshwater input and soil characteristics.

Sampling Methods.

Most studies require long-term monitoring that map changes in forest structure, biomass and growth.

Site selection is important, choice of site will be the most representative of the forest in that region.

Permanent sites are most suitable as it allows comparisons over time and space.

RECOGNIZING STRESS

Main damage to forests are anthropogenic.

Deforestation for
timber, charcoal, firewood, scaffolding,
Fish traps, coastal fish or shrimp farming,
housing.

Stress related to natural factors are less
obvious.

STRESS

Large or small areas where trees are removed.

Trees with branches cut off.

Branches and trunks with cracks , at their tips.

Leaves may be fewer, smaller, twisted, curled, show signs of dying.

No flowers, fruits falling off before maturity.

Seeds may be deformed –abnormal growth.

Established seedlings show abnormality.

Seedling death.

STRESS

Pneumatophores may be branched twisted or curled. And aerial roots may develop on trunk.

Young trees may grow at an angle.

SAMPLING

CORE PARAMETERS

- Date, time of visit.
- Location name, site name or number.
 - GPS coordinates, collector's name.
- Weather conditions, water, air temperature.
- Rainfall, wind, sea state, salinity features, orientation.

SAMPLING

Community composition

- Choice of site/forest characterization/zonation/plot establishment
- Species composition
- Diameter at breast height(dbh).

SAMPLING

Interstitial Water

- Salinity measurements, by excavation , salinity well.

Biomass Measurements

- Using dbh > 2.5cm, and tree density
- Biomass of sapling and seedlings added to tree data.

SAMPLING

Productivity

- Litter Fall (fringing Rhizophora plots).
- Surface litter (once)

USEFUL SOURCES

www.mbrs.org.bz

www.mona.uwi.edu/cms/caricomp.htm

Survey Manual for Tropical Marine
Resources : S.English,C.Wilkinson and
V.baker (eds). Australian Marine Science
Project:Living Coastal Resources

The background is a gradient of blue, transitioning from a lighter blue on the left to a darker blue on the right. A thin, light blue curved line starts from the top left and curves towards the center. A larger, semi-transparent blue shape, resembling a spotlight or a lens flare, is positioned in the lower right quadrant, overlapping the main blue background.

THANK YOU