

Seagrass Restoration Guidelines for the WIO Region

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Guidelines/Toolkits***

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Draft

Seagrass Restoration Guideline



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Seagrasses in the WIO region

13-14 species



Halophila ovalis



Halophila decipiens



Halophila stipulacea



Halophila beccarii



Enhalus acoroides



vulnerable

Zostera capensis



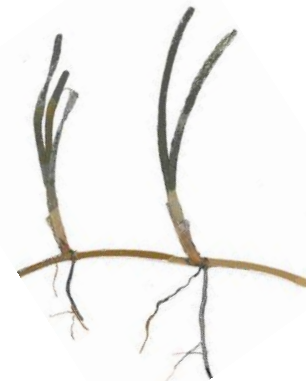
Thalassodendron ciliatum



Ruppia maritima



*Syringodium
isoetifolium*



Cymodocea rotundata



Halodu / le uninervis



Thalassia hemprichii



Cymodocea serrulata



Thalassodendron leptocaulle





Thalassodendron leptocaule



Seagrass: drivers of decline



Seagrass: drivers of decline



Seagrass restoration

Common sense considerations:

When thinking of transplanting seagrass from elsewhere into a site:

- Was there seagrass at this site before?
- What were the causes of seagrass loss?
- Have these (root cause analysis) been addressed?
- Are present conditions suitable for seagrass?
- Why is seagrass not coming back by itself?



Seagrass restoration

Hierarchy of restoration approaches:

1. Removing causes of further decline
2. Assisting natural recovery
3. Overcoming recruitment bottlenecks
4. Active restoration by planting (\$)



Seagrass restoration methods

1. Sediment-free planting units (manual planting):

Advantages: low volume/weight (easy)

Disadvantages: low %survival, labour-intensive, small-scale



Seagrass restoration methods

2. Planting units with sediment (plugs, sods):

Advantages: higher survival, less labour-intensive

Disadvantages: heavy to carry (logistics), medium-scale



Seagrass restoration methods

3. Seed-based methods:

Advantages: simple, large-scale application

Disadvantages: dependant on seed-availability, low %survival



Seagrass restoration methods

4. Mechanical planting/harvesting methods:

Advantages: large-scale application

Disadvantages: costs, high-tech, maintenance, not always cost-effective



Site selection

Checklist of criteria:

- Historical & present seagrass distribution
- Proximity to healthy meadows
- Likelihood of natural recovery
- Has the cause of decline been reversed?
- Environmental conditions
(e.g. depth, substrate, stability, water quality, light, tide, waves, exposure, bioturbation)



Best practice (protocol)

Guiding principles:

- Large scale approach
- Working with Nature
- Appropriate site selection
- Spreading of risk (space, time, species, methods)
- Keeping costs low (per unit area)
- Minimise impacts on donor sites
- Incorporate into policy framework
- Involve community



Best practice (protocol)

Practical considerations:

- Choice of species / donor material
- Selection of methodology
- Spacing of planting units
- Timing (when best to plant/seed)
- Set realistic timeframes / expectations
- Careful planning of the restoration
- Cost considerations
- Monitoring & evaluation of success



Restoration monitoring

- Document approach, progress and challenges
- Monitor compliance & evaluate success
- Basis for mid-course corrections
- Use standard best practice methodology
- Establish success criteria (to monitor against)
- What to monitor? (area (ha), survival, %cover, ecosystem functions, environmental factors)
- How often/long? (5 years, Year 1: quarterly, Year 2-5: (bi-) annual)



Community involvement



Benefits: local knowledge, sustainability, low-cost (man-power)
Pitfalls: expectation management (risk), skill-level (not professionals)



Restoration management plan

Steps & considerations:

- Goals & objectives
- Pre-planting studies
- Reversal of causes of decline
- Selection of sites, species and planting method
- Time & budget/costs
- Pilot trials and remedial planting
- Community participation (expectations)
- Monitoring & reporting (lessons learnt)

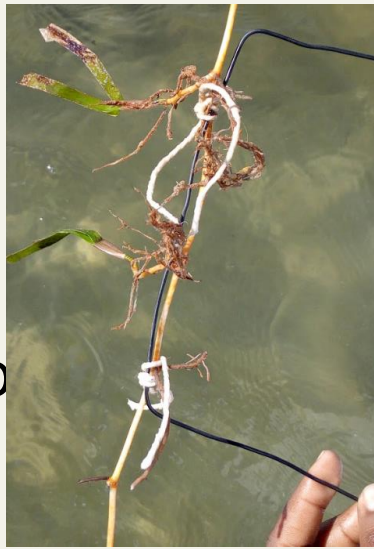
Case Studies & Pilots

- Described 10 international case studies (inspire)
- Visited 2 pilot projects in WIO region (relevance)



Madagascar

Inhaca, Mozamb



Plug Method, Maputo



Sod method

<https://drive.google.com/file/d/16hOHPL40oCtqsoJgHjw4m-N8G1c1EKAY/view?usp=sharing>

Case Studies & Pilots

- Restoration trials in Kenya



Wasini Island, Kenya



The PSC requests the following:

1. Approve adoption of the Guideline for application within relevant demo projects supported under WIOSAP and also wider regional application
2. Recommend testing of the Guideline in field settings across the region
3. Recommend revision of the Guideline as appropriate after testing
4. Recommend translation of the Guideline into key languages in the region as may be requested by any interested country



Thank you