Stabilising tropical beaches with seagrass

Rebecca James
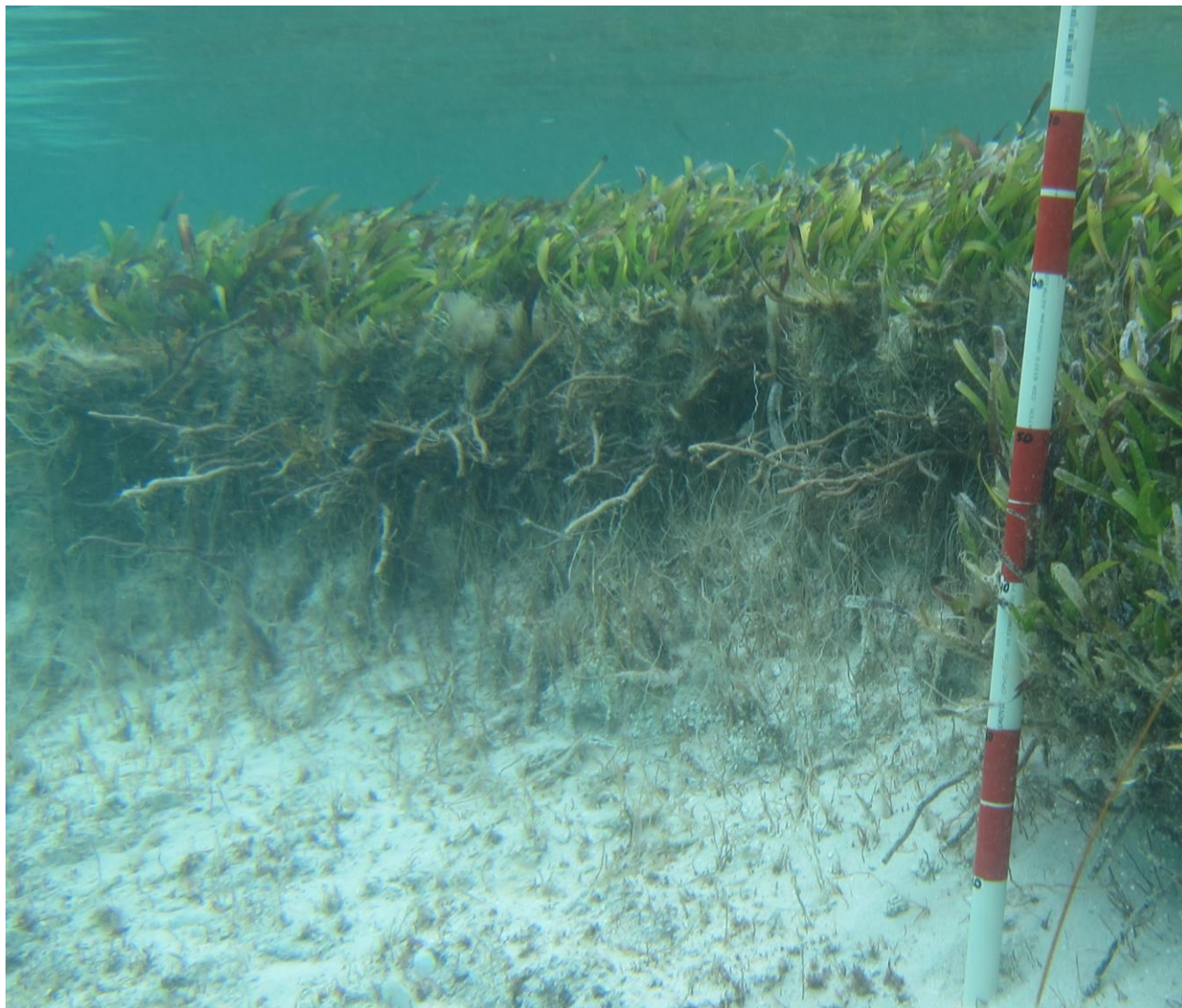
Natural vegetated bays have a complex bathymetry

Galion Bay, St Maarten

© IGN

Elevation
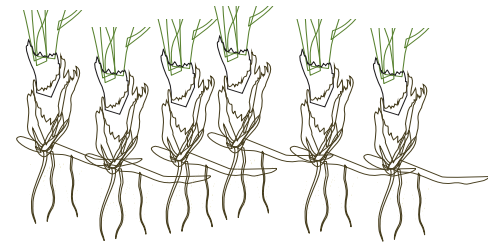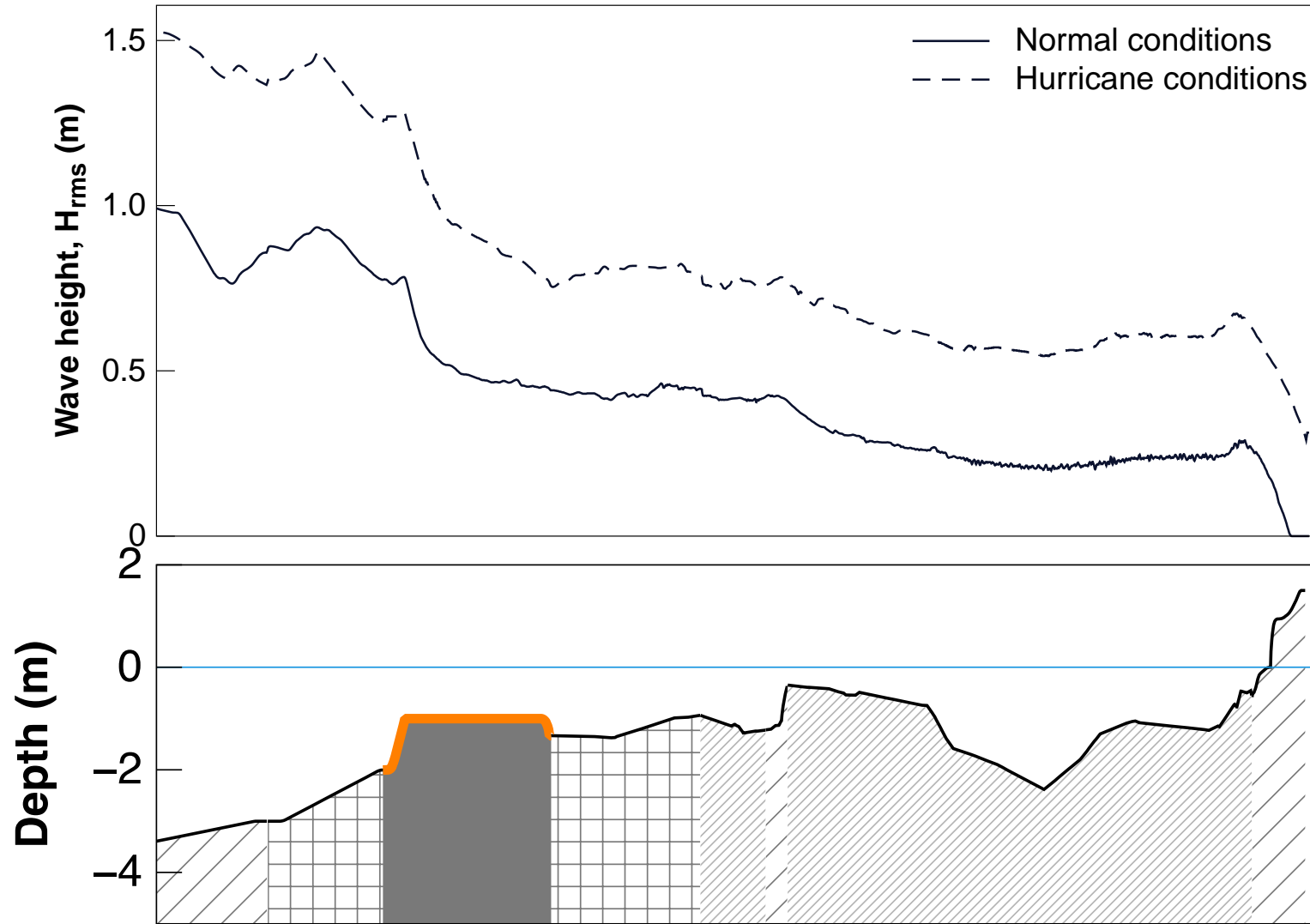0.1 m

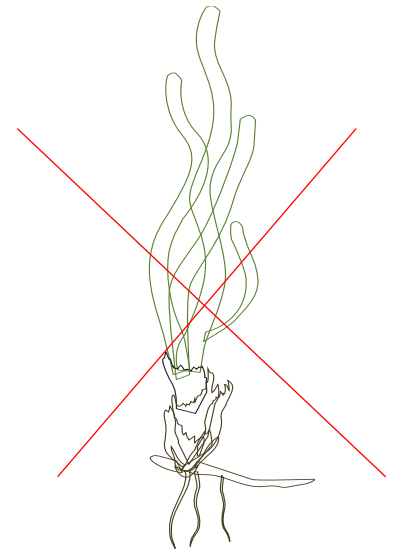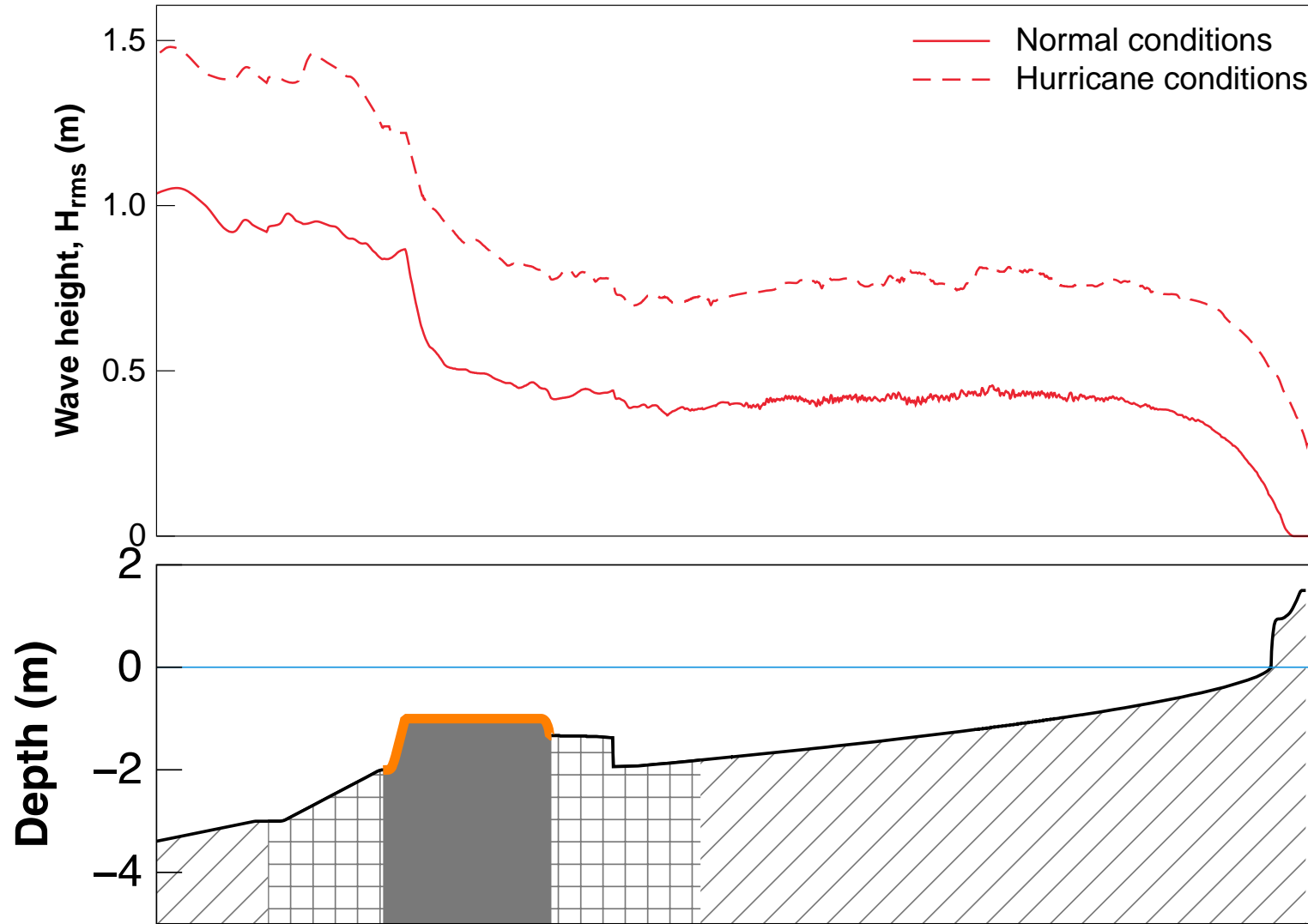-9 m
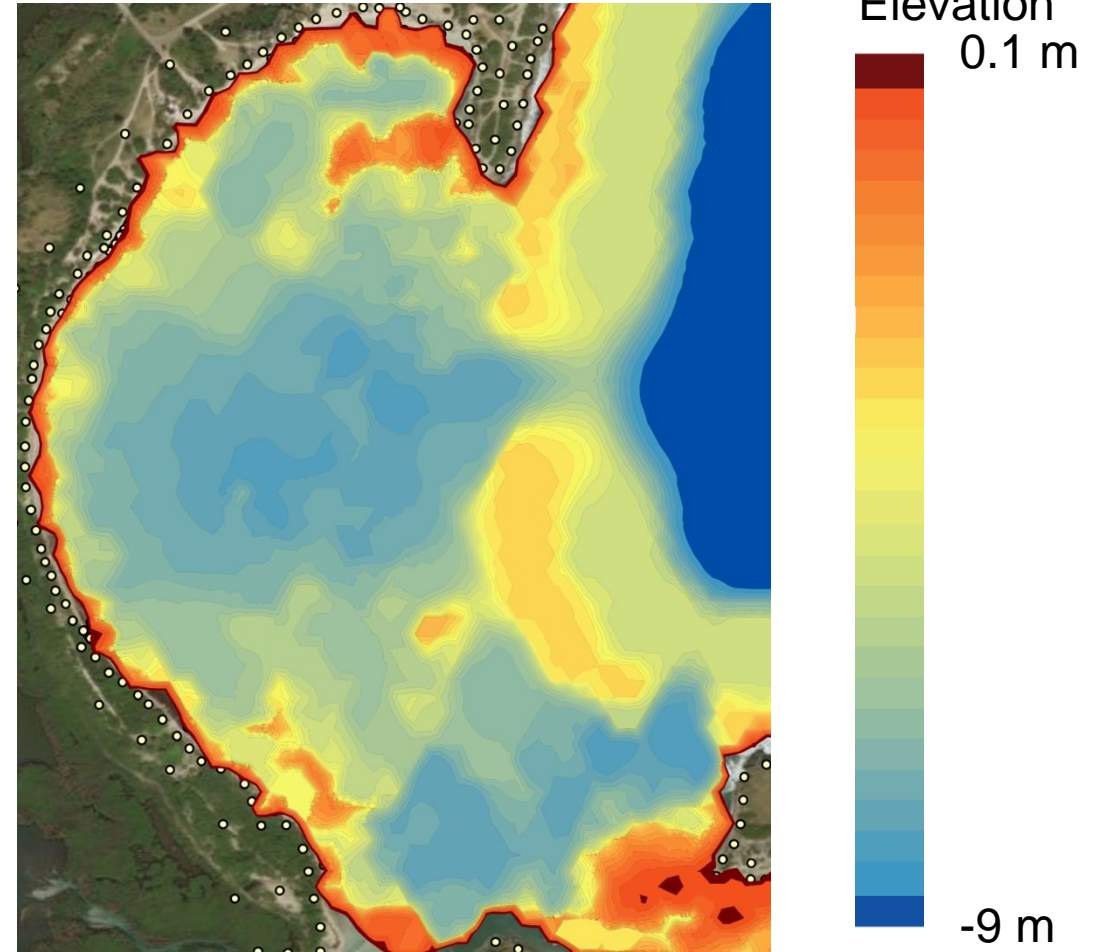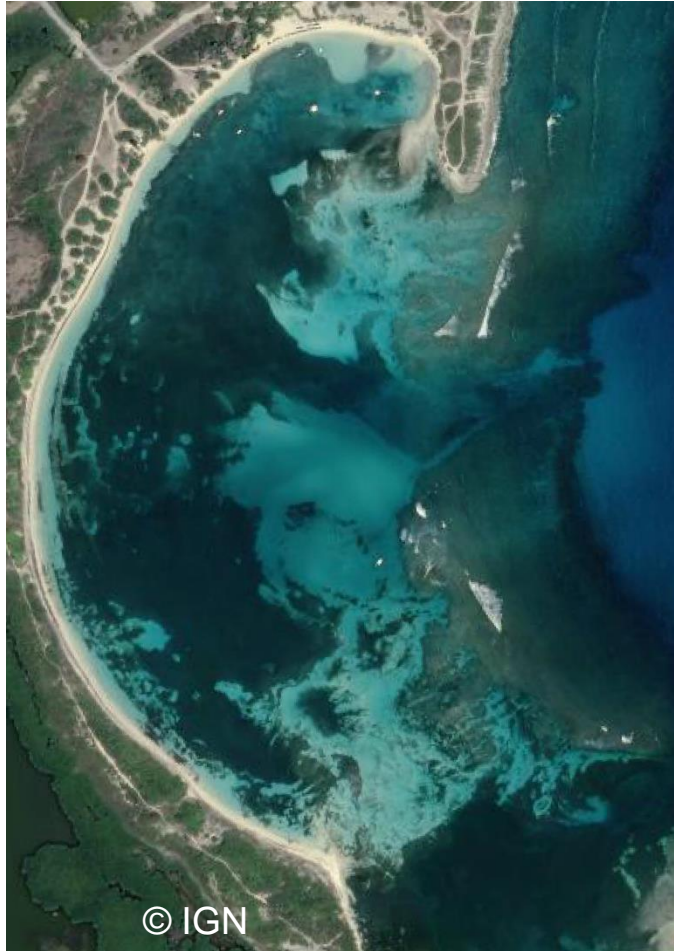
Built by seagrass and coral reefs

Wave attenuation by the natural ecosystem
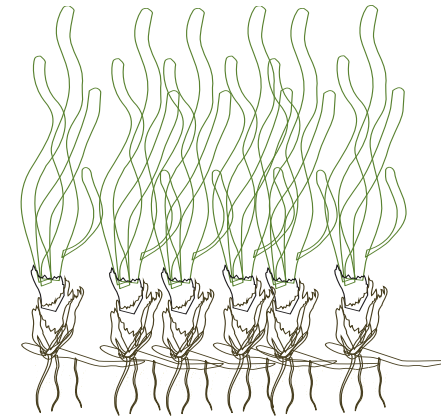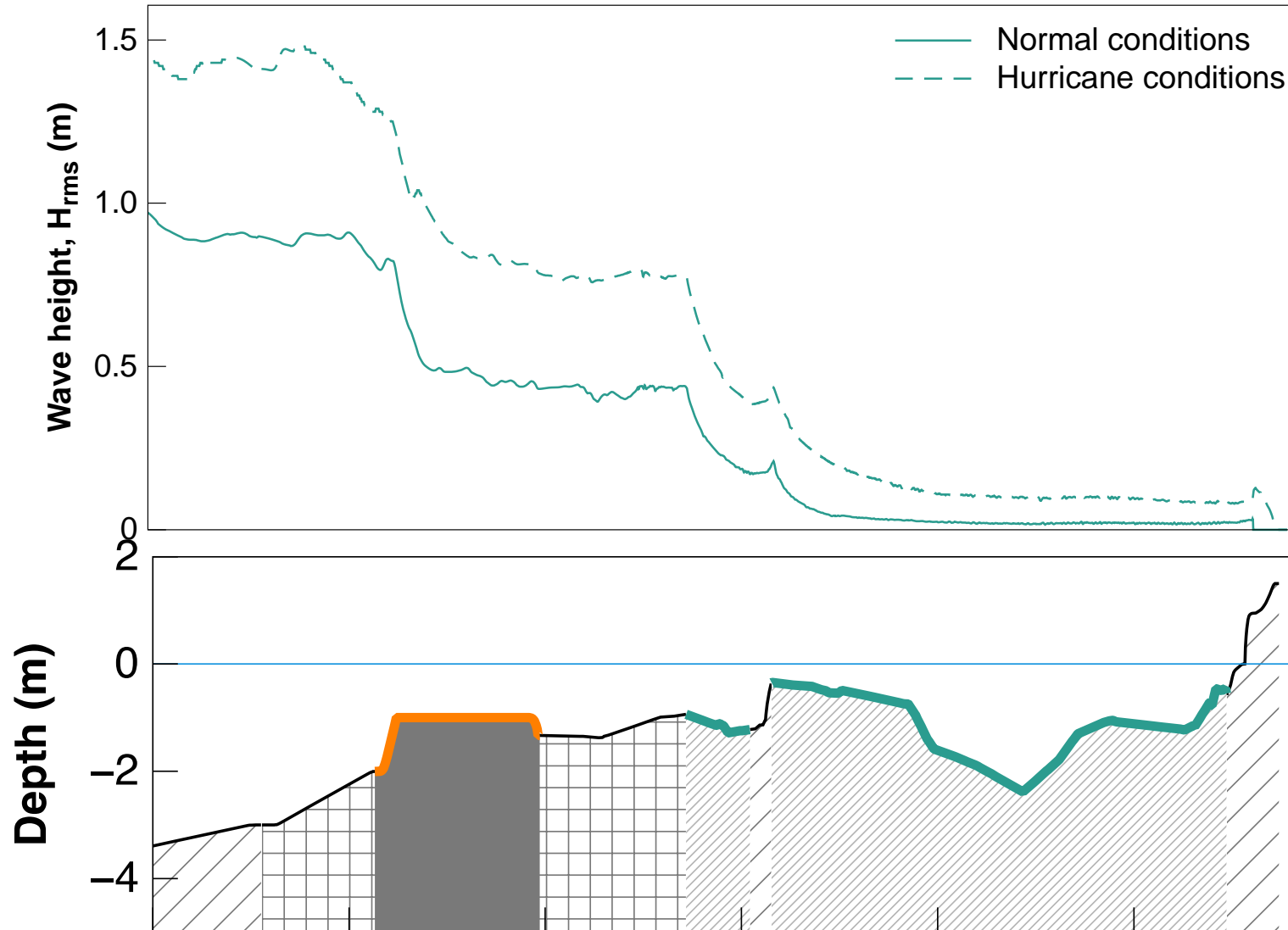
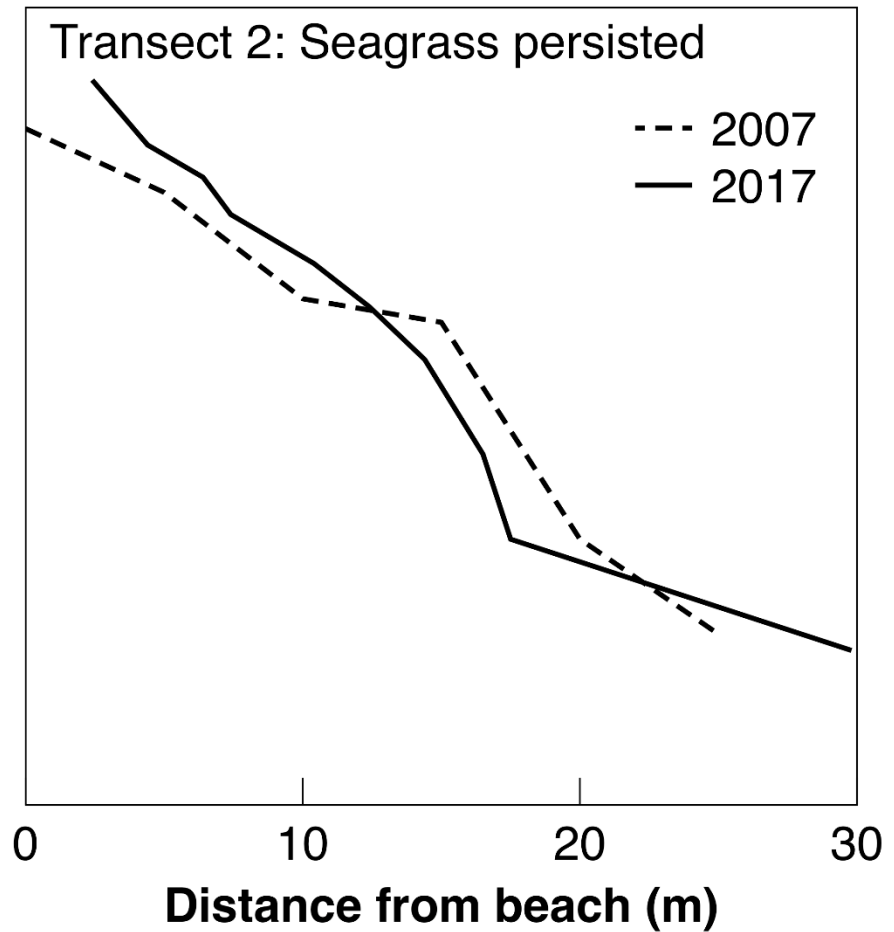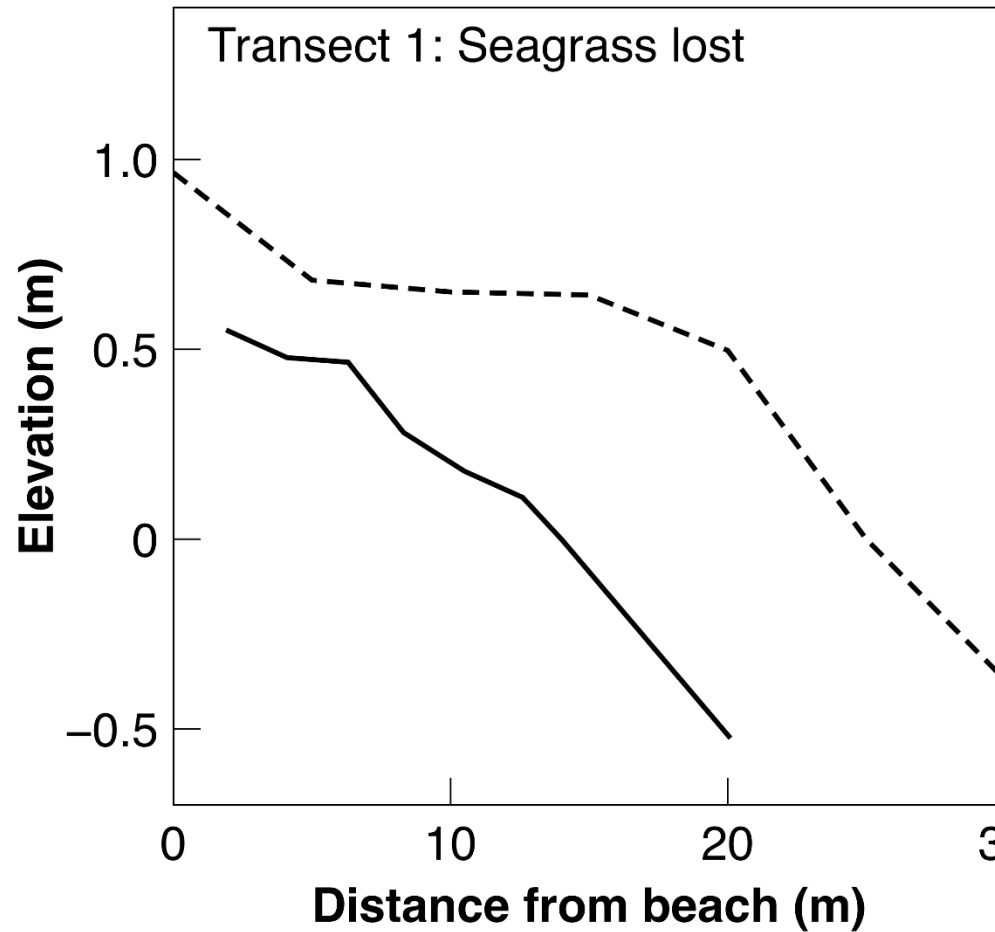# Wave attenuation by a defoliated meadow

Wave attenuation by only the reef

Real world example: Mirador Nizuc, Mexico
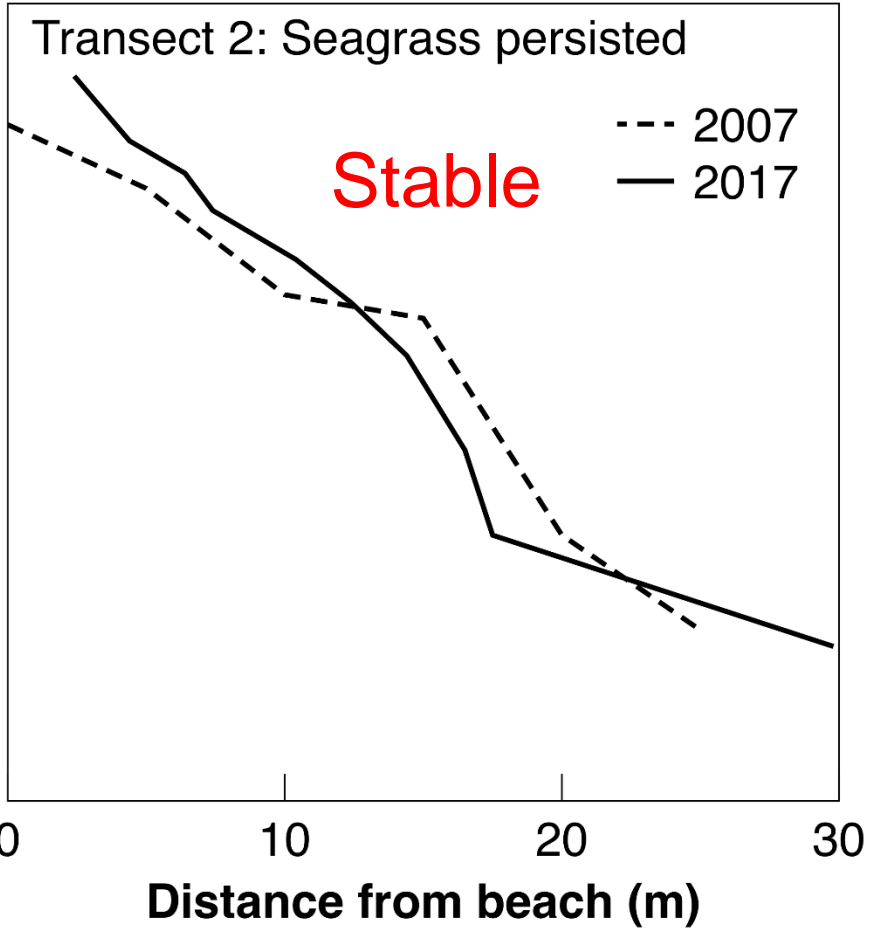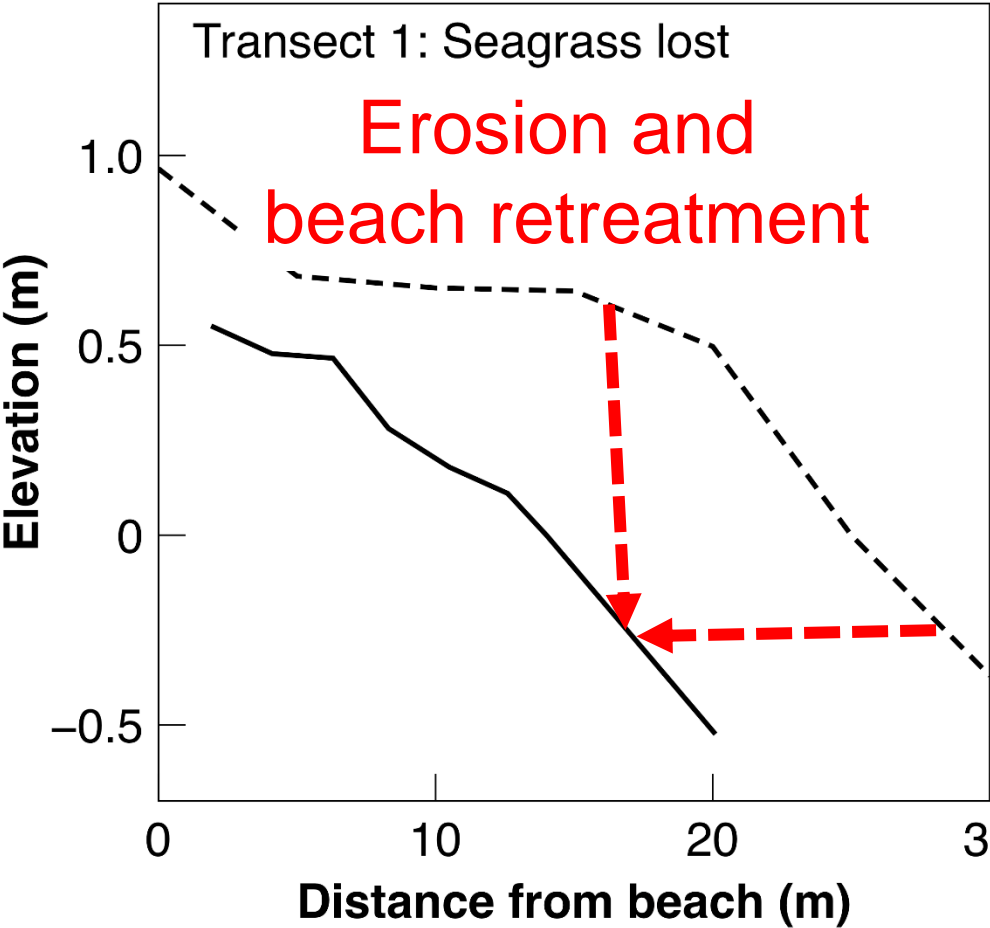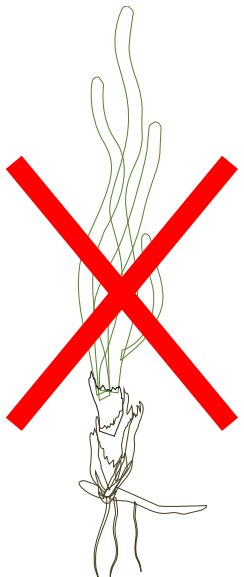

Tussenbroek et al. 2017

No seagrass vs. seagrass
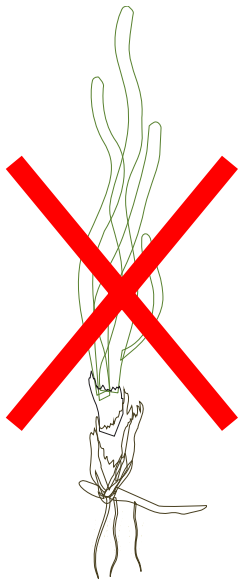
Eroding vs. stable beach

Upscaling seagrass-based climate adaption
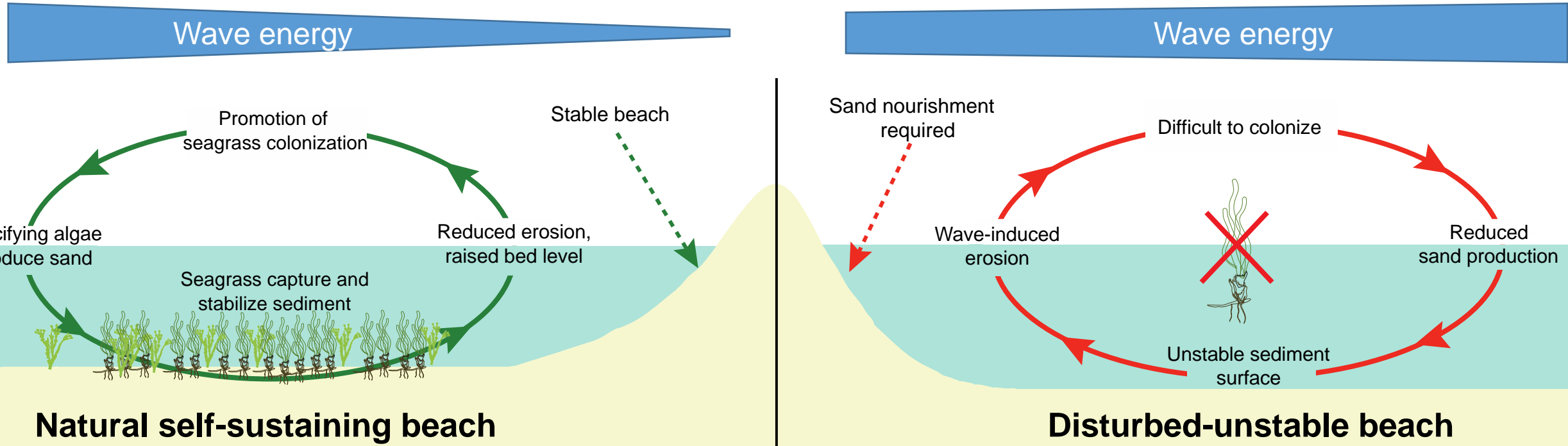
Methods of restoring seagrass meadows

Mei Tan Y. *et al.* (2020) Frontiers in Marine Science

Success of seagrass restoration

Estimated survival (%)

Initial no. seagrass shoots

van Katwijk et al. (2015). Journal of Applied Ecology 53: 567-578

Identifying suitable habitat

Eelgras potential
- < 10 %
- 10 - 25 %
- 25 - 50 %
- 50 - 75 %
- > 75 %
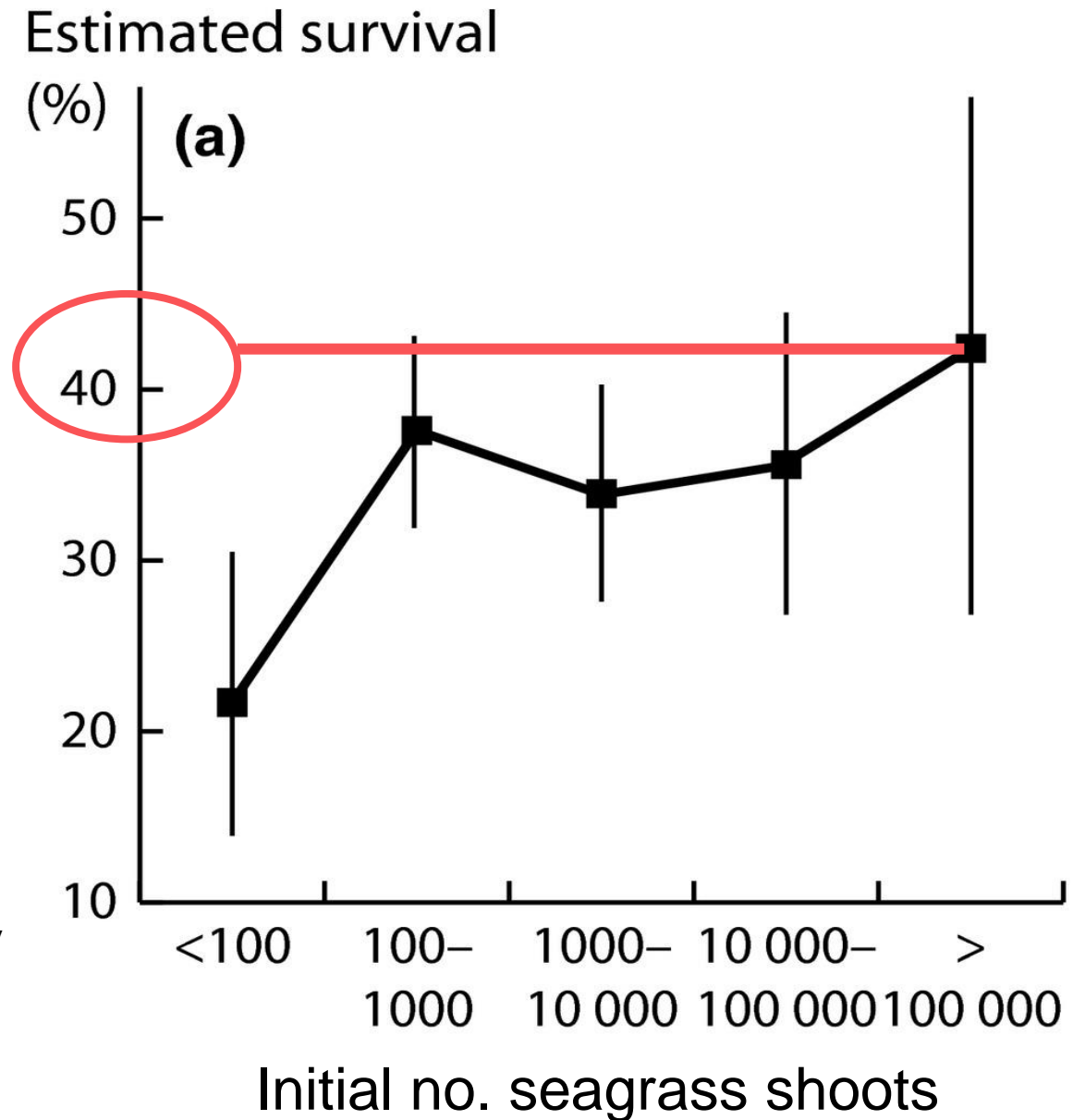
Need long-term monitoring of environmental conditions

Staehr et al (2019). Frontiers in Marine Science 6: 175

0 20 40 80 km

ETRS 89 UTM32N
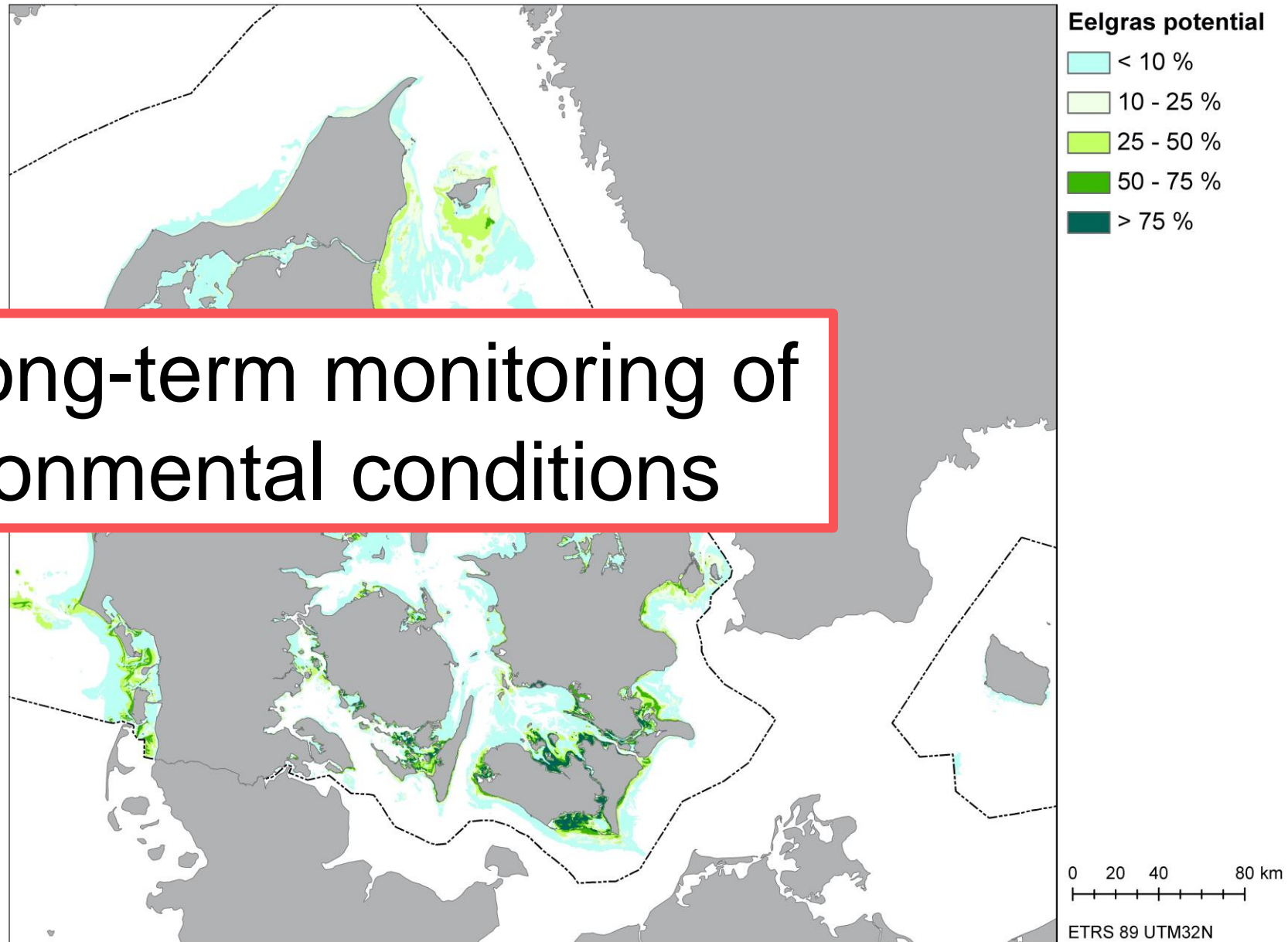
Upscaling seagrass-based adaption

Identifying suitable habitat
- Long-term monitoring
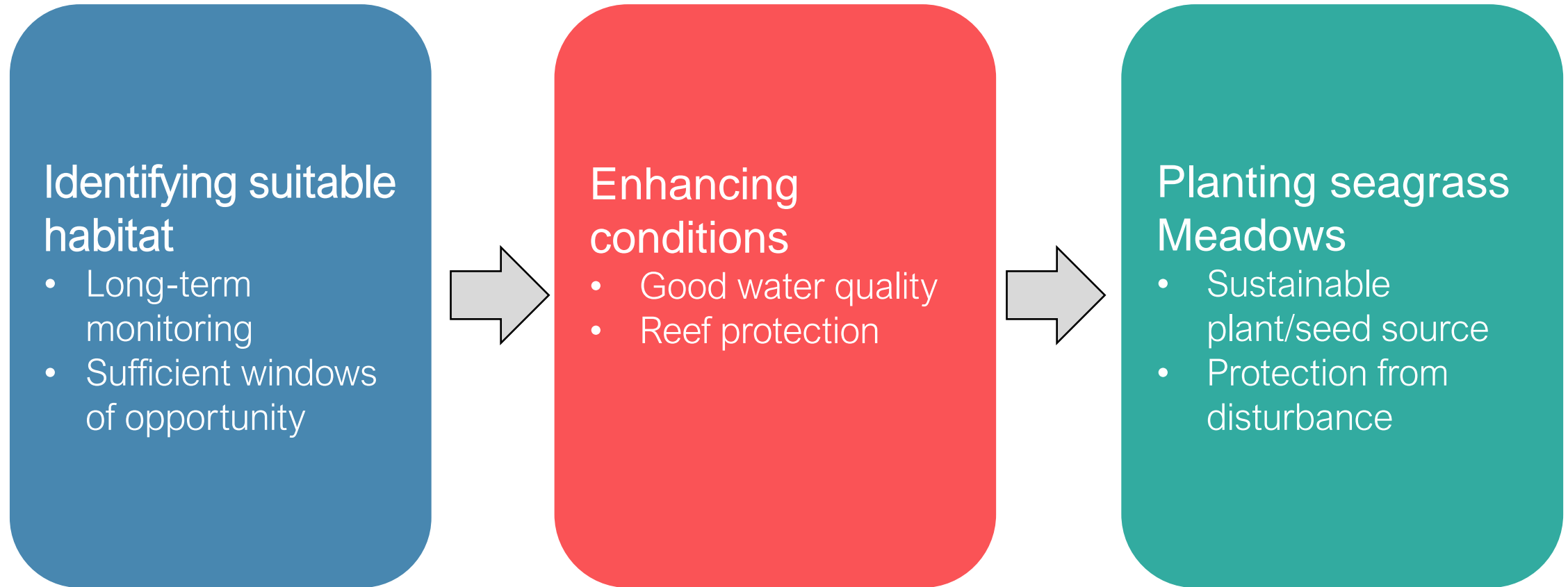- Sufficient windows of opportunity

Enhancing conditions
- Good water quality
- Reef protection

Planting seagrass Meadows
- Sustainable plant/seed source
- Protection from disturbance
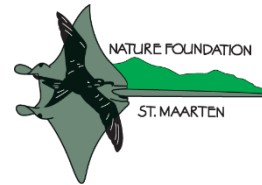
Acknowledgments

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