

# Coastal Protection: A Tale of Two Approaches

Comparing Soft (Nature-Based) and Hard (Engineered) Strategies

## Soft (Green / Nature-Based) Structures

### Built with and for Nature



Uses natural materials like sand, vegetation, and living reefs to protect coastlines.

### Absorbs and Adapts



Dissipates wave energy across gentle slopes and is flexible enough to evolve with the coast.

### Creates Ecological Co-Benefits



Enhances habitats for wildlife, improves water quality, and supports recreation.

Absorb & Dissipate



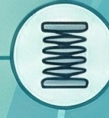
High (self-adjusting)



Gradual



Response to Waves



Adaptability



Failure Mode



## Hard (Gray / Engineered) Structures

### Engineered for Resistance



Constructed from materials like concrete, rock, and steel to form rigid barriers.

### Reflects and Resists



Blocks wave energy with static, strong walls, which can increase erosion elsewhere.

### Offers Limited Ecological Value

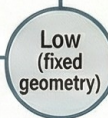


Provides immediate protection but disrupts natural processes and offers minimal habitat benefits.

Reflect & Resist



Potentially Sudden/Catastrophic



Low (fixed geometry)