# Threats to mangrove swamps

Mangrove swamps are among the most endangered habitats on Earth, with over **50% of all mangrove ecosystems** now at risk of collapse. While the global rate of loss has slowed in recent decades, these vital coastal buffers continue to face intense pressure from both human activity and environmental shifts.

## 1. Primary Human Threats

Human activities are responsible for roughly **62% of mangrove loss** worldwide.

- **Aquaculture (Shrimp Farming):** Often cited as the single greatest threat, particularly in Southeast Asia. Forests are cleared for temporary shrimp ponds that, once abandoned, leave behind toxic sludge contaminated with chemicals, antibiotics, and waste.
- **Coastal Development:** The construction of resorts, hotels, ports, and marinas directly removes habitat and replaces it with impervious surfaces that disrupt natural water flow.
- **Agriculture:** Thousands of acres are converted into rice paddies, rubber trees, and oil palm plantations. Runoff from fertilizers and pesticides further poisons the remaining trees.
- **Overexploitation:** Mangroves are frequently harvested for charcoal and timber because their wood is dense and burns hot.

## 2. Climate Change & Natural Stressors

- **Sea-Level Rise:** This is currently the most immediate climate threat. Under "business as usual" scenarios, **25% of global mangrove area** is predicted to be submerged within 50 years.
- **Coastal Squeeze:** As sea levels rise, mangroves naturally try to migrate landward. However, human structures like sea walls and roads block this movement, leading to "coastal squeeze" where the forest is trapped and eventually drowned.
- **Extreme Weather:** Increased frequency and intensity of cyclones, hurricanes, and typhoons can defoliate or uproot entire forests, outstripping their ability to recover between events.
- **Altered Hydrology:** Dams and irrigation systems upstream divert freshwater, increasing salinity levels in the swamps beyond what even salt-tolerant mangroves can endure.

## 3. Pollution & Invasive Species

- **Plastic & Marine Debris:** Discarded plastics can choke mangrove roots, starving them of oxygen and entangling local wildlife.
- **Oil Spills:** Leaked oil coats the "breathing roots" (pneumatophores), impairing the plant's ability to transport oxygen to its underground system.
- **Invasive Species:** Non-native plants (like *Spartina* marsh grass in China) or animals (like feral cats and rats) can outcompete mangroves or devastate the species that depend on them.