Modular Gabion Systems

Shoreline & Wetlands Protection, Stabilization & Restoration

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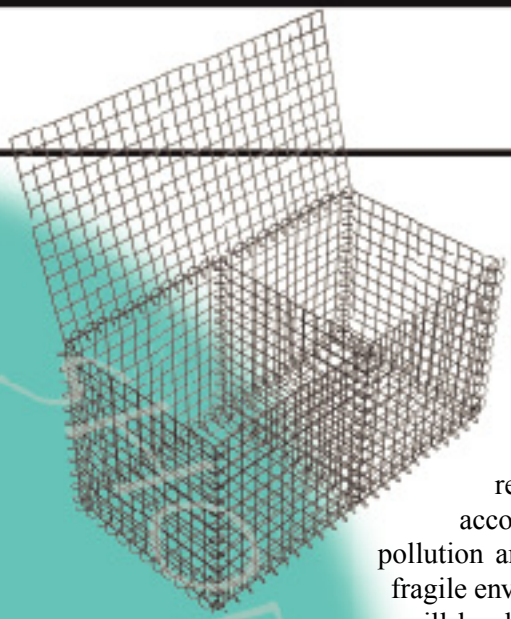
Patrick AFB, Florida, USA



Our shorelines, prized for their aesthetic beauty, provide homes for wildlife and foster delicate, irreplaceable ecosystems. Today, what remains of these precious areas is threatened by increasing encroachment of commercial residential and recreational development and the accompany high levels of non-point source pollution and water turbidity. Protection of these fragile environments is essential; continuing losses will be devastating to the balance of nature, the quality of human life and economic vitality.

Patrick AFB, Florida, USA

An essential component of any coastal protection plan is the reduction of wave energy, which must be accomplished without compromising the flow of water. Differing from impervious structures, gabions absorb gradually the force and impact of masses of water, rather than taking those forces instantaneously. The stone fill of the gabion traps sand, silt and debris in the water entering at high velocity, depositing these materials in or behind the stone work. This filtered water, its energy diminished, feeds into the protected area at low velocity.

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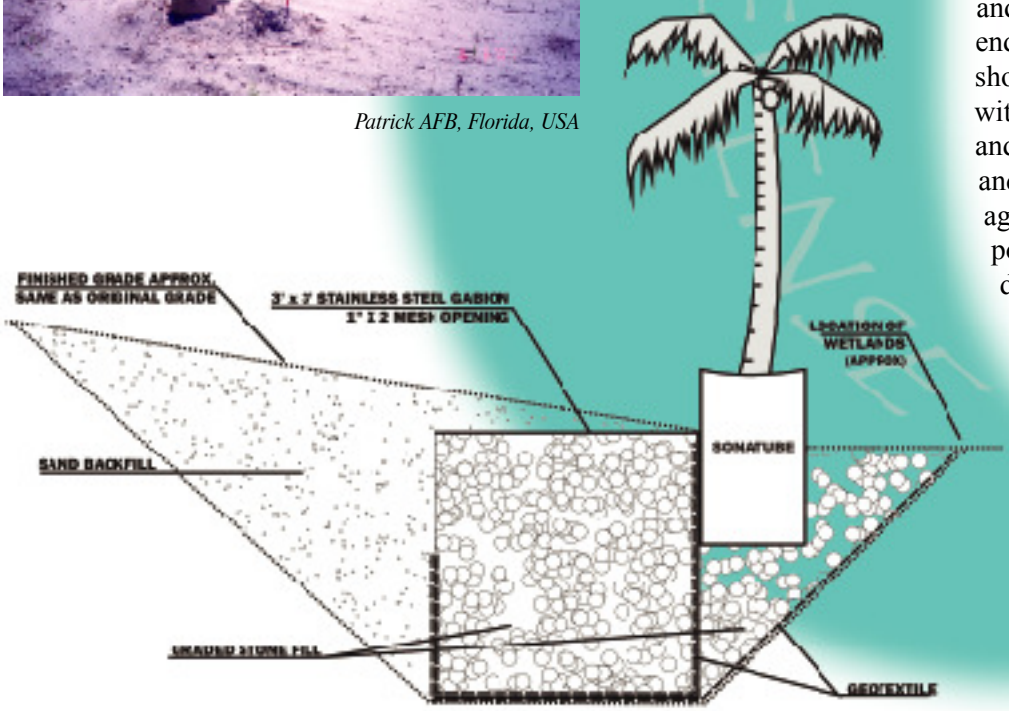
Gabions are ideally suited to the protection and restoration of salt and brackish marshes endangered or lost to subsidence along our shores. Gabion breakwaters, built offshore with minimal intrusion or disturbance, absorb and dissipate wave energy outside the estuary and provide an effective physical barrier against intrusion by recreational craft. The porous nature of the gabion stone fill filters debris and pollution without restricting



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water flow. Native sea grass meadows flourish and in turn restore proper oxygen levels to sustain other aquatic life.

In the restoration and protection of delicate beaches and native coastal vegetation, gabion baskets may either be placed offshore or buried onshore. Where the beach is intact but threatened, a row of gabion baskets may be buried just below natural grade. Desirable natural tree species, such as the black mangrove, may be planted into the soil and stone filled gabions during construction. Thus anchored, the plants enjoy a considerable advantage in the early stages of growth. Once established, their roots will permeate the baskets creating a subsurface web. This two-pronged approach yields a safe, beautiful protected beach - immediately and for the long term.

Clear Lake Wetlands, Houston, Texas, USA

Not only are Modular Gabion Systems an ideal solution for the defense of shorelines against future erosion, they are proven to restore and rebuild beaches already lost to the ravages of nature. A gabion breakwater may be erected in the water at the approximate pre-erosion shoreline for the purpose of building and maintaining beachfront behind it. The gabions' ability to absorb and dissipate wave energy is key; as wave velocity is slowed against the face of the gabion, entrained sand is left behind. This natural process of accretion simultaneously builds and protects beautiful beaches and will continue to do so even when confronted with the high impact force of seasonal storm surge, tropical storms and hurricanes.

Clear Lake Wetlands, Houston, Texas, USA

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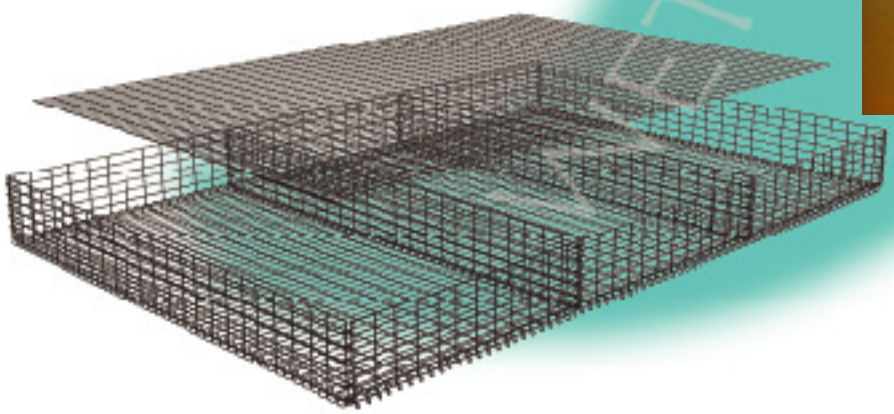
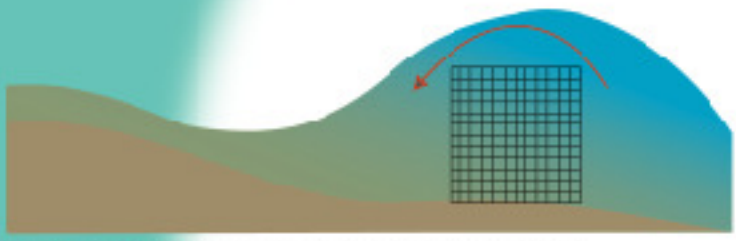


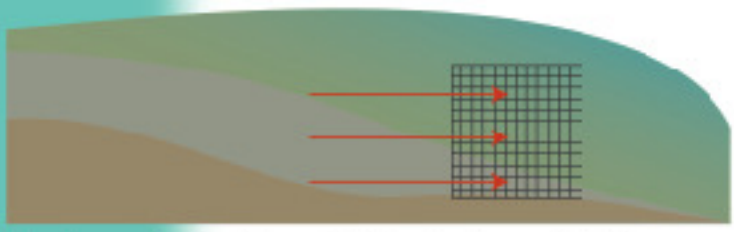
Eroded beach, Anegeda, British Virgin Islands

A gabion breakwater is erected at the pre-erosion shoreline



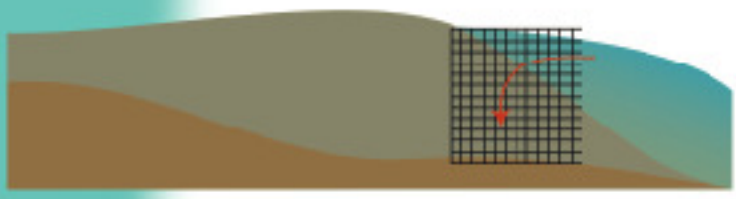
Waves carry entrained sand and silt over the breakwate.

Restored beach, Anegeda, British Virgin Islands



As water recedes slowly through the breakwater, sand falls from suspension and is trapped, building beach.

Restored beach, Anegeda, British Virgin Islands



Normal wave action energy is absorbed by gabion face to slow reflected wave causing continued deposition of entrained sand in front of the gabion.

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