



May 2016

## KAUMALAPAU HARBOR - ISLAND OF LANAI, HI

### PROJECT DESCRIPTION

The Kaumalapau Harbor required a complete reconstruction of an outdated breakwater system to properly protect the harbor shoreline. The unique system utilized Core-loc<sup>®</sup> Concrete Armor Units that were developed and patented by the U.S. Army Corps of Engineers, Waterways Experiment Station's Coastal and Hydraulics Laboratory. The protruding arm helps to lock each unit in place with the next. The shape prevents them from moving when the waves hit the shoreline. **The project required 70,000 lbs. of FORTA-FERRO<sup>®</sup> to cast 800 Core-loc<sup>®</sup> units.**

**"Design required no steel!"**

*- Ray Kong, Army Corp. of Engineers*

### UPDATE

Even after 9 years, they look as good as new! **There has been no reported major deterioration of the Core-loc<sup>®</sup> units and the shoreline shows no signs of breakwater damage.**

### KEY POINTS

- After 9 Years, Looks Good as New
- No Reported Major Deterioration
- Shoreline Show No Signs of Breakwater Damage

### DETAILS

**Date:** 2007

**Location:** Kaumalapau Harbor,  
Island of Lanai, HI

**Dosage:** 5.0 lbs. / cu. yd.

**Fiber:** FORTA-FERRO<sup>®</sup> 2-1/4"

**Application:** Precast

Contact us for more details