Lockheed Martin's Technology-Infused Mobile Fish Pen Named A Top 25 Invention By TIME Magazine

New system creates environmentally sustainable method of commercial aquaculture.

VALLEY FORGE, Pa., Jan. 10, 2013 /PRNewswire/ -- You've heard the old saying — there are plenty of fish in the sea — however, this may not always be the case. The inability of wild fisheries to supply the burgeoning demand for healthful and protein-rich seafood has given rise to a robust aquaculture industry that has helped alleviate the threat of overfishing in the world's oceans.

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But raising fish in ponds and pens, while contributing greatly to the availability of affordable seafood, has given rise to a range of environmental concerns. Inland and shore-based farms, when poorly sited, can compromise water quality, and compete for space with recreation, shipping, commercial fishing and other uses.

To solve these environmental concerns and preserve the promise of aquaculture's ability to satisfy the demand for fresh seafood, Lockheed Martin (NYSE: LMT) has teamed with Kampachi Farms of Hawaii and Illinois Soybean Association to develop an innovative new system that could produce a sea change in fish farming.

The new system, recognized by TIME Magazine as one of the Top 25 Inventions of 2012, is a mobile fish pen, or drifting fish cage, which is hooked to a barge that drifts with the ocean eddies. The system circles in the current much like a satellite is held by gravity in a controlled orbit around the Earth. The mobile system, which is constantly moving over the ocean's surface, in waters over 12,000 ft deep, solves the potential problems of impacts on water quality or impacts on the seafloor, and appears to improve fish health and growth.

As the cage drifts, the highly automated system controls feeding from the barge and cleaning by a remote operating vehicle inside the cage. The system operates by integrating satellite communications, remote sensing data feeds, robotics, motor controls, and Lockheed Martin's command and control and situational awareness software.

"This truly revolutionary approach to aquaculture is a remarkable example of the breadth of missions and projects to which Lockheed Martin technology can be applied," said Gerry Fasano, president of Lockheed Martin Information Systems and Global Solutions-Defense. "We took technologies and software developed for defense-related applications and used them to create a sustainable, environmentally sound method of farming, which will undoubtedly have a lasting impact on our oceans and wildlife."

The beta-trial of the mobile fish pen used fingerlings raised from wild broodstock in land-based hatcheries, so there was no genetic difference between farmed and wild stocks. The beta-trial also used of a highly efficient soy-based feed, allowing fish to reach harvest size faster (five months) with improved feed conversion for the high-value, sashimi-grade fish species under culture (Kampachi). In addition, automation keeps labor costs low and improves safety.

"The drifter cage allows us to marry revolutionary technologies to grow fish with literally no footprint on the oceans," said Neil Anthony Sims, co-founder and Chief Executive Officer of Kampachi Farms, LLC. "We're combining this technology with more responsible feeds, more sustainable proteins and oils, to grow this industry, to allow us to feed 9 billion people."

Using the mobile cage method, aquafarms could produce large volumes of high quality seafood with reduced costs, potentially reducing the $10 million U.S. annual seafood trade deficit. Around the world, the new technology could enable countries without ample farmland or fresh water to farm fish more effectively, thereby allowing countries to open a new industry and achieve food security, along with the benefits of job creation.

Headquartered in Bethesda, Md., Lockheed Martin is a global security and aerospace company that employs about 120,000 people worldwide and is principally engaged in the research, design, development, manufacture, integration and sustainment of advanced technology systems, products and services. The corporation's net sales for 2011 were $46.5 billion.

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