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## Screening system protects ports from deadly cargo

- System would move cargo screening 14 miles offshore
- Plan calls for platforms anchored outside world's major ports
- It monitors for chemical, biological and nuclear traces on ships
- Each system will cost \$100-million

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Popular Science

[\(PopSci.com\)](#) -- To security experts, the immense cargo ships that ferry more than 11 million containers into this country annually are potential Trojan horses -- each one could easily harbor a WMD, such as a dirty bomb.

Typically, only once the ships have been unloaded is their cargo subjected to random inspections and radiation scans. "There is an urgent need to effectively screen cargo before it reaches the ports," says Charles Meade, a senior scientist at the RAND Corporation, a nonprofit think tank.

Now Florida start-up SeaAway has developed a security system that would move cargo screening 14 miles offshore to the safety of the open seas. The plan calls for pairs of 100-foot-wide platforms anchored outside the world's major ports. Equipped with an array of sensors and unmanned surveillance drones, the system monitors for chemical, biological and nuclear traces as ships travel between the platforms.

SeaAway proposes a passage fee of \$20 per container -- roughly double average port fees -- to help authorities offset the \$100-million cost of each system. Tax breaks for shippers could help curb costs, notes Steve Kroecker, SeaAway's founder and vice president.

### How it works

1. **Construction:** begins this summer on a prototype system. Kroecker won't disclose specifics but says that SeaAway is in talks with officials from four ports in the Caribbean and one on the U.S. eastern seaboard.
2. **Platforms:** Floating platforms called Sea Sentinels anchored to the seafloor will include a command center, living quarters for a 15-person crew, a helipad, docking space, and a hangar for unmanned aerial vehicles used in wider surveillance. The facilities will also include space for oceanographic research equipment and laboratories.
3. **Detection ships:** move between the two large platforms at about 10 knots as antennas read wireless signals emitted by radio-frequency identification, or RFID, tags affixed to each cargo container. Today's transponders can report signs of tampering by detecting when doors open and close after departure inspection, and next-generation sensors will use gas chromatography and other technologies to sniff for radiation, explosives residues, and signs of human cargo, such as urine.
4. **Sea handlers:** If sensors flag a suspicious container, officials call the Coast Guard, which could use SeaAway's special ship, called a Sea Handler, to retrieve the cargo. The craft relies on suction devices to mate with the ship while a crane transfers the cargo to the Sea Handler's blast-containment chamber. In nuclear or other worst-case scenarios, the submerged chamber can minimize exposure and damage.
5. **Hull scan:** Underwater vehicles use cameras to scan hulls for obvious signs of damage or tampering. For subtler inspections, officials rely on sonar devices mounted to the platforms. These record a hull's acoustic profile and compare the measurements against baseline signatures, stored for all ships.

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