

Move over drones, driverless cars — unmanned ship up next

By **JULIE WATSON**
Associated Press

SAN DIEGO — It's not only drones and driverless cars that may become the norm someday — ocean-faring ships might also run without captains or crews.

The Pentagon on Monday showed off the world's largest unmanned surface vessel, a self-driving 132-foot ship able to travel up to 10,000 nautical miles on its own to hunt for stealthy submarines and underwater mines.

The military's research arm, the Defense Advanced Research Projects Agency, or DARPA, in conjunction with the Navy will be testing the ship off the San Diego coast over the next two years to observe how it interacts with other vessels and avoids collisions. Unlike smaller, remote-controlled craft launched from ships, the so-called "Sea Hunter" is built to operate on its own.

"It's not a joy-stick ship," said DARPA spokesman Jared B. Adams, standing in front of the sleek, futuristic-looking steel-gray vessel docked at a maritime terminal in the heart of San Diego's shipbuilding district, where TV crews filmed the robotic craft.

"Sea Hunter" relies on radar, sonar, cameras and a global positioning system. Unmanned ships will supplement missions to help keep service members out of harm's way, Adams said.

Besides military leaders, the commercial shipping industry will be watching the ship's performance during the trial period. Maritime companies from Europe to Asia have been looking into developing fleets of unmanned ships to cut down on operating costs and get through areas plagued by pirates.

During the testing phase, the ship will have human operators as a safety net. But once it proves to be reliable, it will maneuver itself — able to go out at sea for months at a time. With its twin diesel engines, it could go as far as Guam from San Diego on a mission, developers say. There are no plans at this point to arm it.

"There are a lot of advantages that we're still trying to learn about," program manager Scott Littlefield said.

The idea in the commercial sector has sparked debate over whether it's possible to make

robotic boats safe enough. The International Transport Workers' Federation, the union representing more than half of the world's more than 1 million seafarers, has said it does not believe technology will ever be able to replace the ability of humans to foresee and react to the various dangers at sea.

Others have expressed concern about hackers taking control. Military officials have been working on hacker-proof protections and say it's possible to make ships cyber-secure.

The "Sea Hunter" was built off the Oregon coast, and it moved on a barge to San Diego's coastline. The prototype can travel at a speed of up to about 30 mph and is

equipped with a variety of sensors and an advanced optical system to detect other ships.

The program to develop the ship cost \$120 million, though DARPA officials say the vessels can now be produced for about \$20 million.

A self-driving, 132-foot military ship sits at a maritime terminal Monday, in San Diego. The Pentagon's research arm is launching tests on the world's largest unmanned surface vessel designed to travel thousands of miles out at sea without a single crew member on board.

AP Photo/Julie Watson



HAPPY.
Mother's Day



LOVELIER WARMER NICER SWEETER

SAFeway

clip or **CLICK!** just for **U**

Valid 5/3/16 thru 5/10/16

\$10 OFF \$50 or more*

Save on your next grocery purchase of \$50 or more* with your Safeway Club Card and this Savings Award.

*Use this Savings Award on any shopping trip you choose at any Oregon Safeway store and S.W. Washington stores serving Clark, Wahkiakum, Cowlitz, Skamania, Walla Walla and Klickitat counties by 5/10/16. This \$10.00 Savings Award excludes purchases of Alcoholic Beverages, Fluid Dairy Products, Tobacco, US Postage Stamps, Trimet Bus/Commuter Passes, Money Orders, Container Deposits, Lottery, Gift Cards, Gift Certificates Sales, All Pharmacy Prescription Purchases, Safeway Club Savings, Safeway Store Coupons and Sales Tax. One Savings Award redeemable per household. COUPON CANNOT BE DOUBLED. Online and in-store prices, discounts, and offers may differ.



SAFeway clip or **CLICK!** just for **U** Valid 5/4/16 thru 5/10/16

refreshe® Soda
12-pack, 12-oz. cans.
Selected varieties.
Plus deposit in Oregon.

Limit 5

1.99 ea
WITH CARD AND COUPON

This coupon must be presented at time of purchase. Offer Valid with Card and Coupon. COUPON CANNOT BE DOUBLED. Coupon valid thru 5/10/16.

Oven Joy Bread
22-oz. White or Wheat.
Selected varieties.

Limit 2

99¢ ea
WITH CARD AND COUPON

This coupon must be presented at time of purchase. Offer Valid with Card and Coupon. COUPON CANNOT BE DOUBLED. Coupon valid thru 5/10/16.

Signature® Farms Bacon
Sold in a 3-lb. package.
Only \$9.99 ea.

3.33 lb
WITH CARD AND COUPON

This coupon must be presented at time of purchase. Offer Valid with Card and Coupon. COUPON CANNOT BE DOUBLED. Coupon valid thru 5/10/16.

Large Cooked Shrimp
26 to 30-ct. Previously frozen.
Sold in a 2-lb. bag.
Only \$13.98 ea.

6.99 lb
WITH CARD AND COUPON

This coupon must be presented at time of purchase. Offer Valid with Card and Coupon. COUPON CANNOT BE DOUBLED. Coupon valid thru 5/10/16.

Mini Seedless Watermelon

2 for \$5
WITH CARD AND COUPON

Limit 2

This coupon must be presented at time of purchase. Offer Valid with Card and Coupon. COUPON CANNOT BE DOUBLED. Coupon valid thru 5/10/16.

8-Piece Mixed or Dark Chicken
Grilled or Fried.

Limit 2

5.99 ea
WITH CARD AND COUPON

This coupon must be presented at time of purchase. Offer Valid with Card and Coupon. COUPON CANNOT BE DOUBLED. Coupon valid thru 5/10/16.

just for **U**
Sign up at safeway.com or download the Safeway App **\$ Get free offers and personalized deals** **Add coupons online or with our App** **Create a digital shopping list**

frappuccino blended beverage

STARBUCKS

JOIN US FOR HAPPY HOUR

GET HALF OFF ANY FRAPPUCCINO® blended beverage

May 6-15 • 3-5 p.m.

At participating stores. Cannot be combined with other offers or discounts.
only at a Starbucks in your local Safeway

Business workshops ahead this month

The Daily Astorian

Clatsop Economic Development Resources has several upcoming workshops in May to help local businesspeople.

"What to Say, and How to Say It" covers how to use words and images to craft emails. The class is from noon to 3 p.m. May 4 at Clatsop Community College's South County Campus, 1455 N. Roosevelt Drive in Seaside. The class costs \$20.

"Excel: Level 1" teaches people how to use Microsoft Excel, an electronic spreadsheet program widely used to organize financial data. The class is from 8:30 to 10:30 a.m. May 10 at the South County Campus, and from 6:30 to 8:30 p.m. in Towler Hall Room 105 on the college's main campus, 1651 Lexington Ave. in Astoria. Basic computer skills are expected. The class costs \$15.

"Excel Level 2" will be from 8:30 to 10:30 a.m. May 24 at the South County Campus and 6:30 to 8:30 p.m. in Towler Hall Room 105. The class costs \$15.

"Ready, Set, Start Your Business" teaches people how to turn their ideas into a business. The class is from 8:30 to 10:30 a.m. May 17 in Columbia Hall Room 219 on the college's main campus. It costs \$20.

Preregistration is required for each class by emailing SBDC@clatsopcc.edu or calling 503-338-2402. Payments are made by check or credit card at class.

Prices in this ad are effective 6 AM Wednesday, May 4, 2016 thru Tuesday, May 10, 2016 (unless otherwise noted) in all Safeway stores in Oregon and S.W. Washington stores serving Wahkiakum, Cowlitz, Clark, Skamania, Walla Walla and Klickitat counties. Items offered for sale are not available to other dealers or wholesalers. Sales of products containing ephedrine, pseudoephedrine or phenylpropranolamine limited by law. Quantity rights reserved. SOME ADVERTISING ITEMS MAY NOT BE AVAILABLE IN ALL STORES. Some advertised prices may be even lower in some stores. On Buy One, Get One Free ("BOGO") offers, customer must purchase the first item to receive the second item free. BOGO offers are not 1/2 price sales. If only a single item purchased, the regular price applies. Manufacturers' coupons may be used on purchased items only — not on free items. Limit one coupon per purchased item. Customer will be responsible for tax and deposits as required by law on the purchased and free items. No liquor sales in excess of 52 gallons. No liquor sales for resale. Liquor sales at licensed Safeway stores only. © 2015 Safeway Inc. Availability of items may vary by store. Online and in-store prices, discounts and offers may differ.