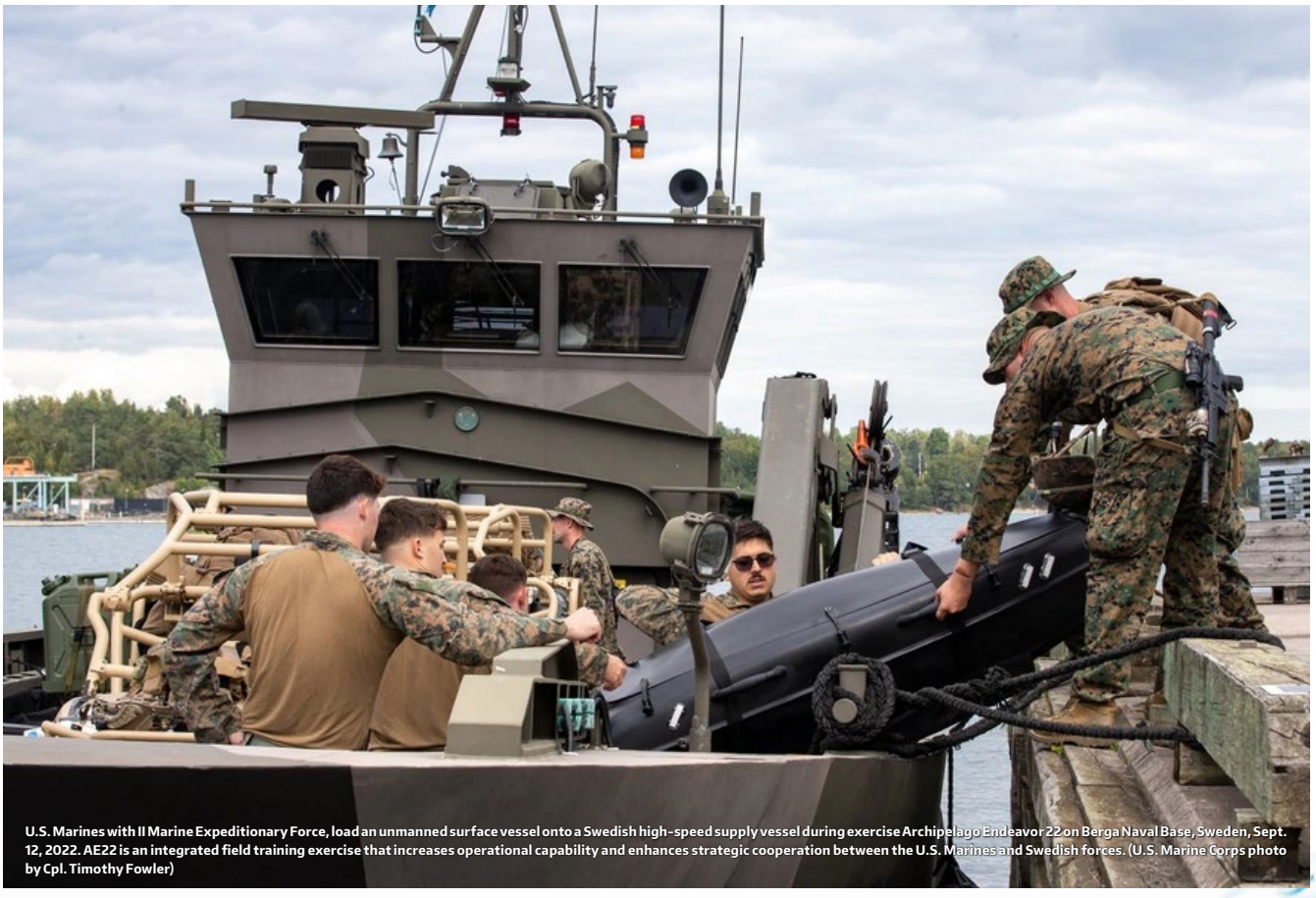
MARINES USE UNMANNED SURFACE VEHICLES TO SUSTAIN DISPERSED FORCES

SWEDISH, U.S. MARINES TRAIN TOGETHER IN THE BALTIC SEA'S "EXTREME LITTORAL" ENVIRONMENT IN THE SWEDISH ARCHIPELAGO

By Captain (Ret.) Edward Lundquist, US Navy

(Uto, Sweden) You can make a general assertion that Marines are used to fighting in remote locations in all weather conditions under austere circumstances. Employing the doctrine of "distributed maritime operations," U.S. Marines must be able to deploy to any and all types of warfighting environments for sustained periods of time. For Swedish Marines, the many rocky islands of the Swedish Archipelago are home. But for the U.S. Marines, operating in and among the many islands of the Swedish Archipelago presents a new kind of warfighting challenge. That's why the Archipelago Endeavor bi-lateral exercises has been so valuable for both countries.

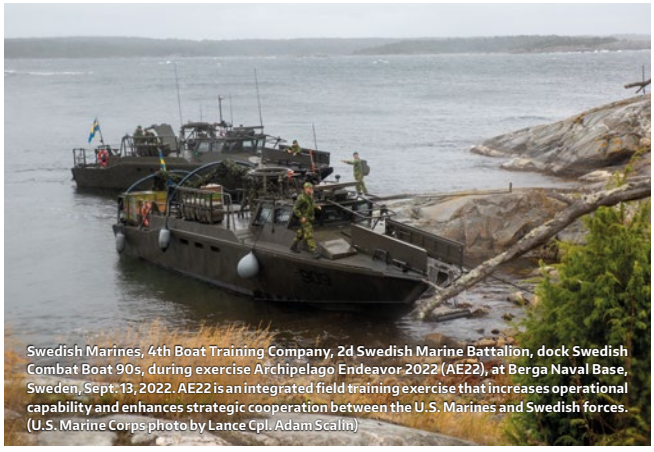


U.S. Marines with II Marine Expeditionary Force, load an unmanned surface vessel onto a Swedish high-speed supply vessel during exercise Archipelago Endeavor 22 on Berga Naval Base, Sweden, Sept. 12, 2022. AE22 is an integrated field training exercise that increases operational capability and enhances strategic cooperation between the U.S. Marines and Swedish forces. (U.S. Marine Corps photo by Cpl. Timothy Fowler)

U.S. Marines train with high-speed unmanned surface vehicles during Technology Operational Experimentation Exercise (TOEE) at Camp Lejeune, North Carolina, Aug. 4, 2022. TOEE is a joint exercise being conducted to support the Distributed Maritime Operations (DMO) concept for an Expeditionary Advanced Base Operations (EABO) mission from the littorals to inland objectives using manned/unmanned teaming (MUM-T) of technologies as a system to support sustainment and expeditionary logistics. (U.S. Marine Corps photo by Lance Cpl. Meshaq Hylton)

Swedish Navy Rear Admiral Ewa Skoog Haslum (left), Chief of Swedish Navy, and Col. Adam Camél (right), commanding officer, Stockholm Marine Regiment, receives a demonstration on expeditionary engineering reconnaissance equipment employment while visiting U.S. and Swedish Marines during exercise Archipelago Endeavor 22 (AE22) on Berga Naval Base, Sweden, Sept. 21, 2022. AE22 is an integrated field training exercise that increases operational capability and enhances strategic cooperation between the U.S. Marines and Swedish forces. (U.S. Marine Corps photo by Lance Cpl. Aziza Kamuhanda)

Swedish Navy Rear Admiral Ewa Skoog Haslum (right), Chief of Swedish Navy, and Swedish Marine leadership, receive a demonstration on the RECKLESS unmanned surface vehicle, which can be used for logistics support for expeditionary advanced base operations, during exercise Archipelago Endeavor 22 (AE22) on Berga Naval Base, Sweden, Sept. 21, 2022. (U.S. Marine Corps photo by Lance Cpl. Aziza Kamuhanda)



Swedish Marines, 4th Boat Training Company, 2d Swedish Marine Battalion, dock Swedish Combat Boat 90s, during exercise Archipelago Endeavor 2022 (AE22), at Berga Naval Base, Sweden, Sept. 13, 2022. AE22 is an integrated field training exercise that increases operational capability and enhances strategic cooperation between the U.S. Marines and Swedish forces. (U.S. Marine Corps photo by Lance Cpl. Adam Scalin)

As the U.S. Navy and Marine Corps develop their capabilities and operating concepts to conduct distributed maritime operation (DMO) and expeditionary advanced base operations (EABO), the "extreme littoral" environment of the Baltic Sea and the Swedish Archipelago provides the perfect training and concept development laboratory.

Brigadier General Andrew T. Priddy, Deputy Commanding General of II Marine Expeditionary Force said the Americans can learn a lot from their Swedish counterparts. "The Swedes have about 100,000 islands, so being able to operate in this type of environment--in the archipelago and in the littorals—it's extremely important. For us, as a Marine Corps, we have a lot of lessons we can learn."

A key to the success of DMO is the ability to maneuver, communicate, direct fires and sustain dispersed forces. The U.S. Navy and Marine Corps Distributed Maritime Operations, Littoral Operations in a Contested Environment, Concept for Stand-in Forces, and Tentative Manual for Expeditionary Advanced Base Operations (TM-EABO) underscore the importance of providing the resources of combat power where and when needed.

According to TM-EABO, "Littoral forces rely on resilient and agile logistics that adapt to changing environments and conditions to conduct EABO. Effective sustainment provides the means to enable freedom of action and endurance while extending operational reach. Sustainment determines the

depth to which a force can conduct decisive operations, allowing a commander to seize, retain, and exploit the initiative."

Sweden provided a number of CB 90 combat craft, as well as the training space and sophisticated ranges in the archipelago. The U.S. Marines were able to see how the Swedes sustained their forces in an expeditionary and distributed way, which are optimized for littoral operations in the Baltic.

"The Swedes are very well versed in how to do that," said 1st Lt. Terrence Rohmeyer of Combat Logistics Battalion 6 (CLB 6) Littoral Tactical Logistics Section (LTLS). "We're here to exchange standard operating procedures and whatever we can learn from them."

The U.S. Marines are training with the Swedish Group Boat, also known as the G boat, Hovercraft 2000 and the CB 90 watercraft platforms. And the Americans brought a pair of unmanned surface vessels (USVs) made by Hydronalix, a small company based in Green Valley, Arizona.

The Hydronalix vehicles, a Sonar AMY and a RECKLESS USV, can carry sensors or cargo. The Sonar AMY is used reconnaissance of the beach area, and the RECKLESS USV is a logistical model that is used to provide sustainment to a forward position. Both are man-portable. The RECKLESS USV can be handled by several individuals, depending how heavy it is loaded, and can be equipped with a top-mounted carrier for more cargo.

AMY is listed as a general-purpose USV, weighing 145 lbs. (66 kg.) and 78 inches (1.98 meters) in length, with 11 cubic feet (.67 cubic meters) of internal volume. It can be configured with radar, AIS, satellite communications or side-scan and downward imaging sonar. The 80-inch (2 meter) RECKLESS empty weight is the same as AMY, and can also be fitted with a variety of sensors. Like AMY, it navigates remotely or autonomously, and can run for six hours with a 40 lb. (18.1 kg.) payload.

Conceivably, large numbers of the RECKLESS USVs could be loaded as needed for different small teams of Marines at dispersed locations.

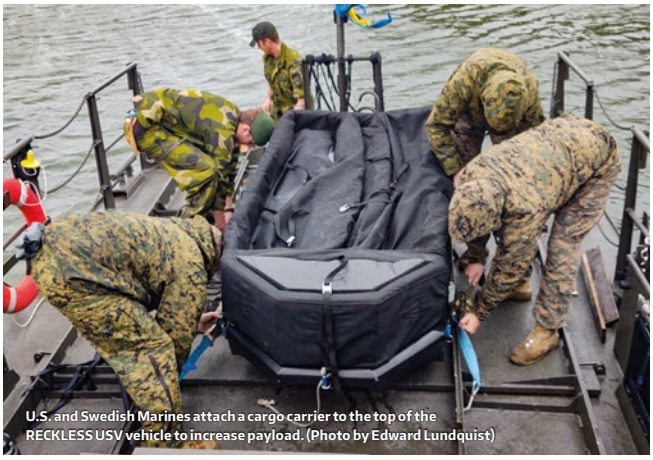
At Archipelago Endeavor, the Marines used Sonar AMY to provide information about the bottom topography and water conditions, while RECKLESS was evaluated as a means to resupply small groups of Marines at remote island locations.

"We're practicing deploying the USVs from the G-boats and CB90s, as well as our typical shore-based deployment," Rohmeyer said. "Trying to figure out the whole sustainment network is why we're here."

"The big takeaway for us is how [the Swedes] operate," said Priddy. "They're great partners, and this is a great opportunity to work with one of our allies in the Baltic region."

U.S. and Swedish Marines recover a Hydronalix AMY unmanned surface vessel aboard a Swedish CB 90 boat during the Archipelago Endeavor exercise in Sweden. Also on the deck is a Hydronalix RECKLESS USV, which will be used for cargo delivery. (Photo by Edward Lundquist)

The RECKLESS USV can be configured with a cargo carrier that can be attached on top of the vehicle to increase payload. (Photo by Edward Lundquist)



U.S. and Swedish Marines attach a cargo carrier to the top of the RECKLESS USV vehicle to increase payload. (Photo by Edward Lundquist)

The optional cargo carrier can significantly increase the cargo capacity of the Hydronalix RECKLESS USV. (Photo by Edward Lundquist)