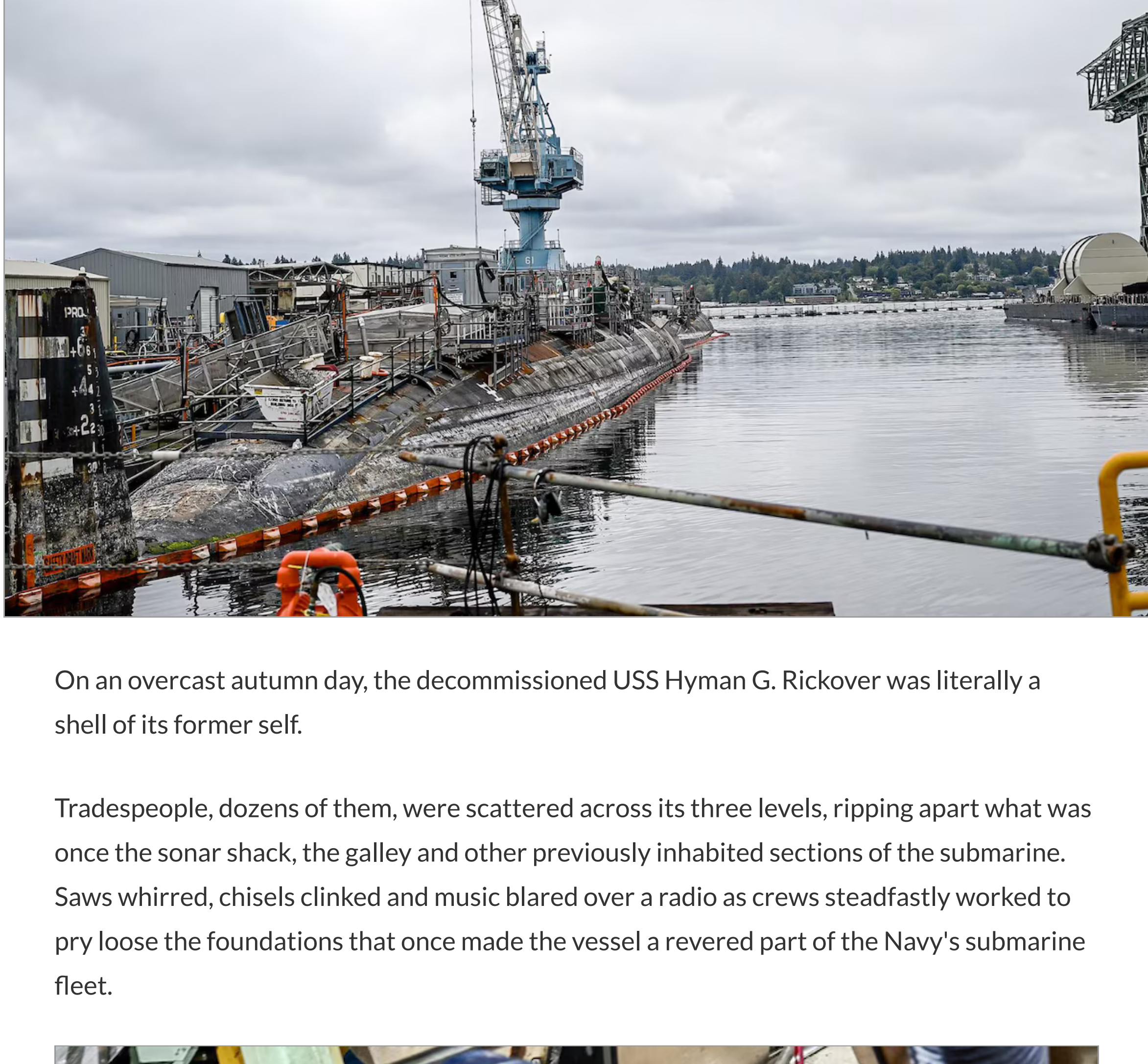


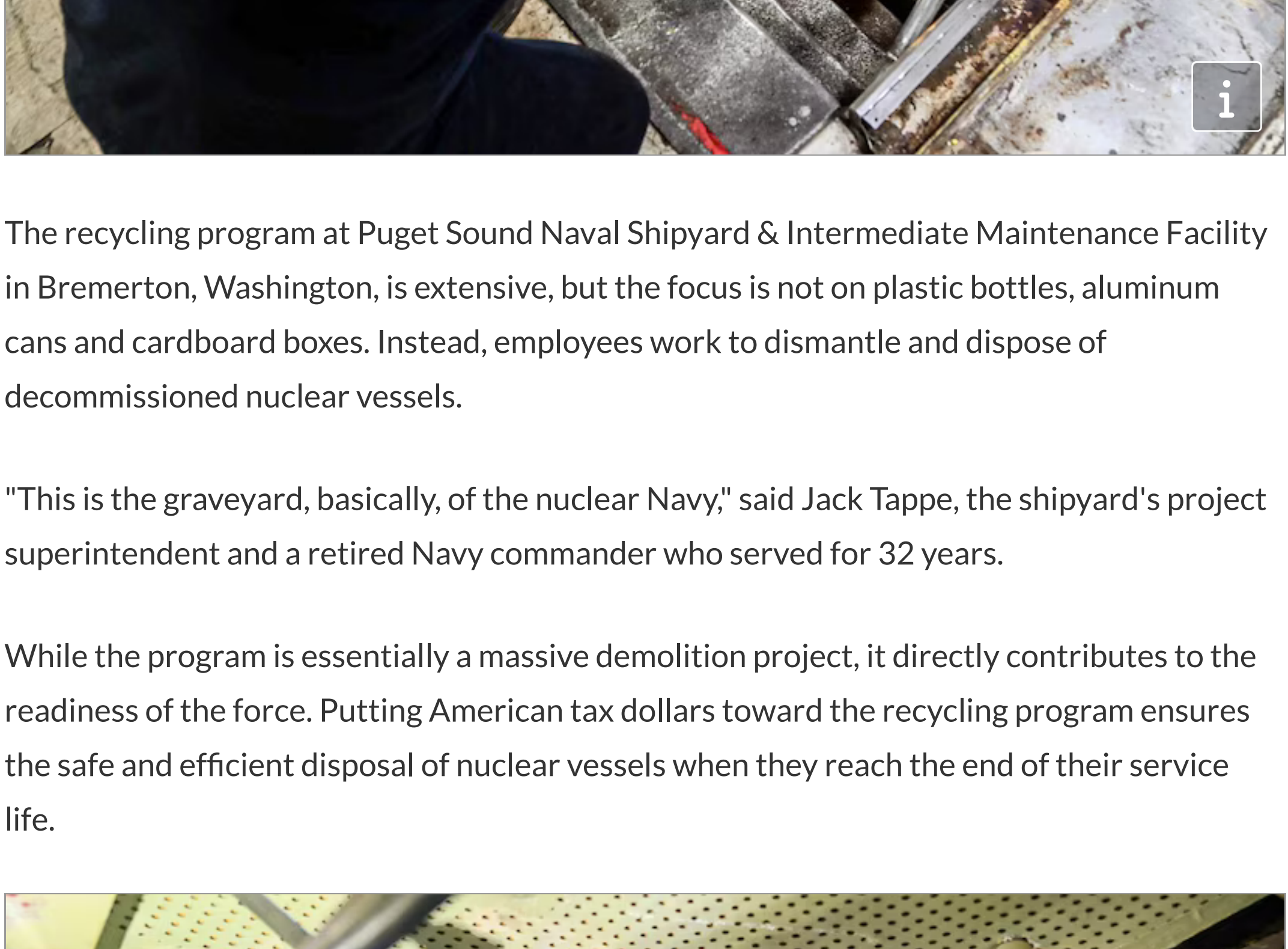
Dismantling Giants: How Recycling Nuclear Vessels Maintains a Ready Force

March 26, 2025 | By [Katie Lange](#), DOD News | [Share](#)



On an overcast autumn day, the decommissioned USS Hyman G. Rickover was literally a shell of its former self.

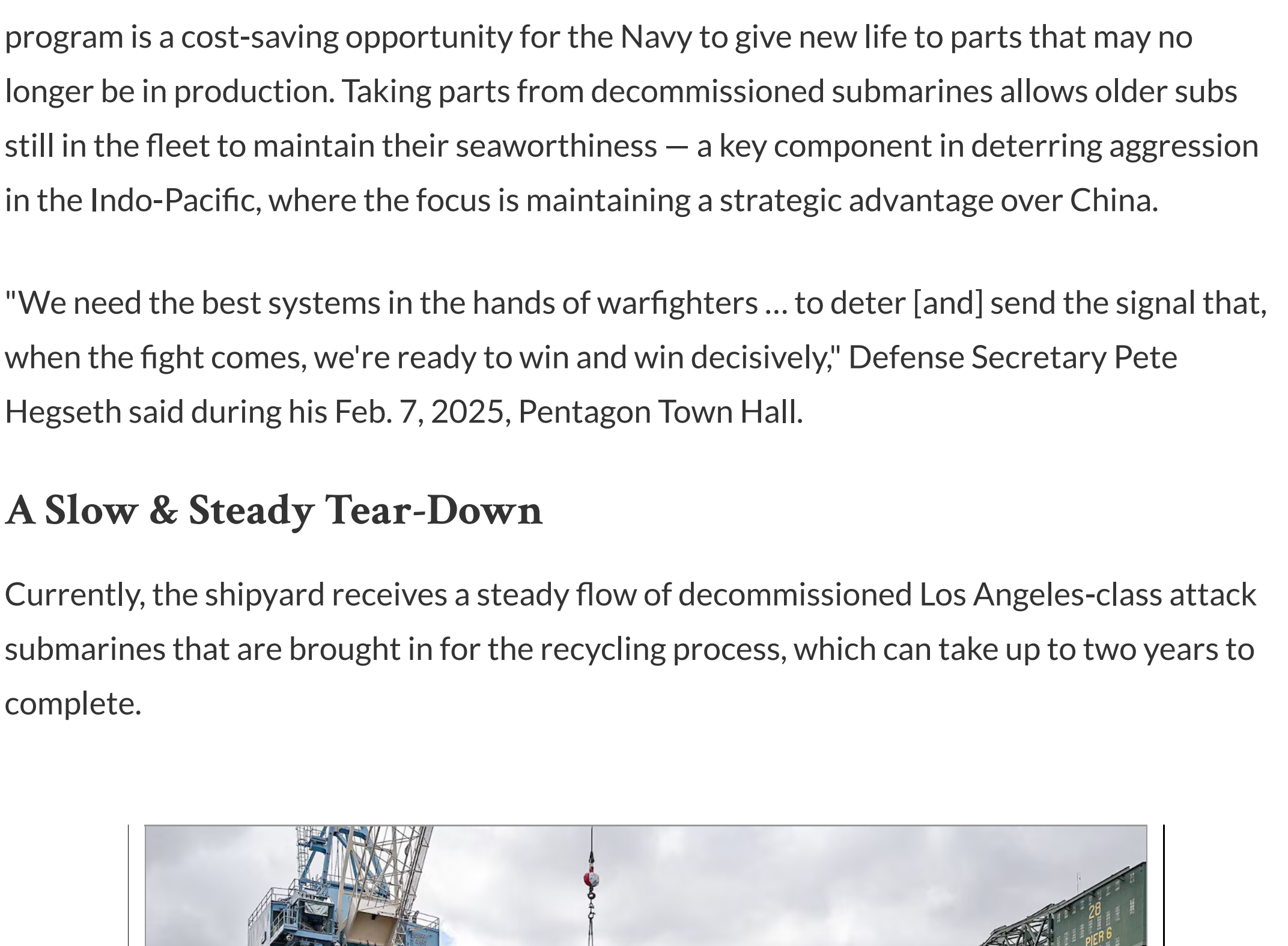
Tradespeople, dozens of them, were scattered across its three levels, ripping apart what was once the sonar shack, the galley and other previously inhabited sections of the submarine. Saws whirled, chisels clinked and music blared over a radio as crews steadfastly worked to pry loose the foundations that once made the vessel a revered part of the Navy's submarine fleet.



The recycling program at Puget Sound Naval Shipyard & Intermediate Maintenance Facility in Bremerton, Washington, is extensive, but the focus is not on plastic bottles, aluminum cans and cardboard boxes. Instead, employees work to dismantle and dispose of decommissioned nuclear vessels.

"This is the graveyard, basically, of the nuclear Navy," said Jack Tappe, the shipyard's project superintendent and a retired Navy commander who served for 32 years.

While the program is essentially a massive demolition project, it directly contributes to the readiness of the force. Putting American tax dollars toward the recycling program ensures the safe and efficient disposal of nuclear vessels when they reach the end of their service life.

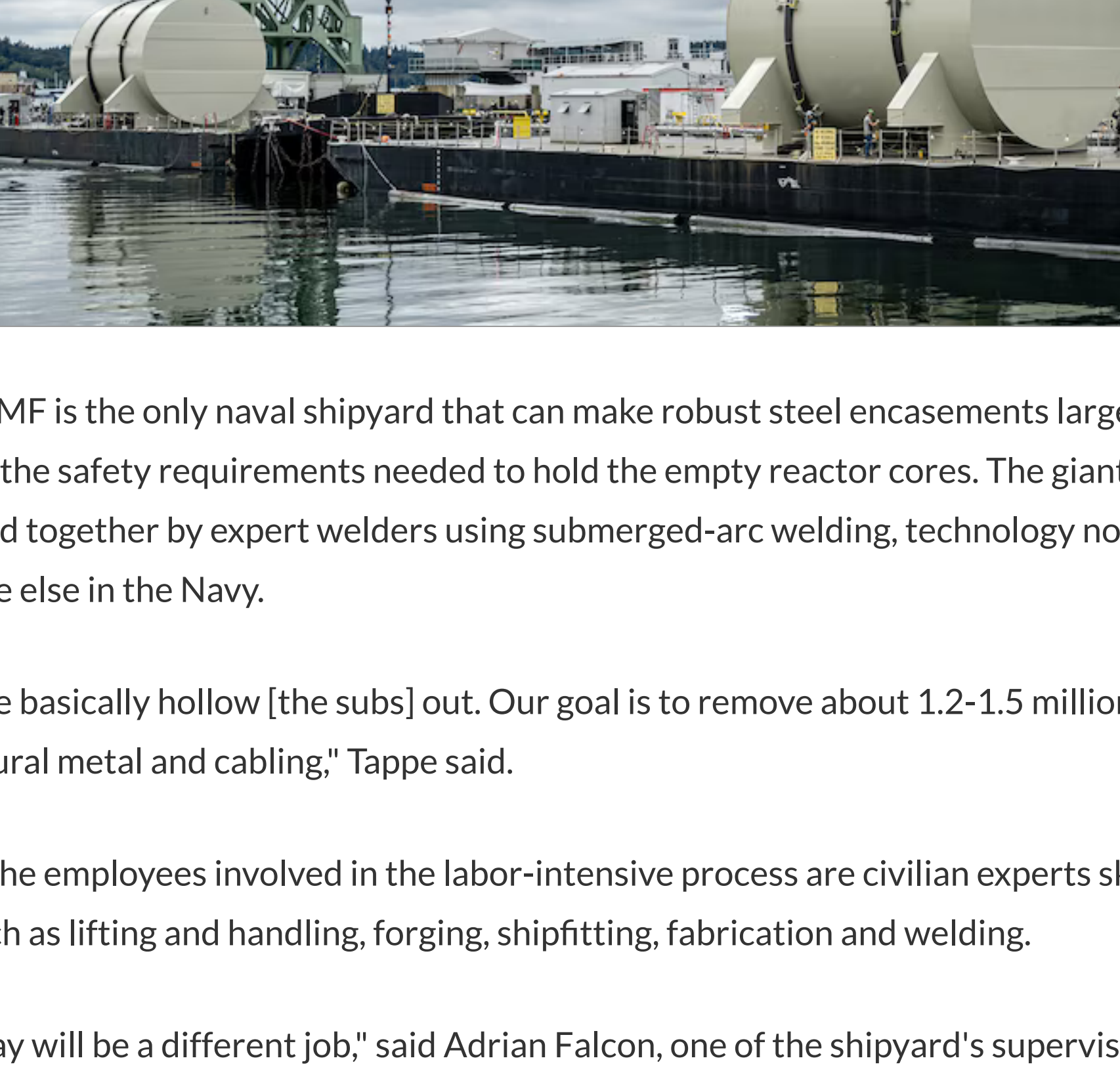


It's also a fiscally responsible contribution to the military's organic industrial base. The program is a cost-saving opportunity for the Navy to give new life to parts that may no longer be in production. Taking parts from decommissioned submarines allows older subs still in the fleet to maintain their seaworthiness — a key component in deterring aggression in the Indo-Pacific, where the focus is maintaining a strategic advantage over China.

"We need the best systems in the hands of warfighters ... to deter [and] send the signal that, when the fight comes, we're ready to win and win decisively," Defense Secretary Pete Hegseth said during his Feb. 7, 2025, Pentagon Town Hall.

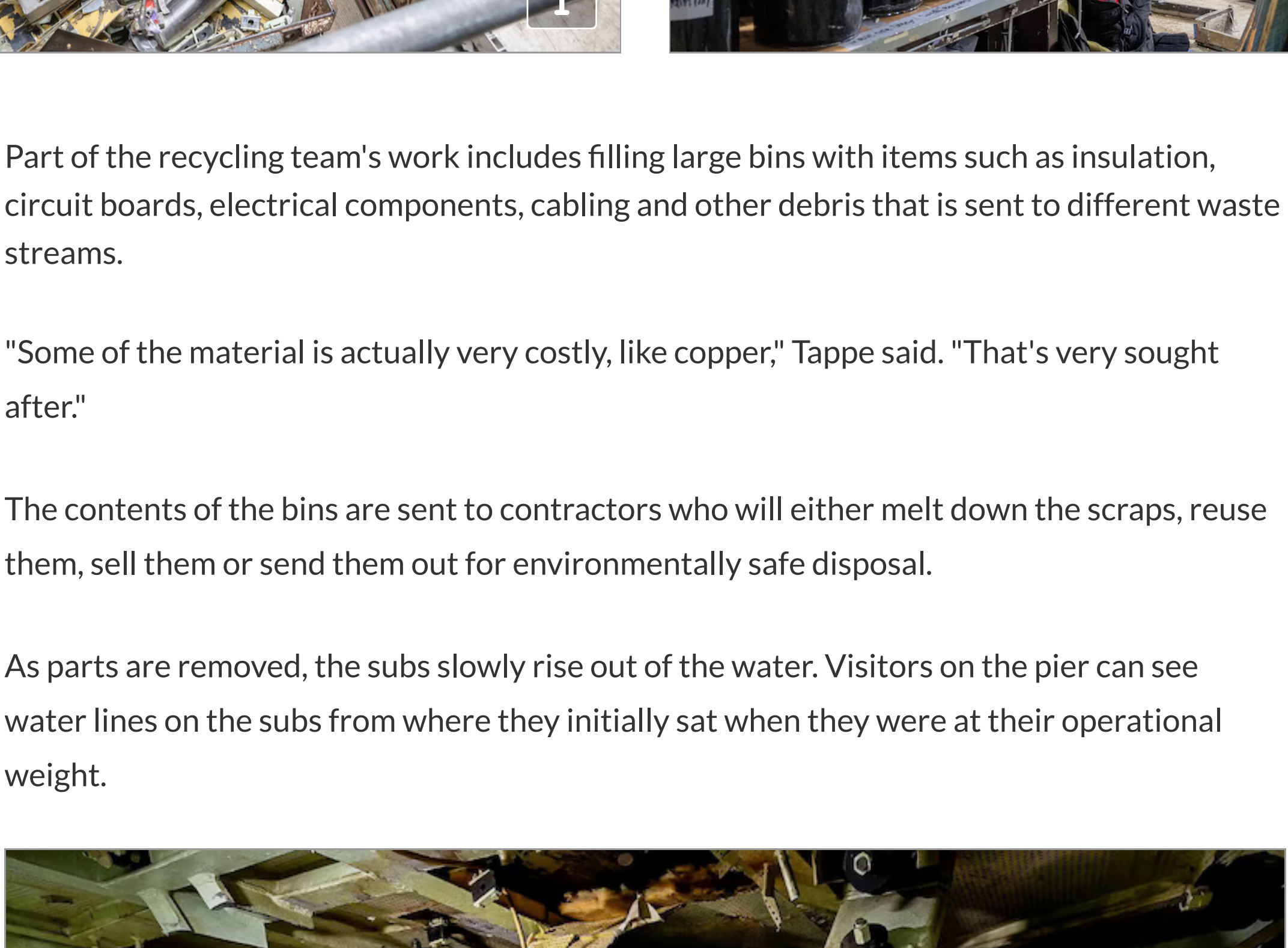
A Slow & Steady Tear-Down

Currently, the shipyard receives a steady flow of decommissioned Los Angeles-class attack submarines that are brought in for the recycling process, which can take up to two years to complete.



Dismantling starts along the pier, where the subs remain afloat. Ladders used by sailors are removed, stairs are added to give workers easier access, and holes are punched into the sub's hull so cranes can be lowered to pull out scrap metal. The crews bring in their own electrical power and ventilation piping because the vessels are no longer functional.

The forward and aft ends of each submarine are then separated from the already defueled reactor compartment, which is then closed at each end with massive steel encasements.

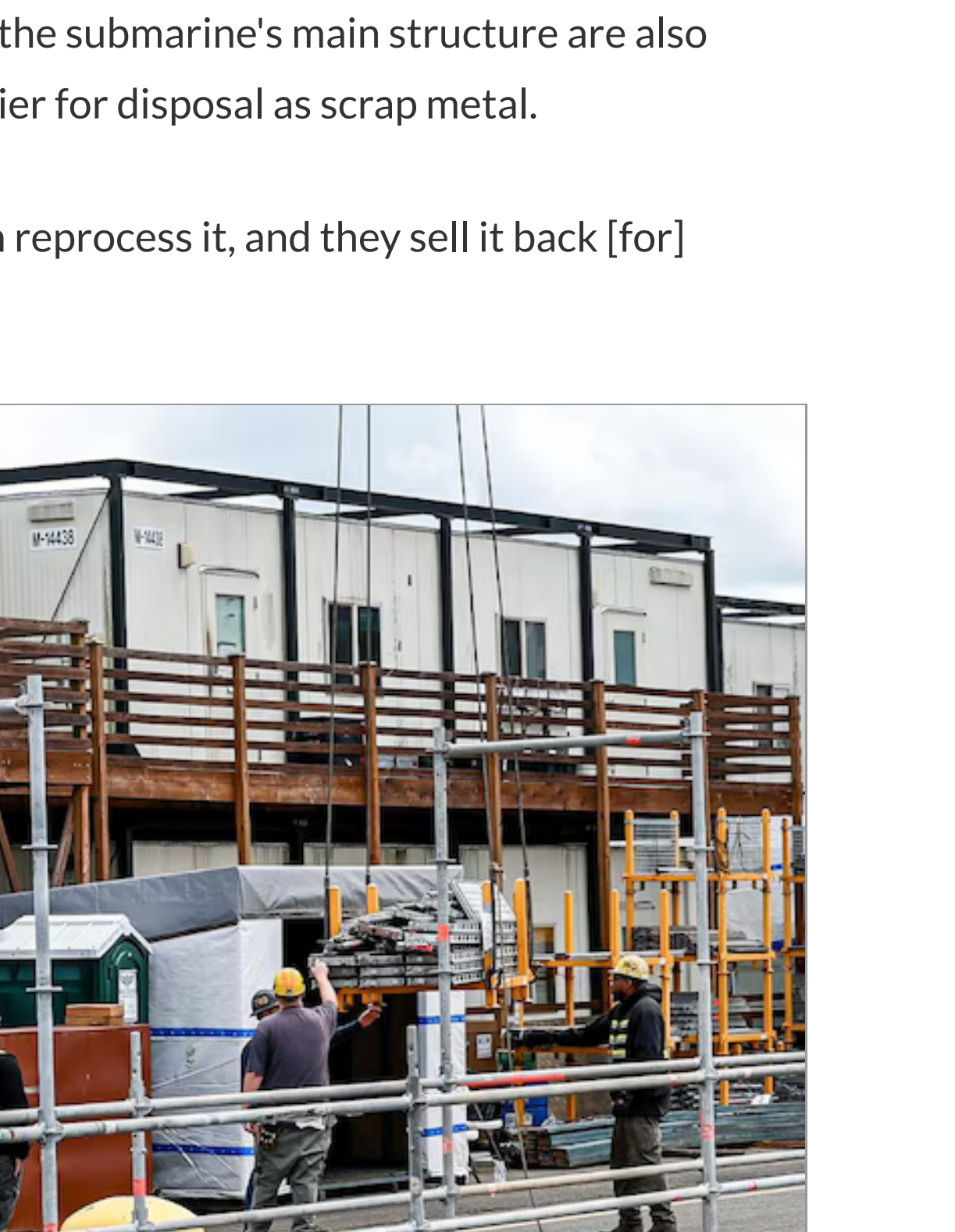
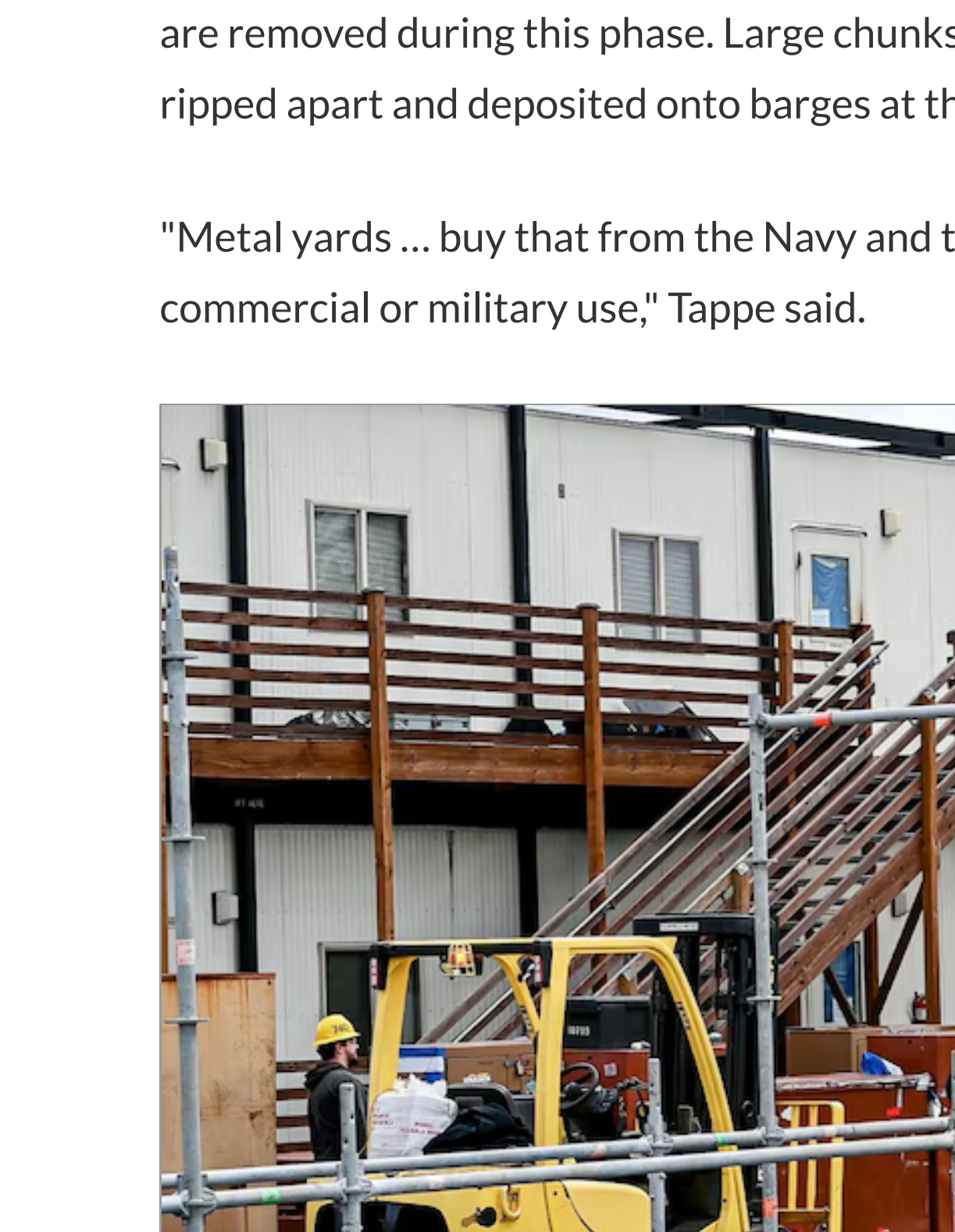


PSNS & IMF is the only naval shipyard that can make robust steel encasements large enough and with the safety requirements needed to hold the empty reactor cores. The giant cases are pieced together by expert welders using submerged-arc welding, technology not used anywhere else in the Navy.

"Then, we basically hollow [the subs] out. Our goal is to remove about 1.2-1.5 million pounds of structural metal and cabling," Tappe said.

Most of the employees involved in the labor-intensive process are civilian experts skilled in areas such as lifting and handling, forging, shipfitting, fabrication and welding.

"Every day will be a different job," said Adrian Falcon, one of the shipyard's supervising shipfitters and a former Army infantryman. "Say they'll be working a structural job today. Tomorrow, they might be working the cutout for a certain section of the boat, or they'll be working a foundational job for that day. Every job just depends on the timeframe."

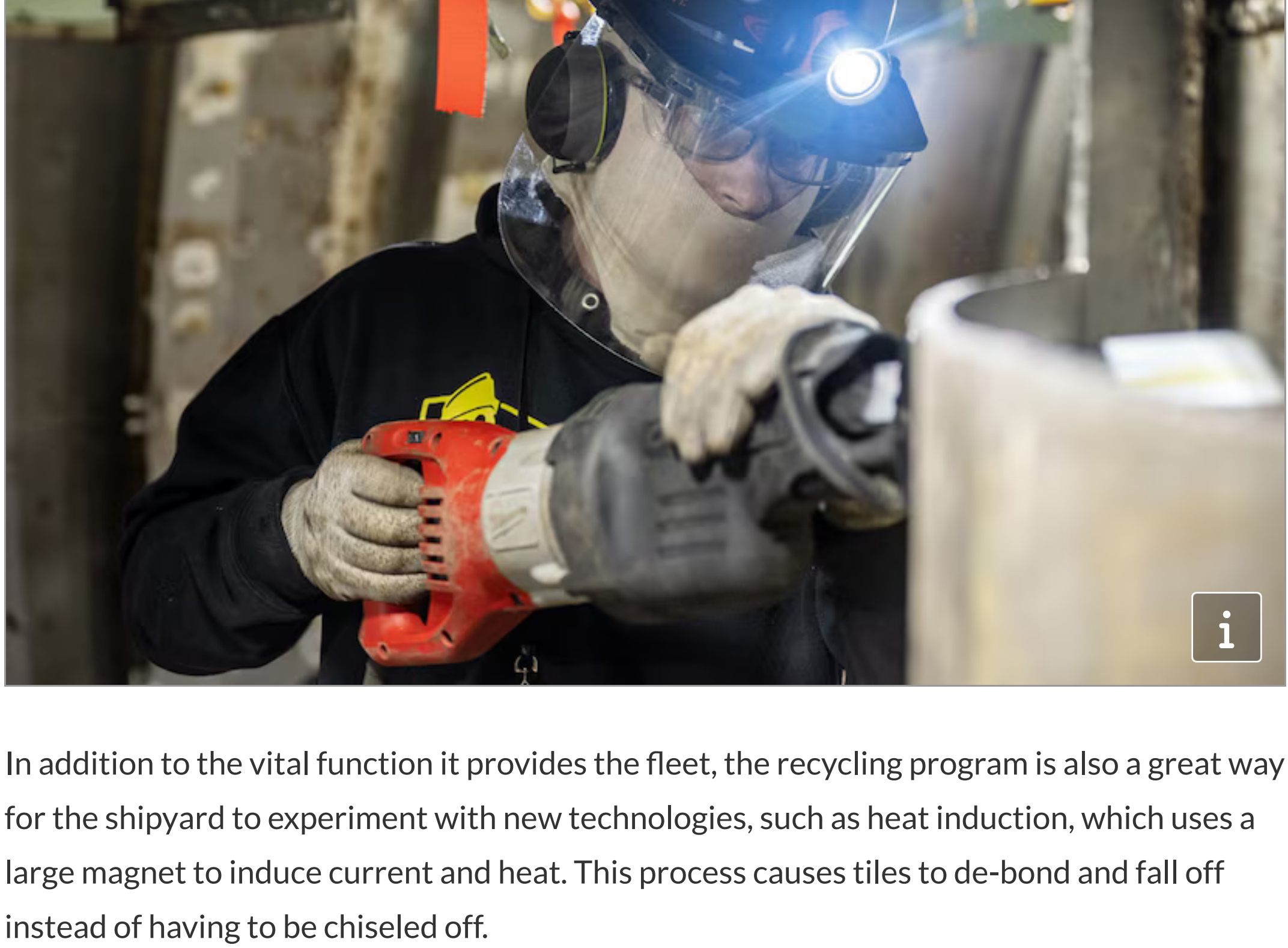


Part of the recycling team's work includes filling large bins with items such as insulation, circuit boards, electrical components, cabling and other debris that is sent to different waste streams.

"Some of the material is actually very costly, like copper," Tappe said. "That's very sought after."

The contents of the bins are sent to contractors who will either melt down the scraps, reuse them, sell them or send them out for environmentally safe disposal.

As parts are removed, the subs slowly rise out of the water. Visitors on the pier can see water lines on the subs from where they initially sat when they were at their operational weight.

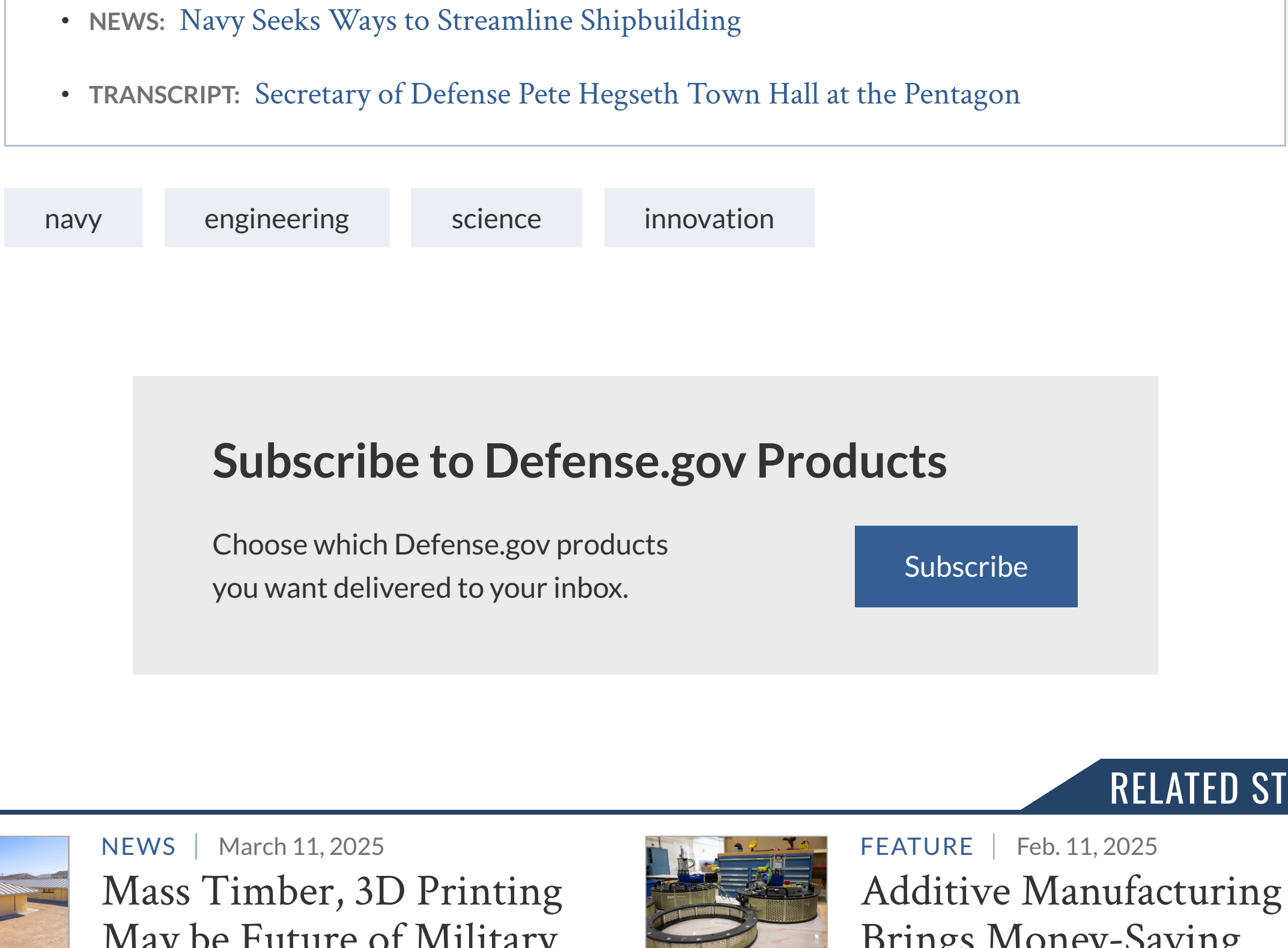


Tappe said with the help of between 50 and 100 crew members, a submarine can be hollowed out in about a year.

"We make these submarines light enough and processed enough so that they can actually fit into dry dock," he said.

Once in dry dock, it takes another 10 months to break down a sub to where all that's left is the empty reactor compartment. The dry dock is where that heavy recycling process takes place. Parts of the ship that are too big to remove along the pier, such as the diesel generator, are removed during this phase. Large chunks of the submarine's main structure are also ripped apart and deposited onto barges at the pier for disposal as scrap metal.

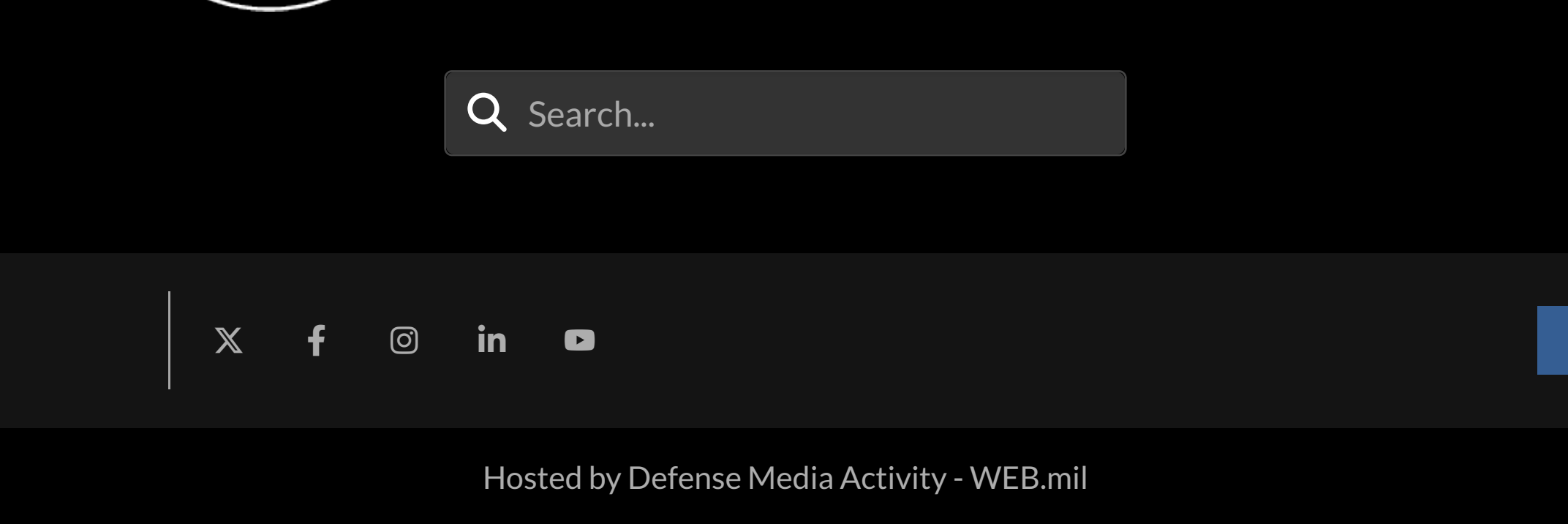
"Metal yards ... buy that from the Navy and then reprocess it, and they sell it back [for] commercial or military use," Tappe said.



The shipyard itself also reuses some of the material.

"There are some precious metals that we in the Navy keep, and then there's also other things that we often call 'save items' that we process for future [LA-class submarine] use because they're still an operational submarine," Tappe said. "These [subs] were built in the '60s. The vendors who built these submarines don't exist, for the most part, anymore ... so we give it back to the fleet if they need it."

The defueled nuclear reactor compartment is all that is left. They are placed in robust shipping packages consistent with federal and state regulations and shipped to the Department of Energy's Hanford Site in Hanford, Washington. The packages make the 700-mile journey by barge from the shipyard in Bremerton down the Washington coast and up the Columbia River before being transported on a multi-wheeled transporter to the site for safe, permanent disposal. More than 140 reactor compartment disposal packages have been safely transported by PSNS & IMF to the Hanford Site since 1986.



In addition to the vital function it provides the fleet, the recycling program is also a great way for the shipyard to experiment with new technologies, such as heat induction, which uses a large magnet to induce current and heat. This process causes tiles to de-bond and fall off instead of having to be chiseled off.

"The great thing about recycling is, if [the new technology] doesn't work [or] if I damage the sub, who cares? It's already scrapped," said Dustin Butler, another project superintendent at the shipyard.

The program allows a safe place for learning new techniques and trying new processes, particularly for newer employees just learning the trades. It's hard work that Tappe says will never dry up.

"There will always be retiring submarines," he said.

The submarine recycling program is just one of the many programs at PSNS & IMF that have allowed the shipyard to maintain its critical function for the Navy's fleet in the Indo-Pacific. The teams that work on these submarines build on the proud tradition of excellence that has defined PSNS & IMF for more than 130 years — and they will continue to keep that legacy intact for the shipyard of the future.

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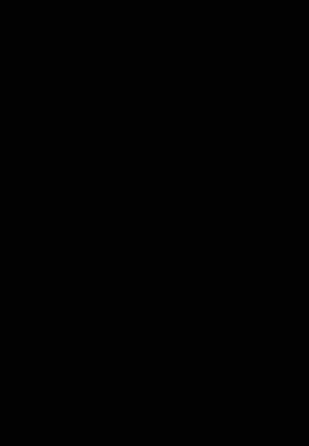
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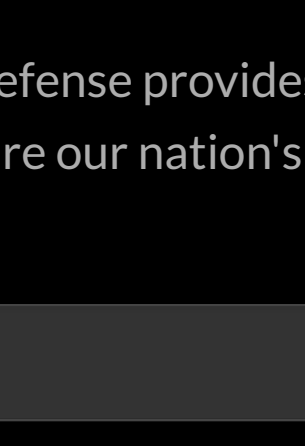
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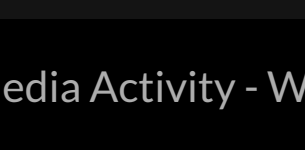
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