

How Water Helps The US Military Project Power

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How does water help the US Military?

Water has allowed technological advances that could only have been dreamt of at the beginning of the 20th Century. The technology advancements available through water are used throughout the US Military from Steam catapults on aircraft carriers to portable desalination machines and to the training and benefit of US Military service members.



Steam Catapults

Aircraft Carrier

A large warship equipped to serve as a base for aircraft that can take off and land from its deck.

Nimitz class carriers have four steam-powered catapults. The flight deck crew can launch **two aircraft** and land one every 37 seconds in daylight, and one per minute at night.



How does a steam catapult work?

The nuclear reactors which power the Aircraft Carrier use water to operate. When the water is heated steam is built up and pressure is created. The steam is focused into a channel and enough energy is produced to get an F-18 weighing 66,000 lbs to 170 MPH.





Carrier Strike Groups

CSGs are not restricted to a specific composition and can be modified depending on expected threats, roles, or missions expected during a deployment, and one may be different from another. The Navy states that "there really is no real definition of a strike group. Strike groups are formed and disestablished on an as needed basis, and one may be different from another. However, they all are comprised of similar types of ships.

Carrier Strike Group Composition

- Aircraft Carrier
- Carrier Air Wing
- One or Two Aegis Missile Cruisers
- Two or Three Missile Destroyers
- One or Two attack submarines
- Supply ship





Strike Group Capabilities

Each Carrier has 4 squadrons of strike fighters which is approx. 48-96 planes available. Each F-18 can travel at least 700 miles!

Each Destroyer in the group can hold 96 Tomahawk missiles making that 192 missiles. Since each group has 2.

Each Cruiser adds 61 possible missiles to the group. Since there is 2 in each group the total comes out to 122. All together 312 tomahawk missiles.





Capabilities continued

One or two Los Angeles Class attack submarines capable of holding another 21 tomahawk missiles each.

And last

A supply ship so the fleet can be sustained
for long periods of time.



Where does Freshwater Come From?

The ocean upon which these ships float isn't exactly the best thing to drink. The [National Oceanic and Atmospheric Administration](#) points out that if you drink sea water, you get more dehydrated and, ultimately, dehydration kills people. Drinking seawater brings about other health problems that can cause problems on board ship, specifically the head. But thanks to the Lightweight Purification System (LWPS) the US Navy and Marine Corps has plenty of water. About 135-225 Gallons an hour.





How does desalination work?

Desalination:

The process of removing salt from Seawater

The reverse osmosis process uses semipermeable membranes and applied pressure to preferentially induce water permeation through the membrane while rejecting salts.

Cons

- Expensive
- Needs a lot of energy



The desalination process

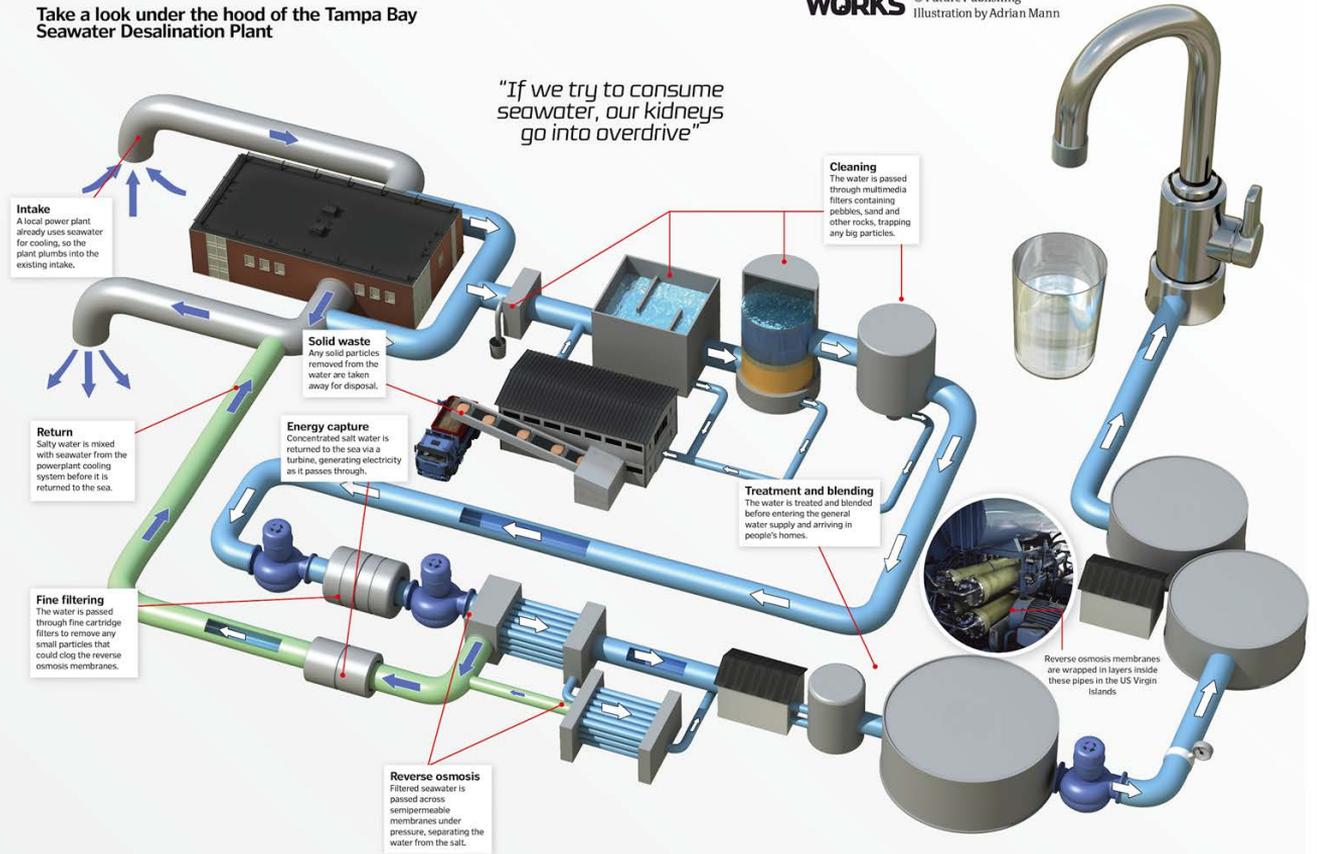
Take a look under the hood of the Tampa Bay Seawater Desalination Plant

HOW IT WORKS

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Illustration by Adrian Mann

"If we try to consume seawater, our kidneys go into overdrive"

Under the Hood



SEAL Delivery Vehicle

The SEAL Delivery Vehicle is an submersible swimmer type vehicle used to get SEALs and their equipment to their destination.

But what is a SEAL?

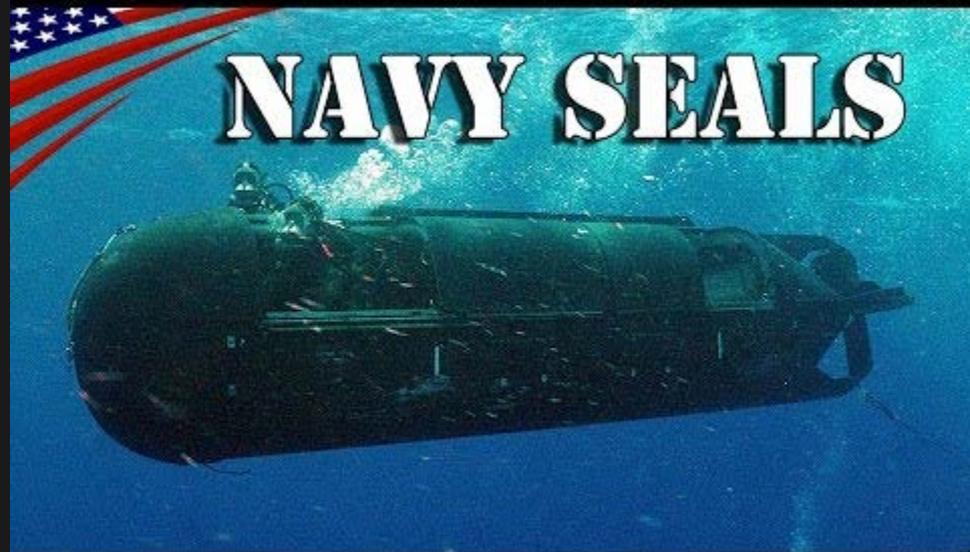
The United States Navy SEALs (Sea, Air, Land) take their name from the elements from which they operate. They are an elite, special operations force known for their stealth and success. Notable achievement is killing Osama Bin Laden



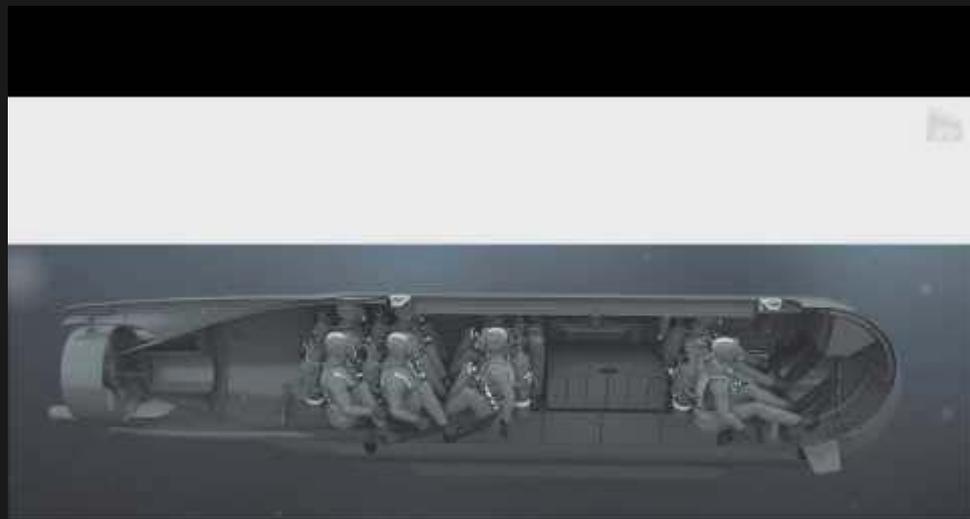
So what is the SEAL Delivery Vehicle for?

The SEAL Delivery Vehicle is used for clandestine operations or operations where if military was seen it would be frowned upon. So they need to get in and out not being seen. This submersible vehicle is another medium the US Military uses to project its military power throughout the world. Allowing US Navy SEALs to enter areas denied entry to them unknown to the opposition.





NAVY SEALS



Sub **SEAL**

Thank you for listening

And

Sources:

Enjoy

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The

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Video

My Brain

Thanks

