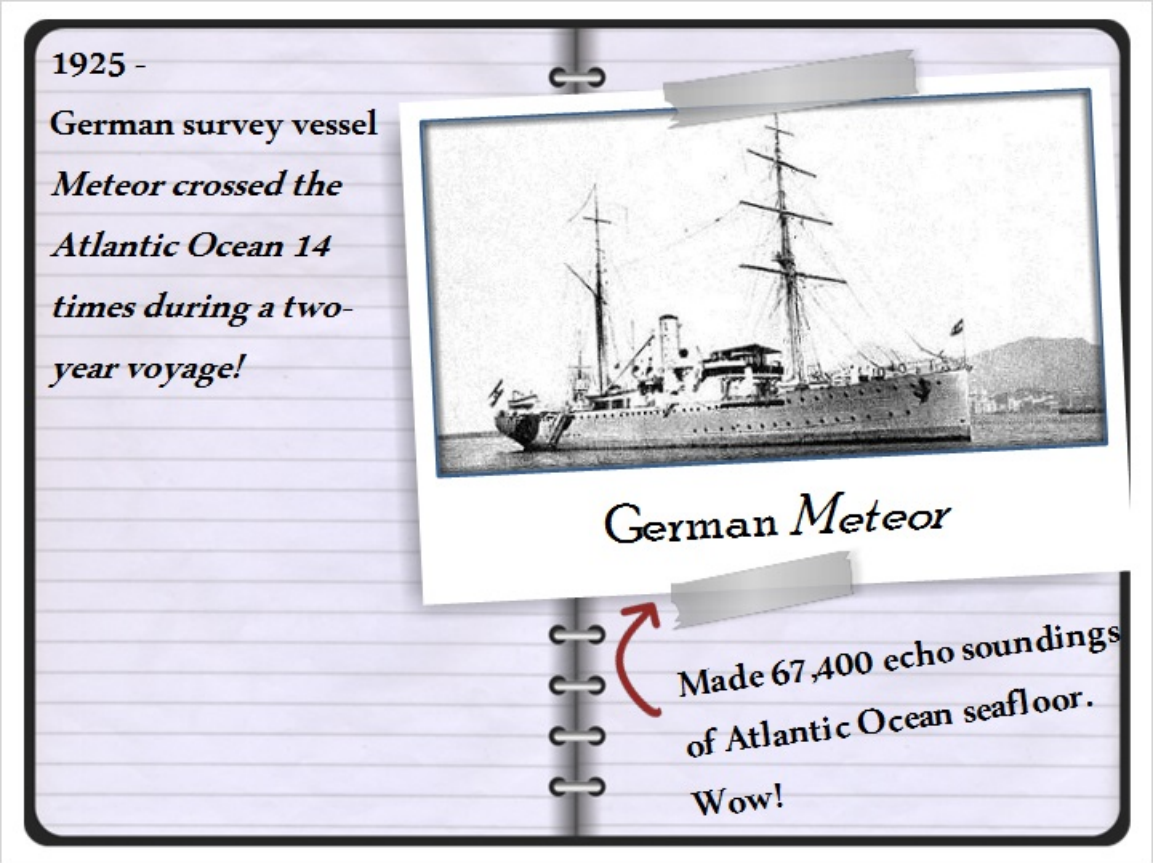
Module 2: The History of Oceanography
Topic 6 Content: Modern Oceanography Notes



In 1925, the German survey vessel *Meteor* began a two-year voyage that crossed the Atlantic 14 times. This cruise collected data on all four areas of oceanography: biological, chemical, geological, and physical.

Of even greater importance was that this cruise created 67,400 echo soundings using an early form of sonar equipment, which helped provide details necessary to create the first map of the Atlantic Ocean seafloor.

Image Credit: International Polar Year

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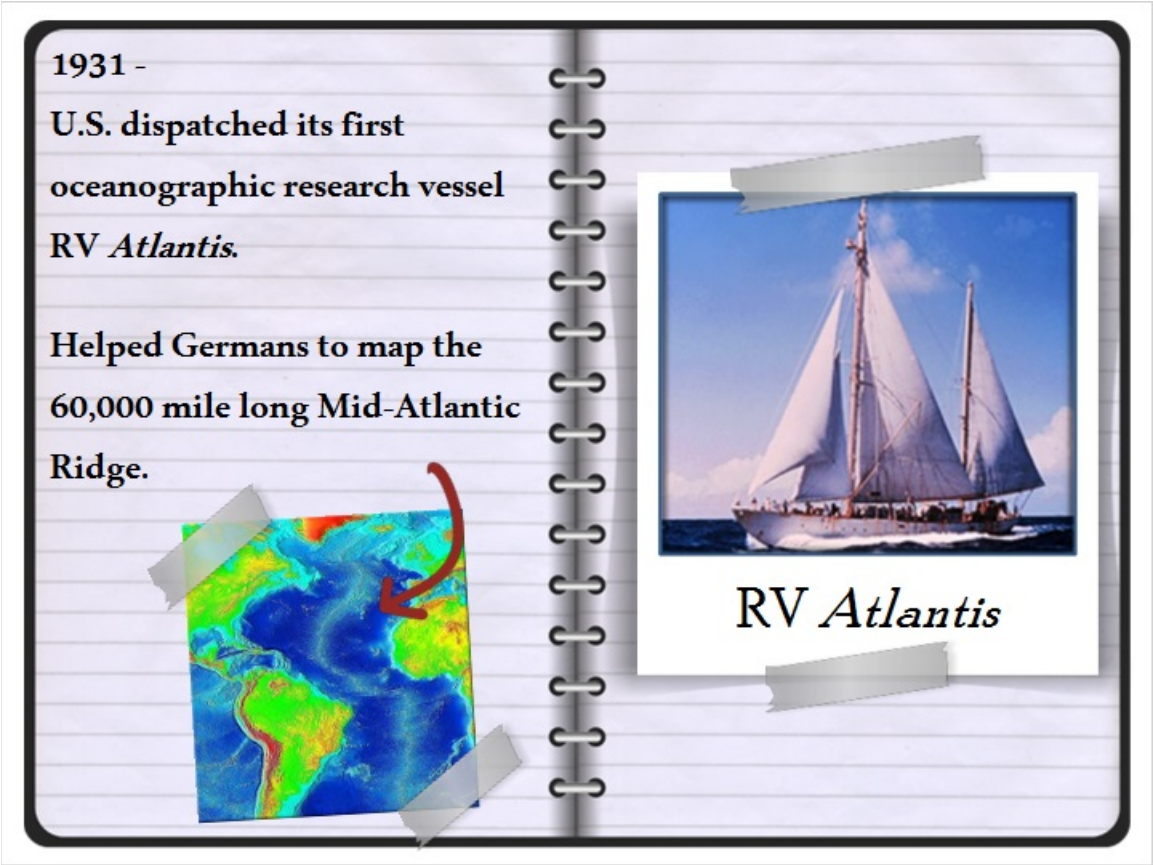
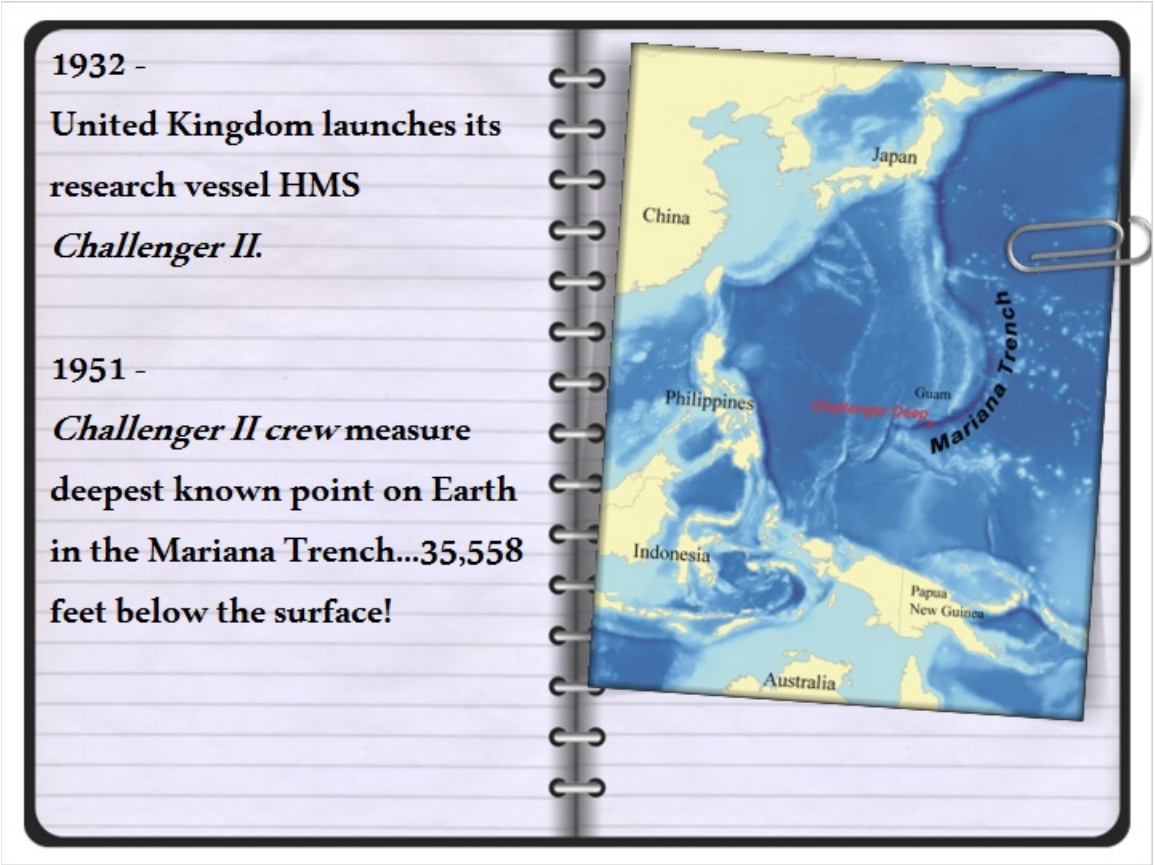


Not to be left behind, in 1931, the United States dispatched its first oceanographic research vessel called RV *Atlantis*. At the time, *Atlantis* primarily supported the work by the Germans, helping them to complete a detailed map of the Mid-Atlantic Ridge. The Mid-Atlantic Ridge is a long continuous mountain range running the entire length of the Atlantic Ocean. That's over 60,000 miles long!

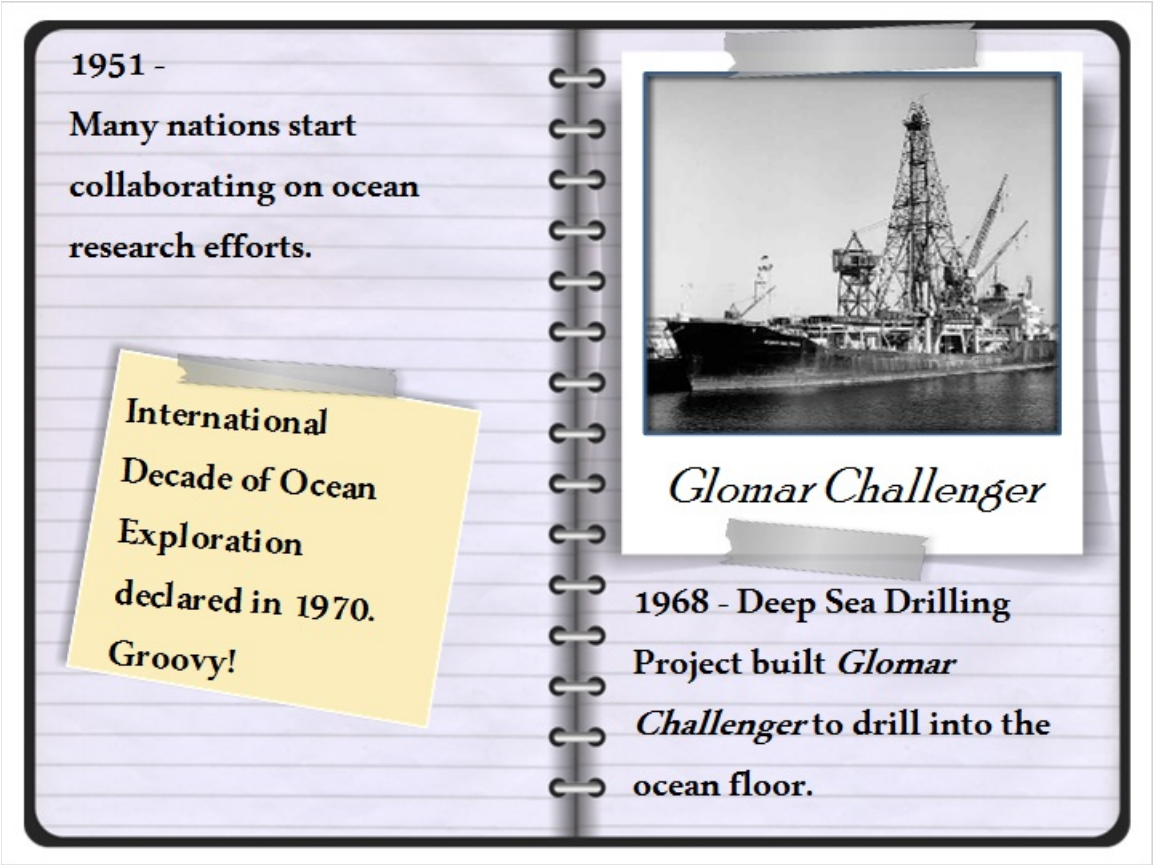
Mid-Atlantic Ridge Image Credit: NOAA, USGS

RV Atlantis Image Credit: USGS



Back in Europe, the United Kingdom launched its research vessel HMS *Challenger II* in 1932. In 1951, the *Challenger II* traveled into the Pacific Ocean and measured the deepest part of the ocean at the Mariana Trench at about 35,558 feet below the ocean's surface.

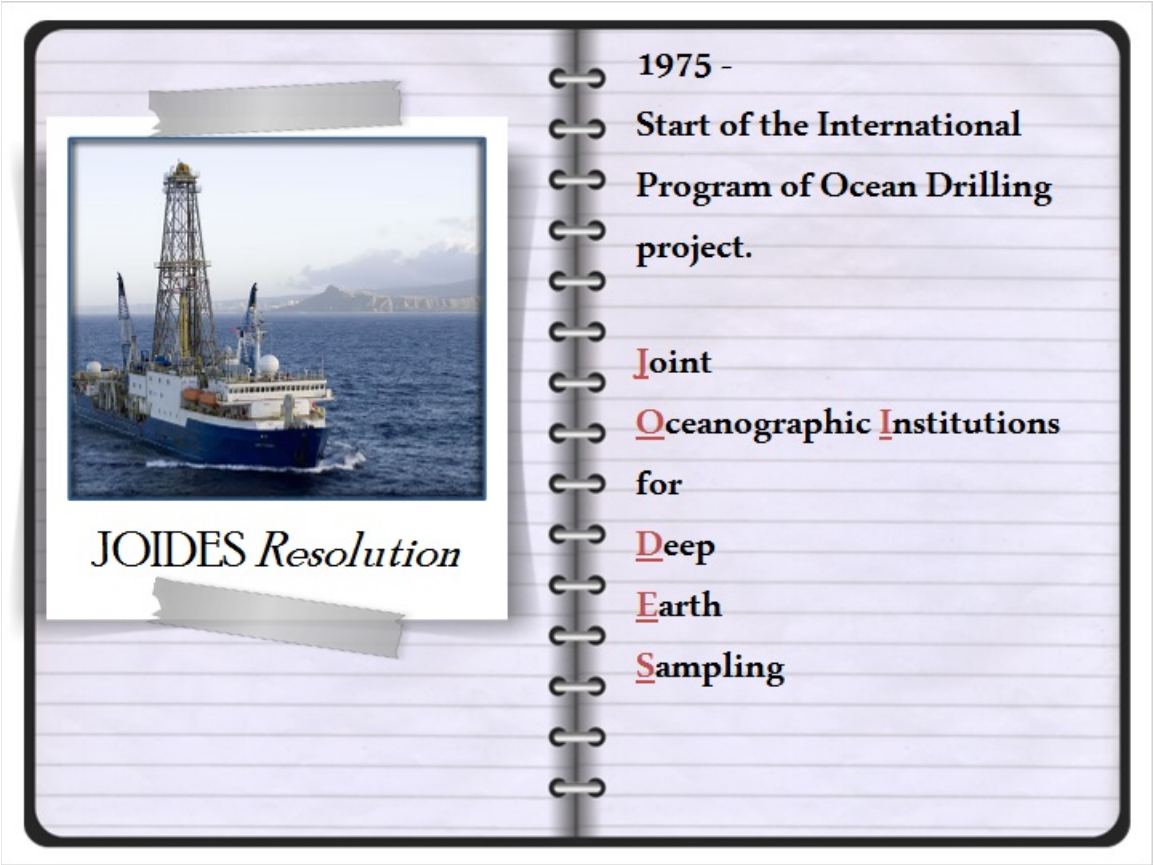
Image Source: Creative Commons



From 1951 onward, the study of the oceans became a collaborative effort between many countries of the world. In 1968, the Deep Sea Drilling Project (DSDP) built the *Glomar Challenger* as the first ship capable of drilling into the ocean floor. Drilling the ocean floor offered scientists many new insights on ocean floor geology.

In 1970, the United Nations and the U.S. National Science Foundation declared an International Decade of Ocean Exploration. This declaration helped increase collaboration between countries, with a resulting shift in scientific focus toward the oceans.

Image Credit: Public Domain



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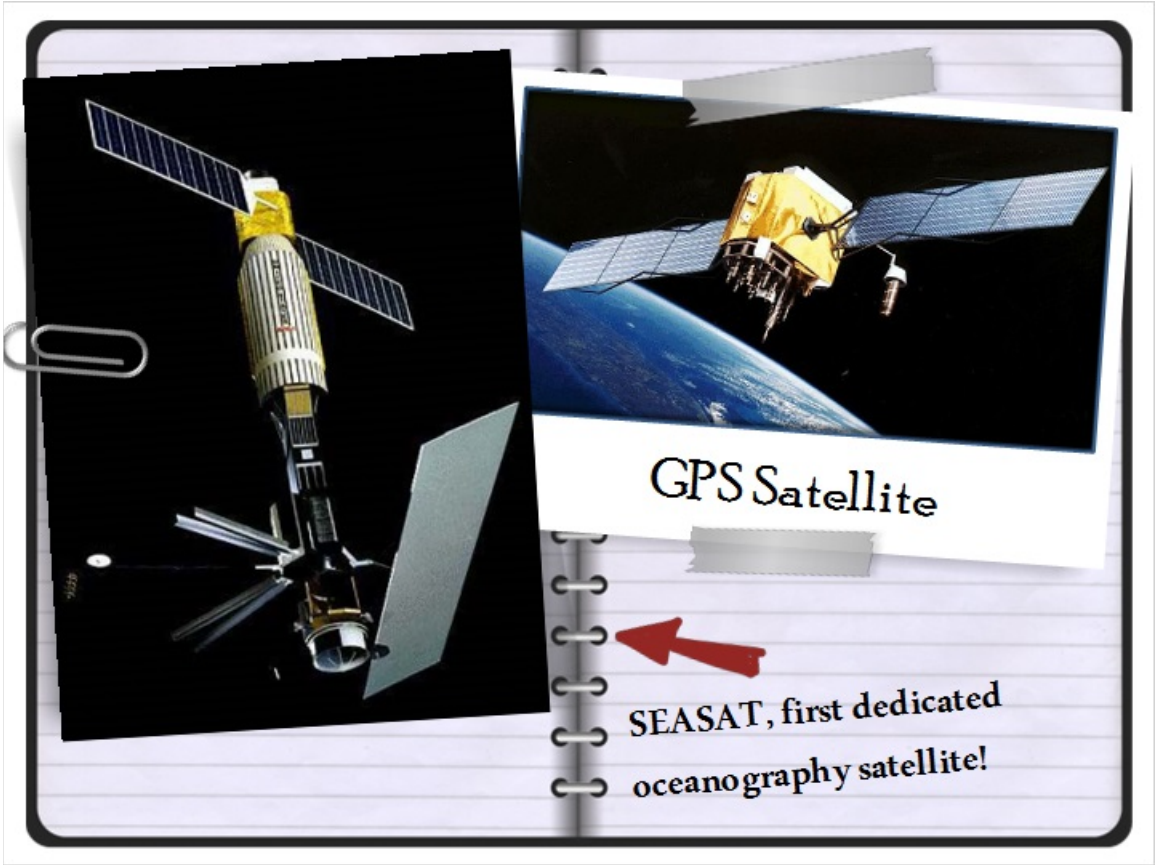
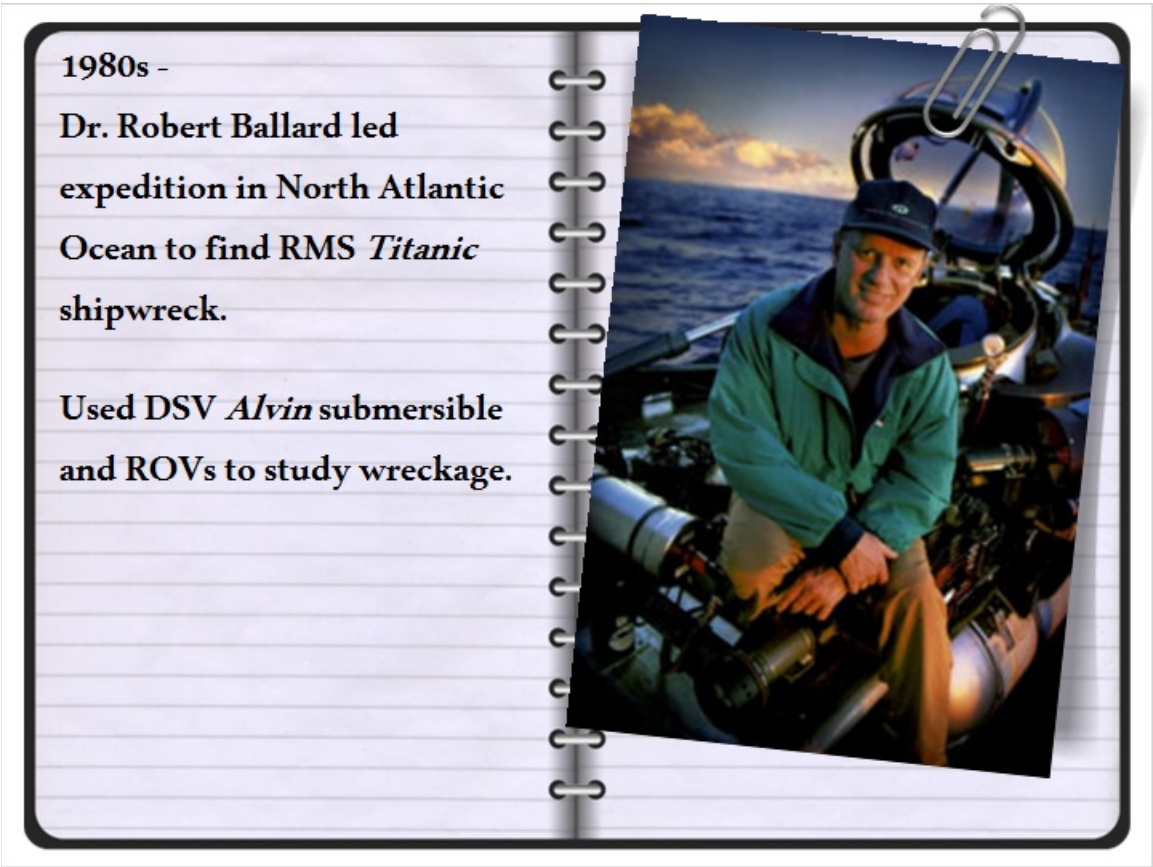


What about space technology? Can satellites and global positioning systems be used to aid in oceanography development? Of course! In the late 1970s the U. S. Department of Defense began using GPS to track objects on Earth. Of course, it wasn't long until GPS revolutionized civilian life as well, with uses such as mapping the oceans and tracking ocean vessels.

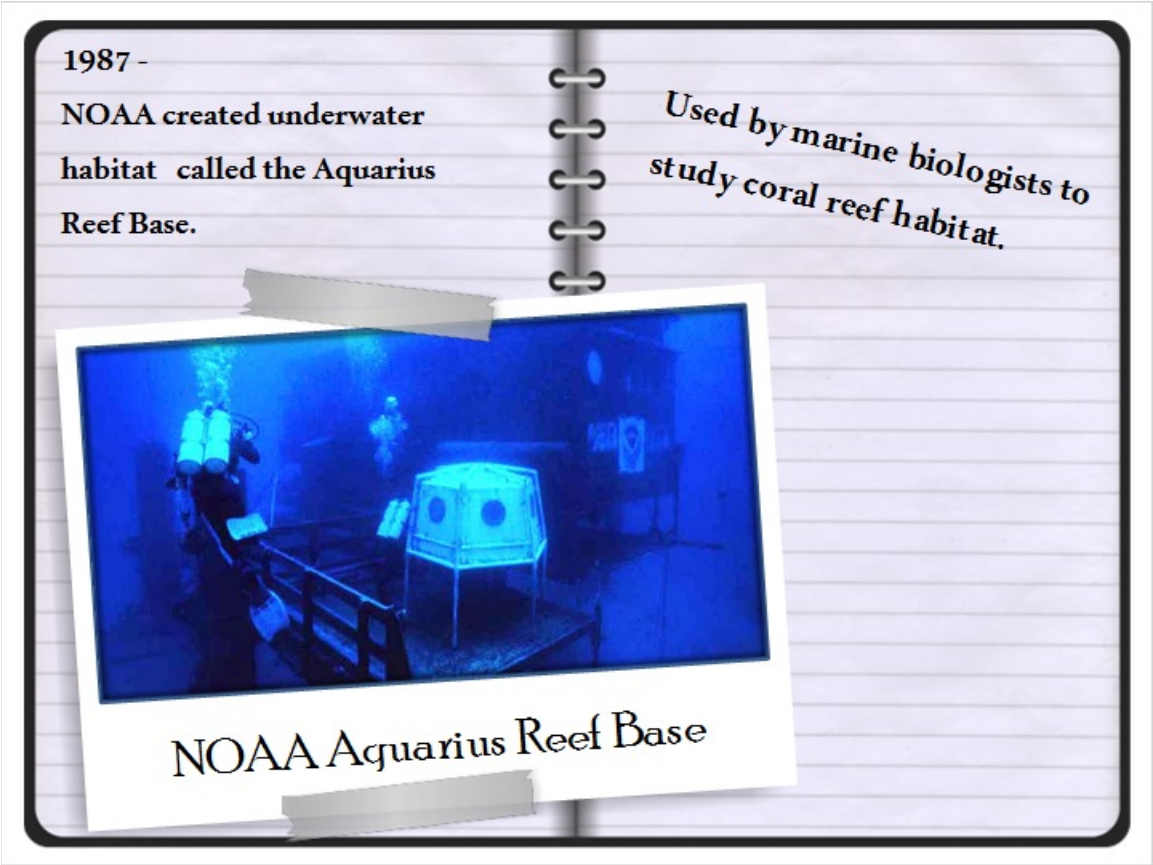
The GPS network consists of 24 satellites that pinpoint latitude and longitude, making navigating on the open ocean a breeze for oceanographers! In 1978, soon after GPS satellites went operational, the U. S. launched SEASAT, which was the first dedicated oceanography satellite!

SEASAT and GPS Image Credit: Public Domain



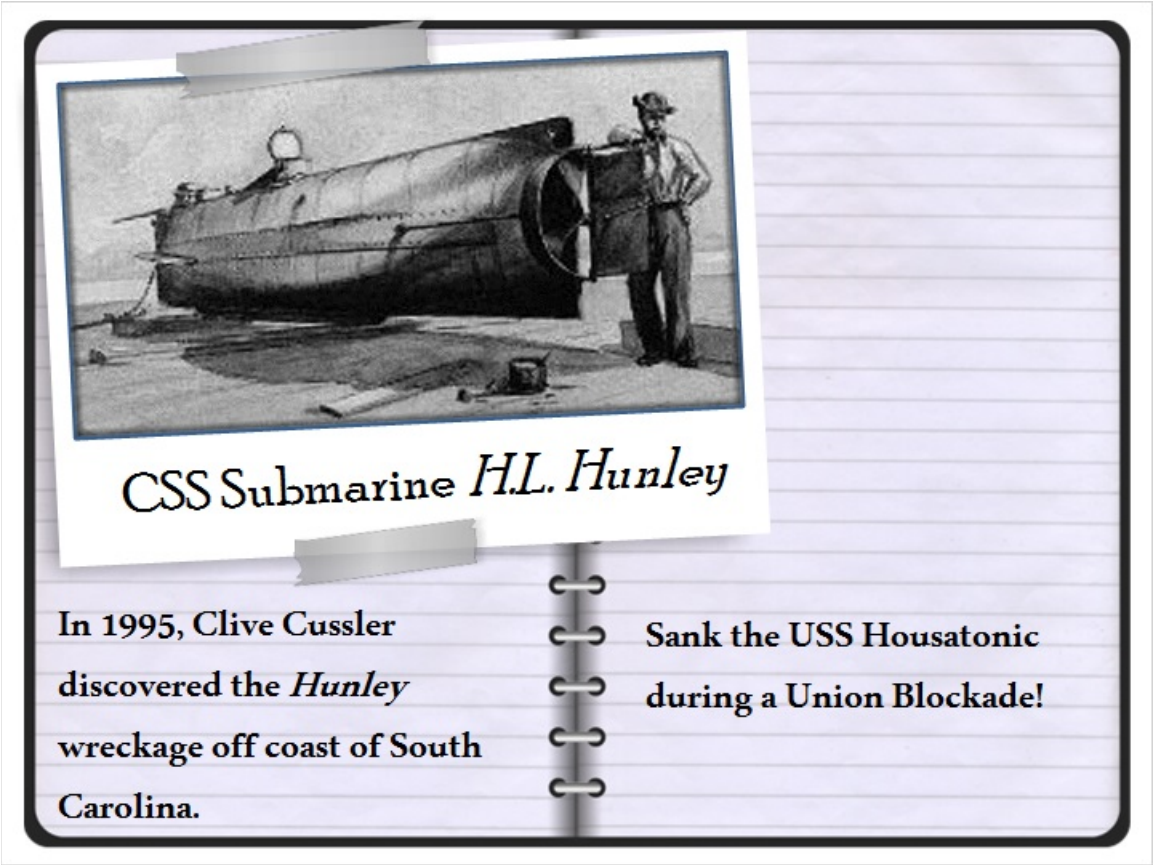
During the 1980s, Dr. Robert Ballard led an expedition in the North Atlantic Ocean looking for the famous wreckage of the RMS *Titanic*. In 1985, Dr. Ballard discovered the wreckage and continued detailed studies of the site until 1986. Eventually, Dr. Ballard used the DSV *Alvin* submersible to explore the outside of the ship, and other ROVs to study the insides of the ship, which were more dangerous to navigate.

Image Credit: NOAA



In 1987, the National Oceanographic Atmospheric Administration, or NOAA, created the first underwater habitat off the coast of St. Croix in the Caribbean ocean. Researchers named this habitat Aquarius Reef Base, and in 1992 they moved it to Florida where it still exists today.

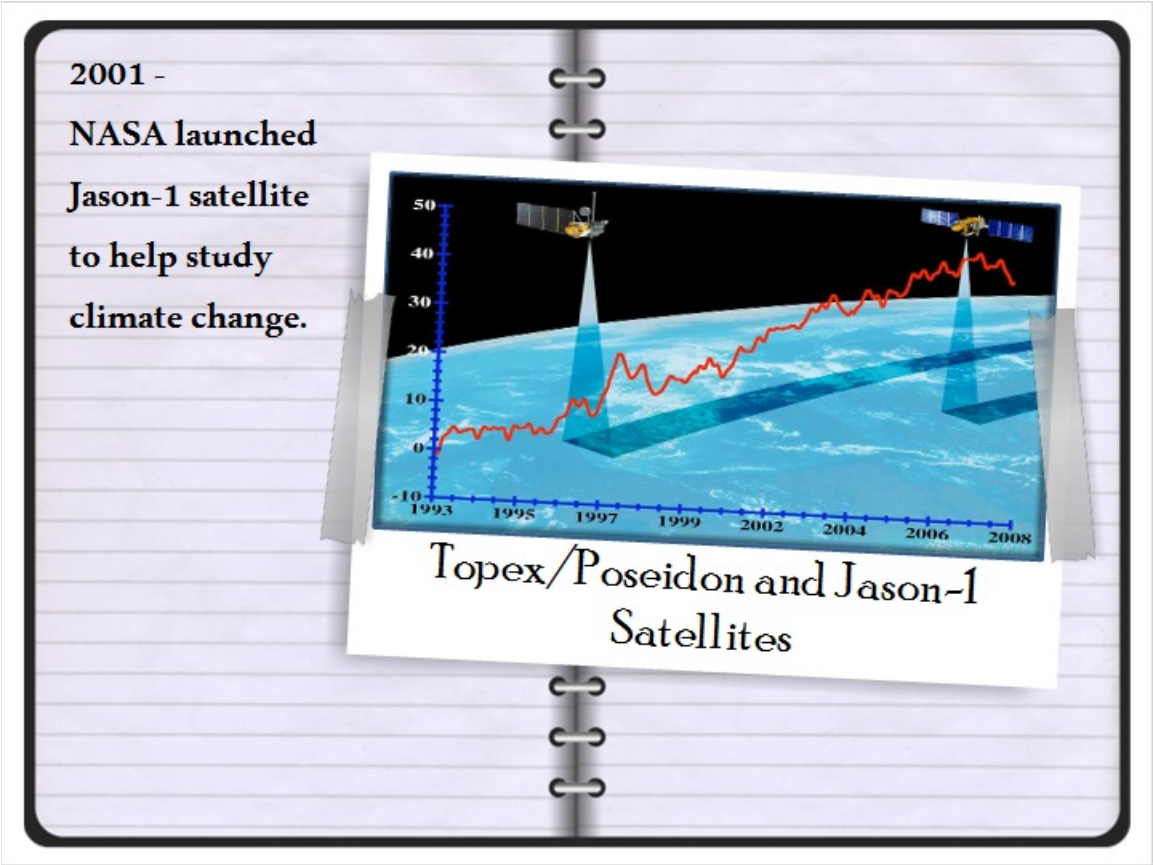
Image Credit: NOAA



You may not be familiar with the submarine CSS *H.L. Hunley*, but amazingly, it appears that the Confederate Army had a secret submarine they used during the Civil War. In 1836, the crew of the Hunley succeeded in sinking the USS Housatonic during an Union Blockade!

In 1995, the well-known author Clive Cussler discovered the *Hunley* off the coast of Charleston, South Carolina. In 2000, the entire ship was brought to the surface, restored, and is now preserved for posterity.

Image Credit: U.S. Navy



In 2001, NASA launched the Jason-1 satellite with a mission to help study climate change by measuring variations in the ocean surface water topography. Researchers also hoped the Jason-1 satellite would help improve ocean floor maps.

Image Credit: NASA

In 2011, NASA launched the satellite, Aquarius. This satellite will monitor sea surface salinity.

Image Credit: NASA