

1: Atlantic Ocean - Wikipedia

Every sea in the world is bordered either entirely or mostly by land. Except for one. In the North Atlantic Ocean, there lies a sea that breaks this rule—the only sea in the world to be entirely.

Uncannily calm, the Sargasso Sea was believed to be the demise of sailors. Eventually these accounts were mutated into urban legends of whole ships disappearing or broken down vessels roaming this sea manned by skeleton ghost crews and all The Sargasso Sea. Realistically speaking though, the Sargasso Sea was believed to be first found by Christopher Columbus and his crew. Description of Niche Where is it located? These currents move around the Sargasso sea in a clockwise orientation. Both this great size and the location of the Sargasso Sea have great implications on its physical conditions. Fish and Wildlife Service. Because it is not bounded by coastline and is surrounded by strong currents, the Sargasso Sea is considered an isolated, oligotrophic little to sustain life area. The surrounding currents provide a strong physical boundary separating the Sargasso sea from the more nutrient-rich waters of the North America shelf. The northern region contains warm water known as eighteen-degree water that moves outwards along the surface of the sea, allowing it to maintain that temperature year round whereas coastal waters with the same latitudes freeze in the winter. For these reasons, even though there are several species of plankton and massive amounts of seaweed floating on the water surface, the Sargasso Sea is still not nutritious enough to attract large communities of fishes. These factors of low wind, low nutrients, and high salinity help to justify why the Sargasso Sea is considered a desert of oceans with little sign of life. As mentioned before, little nutrients are detected in the Sargasso Sea. One confirmation of this belief is Phosphorous amounts. Studies conducted on the Sargasso sea suggest a severe phosphorus depletion and that the cause of this phenomenon results from the large difference between the DNN dissolved nitrate plus nitrite to DIP dissolved inorganic phosphate ratio. This large discrepancy causes P to be depleted long before N is consumed by algal growth after the nutrient injection from the aphotic zone Wu et al. Another type of nutrient found in the Sargasso Sea are slicks, natural fat and oil buildup. They contain abundant useable organic materials; and, once the bacteria dies, the bacteria yields even more oil to these slicks. How Research Began To understand what is known about the Sargasso Sea, one needs to understand why we wanted to know more about it in the first place. Although most scientists thought that this expanse of sea contained no sustainable life, observations showed that oxygen and other elements were being consumed at a higher rate than theories and models could account for. This led scientists to think there must be some nutrient source fueling the blooms of phytoplankton in the Sargasso Sea Carlowicz, ; LiveScience. This discovery, in turn, led to the discovery of eddies. The vast amount of organisms in the Sargasso Sea documented in Venter et. This suggests that there might be internal water mixing that could continually pump up rich nutrients from deeper water layers. This swirling water system is called eddies LiveScience. Eddies are episodic underwater current systems that forcefully bring nutrients up from the ocean floor. This brings necessary food to the phytoplankton and other microbes. This results in an increase in other organisms such as zooplankton that ultimately feed the entire environmental niche Venter et al. This also fuels sargassum growth and without this, organisms living within the sargassum would not be able to survive Sargasso Sea Without a Coastline. Craig Venter et al. Thinking that the initial project would be an easy task in the Sargasso Sea because of the lack of nutrients; they soon found it to be daunting task Ruder, As mentioned Venter is classifying species by their DNA and genes instead of appearance in order to understand their evolutionary existence in their respective environments. This recent research by Craig Venter and his team are noted for their innovative microbial discovery by again means of genomic shotgun sequencing by exploring the Sargasso Sea and documenting unexpected amounts of various microbes and organisms. Based on their findings, it was shown that there is a diverse amount of prokaryotic life in the Sargasso Sea then previously thought leading researchers to the idea that the diversity and abundance of ocean life is larger than once thought Wikipedia. Specifically, Venter et al. Sargassum natans--Courtesy of Bill Frank www. The main species found on the Sargasso are Sargassum natans and Sargassum fluitans “ both of which are completely adapted to living in the open ocean Coston-Clements et al. Cyanobacteria such as Dichothrix and Oscillatoria

are primarily involved in the N₂ fixation within the Sargassum community. The fact that the rate of water evaporation in the Sargasso is faster at its center than at the surrounding waters generates an inward current that aggregates the countless tons of kelp in the middle of the Sargasso sea. Sargasso " or gulf weed " with its complex branching systems, allow tiny animals to hide from predators and serve as a nursery for dozens of fish species. Their blades are the only solid surface for hundreds of miles and they are the only place where sedentary animals can become attached. This community functions as a filter that sieves out nutrients and particles from the waters creating a complex ecosystem where all animals are intertwined. However, not all life forms in the Sargasso are minuscule, sea turtles, dolphins and even humpback whales find the Sargasso to be a haven " it was there that their music was first recorded Genthe, The plant tissues grow, containing various synthesized chemicals that animals can consume and pass along as they are eaten themselves. However, the process of vertical migration is very gradual and slow in the sea. Vertical migration is the downward transport of assorted animal species who have consumed other animals or phytoplankton and will be eaten themselves by the lower-dwelling animals; this process occurs in order to obtain food and gain energy. Which microbes are present? *Silicibacter pomeroyi* is one of the most numerous oligotrophs that inhabit the Sargasso Sea. Having evolved in an area of the world with low nutrients, it has developed a unique physiology compared to other marine oligotrophs. Some of these include; sulfonate degradation, oxidation of lignin-related compounds, and the use of hydroxylamine oxidoreductase to generate nitrite. These characteristics allow *Silicibacter* to cope with the under nourishing habitat. The microbe also contains genes that enable a symbiotic relationship with plankton, uptake algal produced compounds, fast growth and cell density dependent regulation Moran et al. One species that is of most interest to researchers is that of *Pelagibacter ubique*. What make these bacteria an interest of research, is its ability to thrive in an environment low in nutrients and resources. This bacterium can surprisingly replicate efficiently in a low nutrient environment and is one of the smallest self-replicating cells found. Evolutionary genome reduction has been observed in this microbe. This saves the the organism from performing unnecessary metabolic tasks Giovanni et al. PRs are predicted to have important roles in supplying light energy for microbial metabolism. They are divided into two groups depending on two distinct absorption spectrums of light intensity: In the Sargasso Sea, the dominant light energy at surface water until 40m depth is in the blue range with maximal intensity near m. Therefore, only BPRs are discovered regardless of seasonal changes and depth of the surface water column, an indication of different light intensity. This is a unique feature of the Sargasso Sea that is different from other ocean areas, such as Mediterranean Sea, where you will find GPRs dominant in the upper most water layer because of the presence of green pigments, then followed by BPRs in the next water layers Sabehi et al. This adaptation to spectrum changes in the environment is called spectral tuning, which requires a single amino-acid change at position It is a small photosynthetic marine cyanobacterium found up to meters below the sea surface throughout the euphotic zone Partensky, ;Campbell, Though a cyanobacteria, *Prochlorococcus* has a unique pigment composition. Growth of *Prochlorococcus* is best when surface waters are devoid of major nutrients and worst during winter when *Synechococcus* and other eukaryotic organisms have their plankton bloom DuRand et al. *Prochlorococcus* have different ratios of chlorophyll pigments based on where they live. High-light adapted *Prochlorococci* live in the upper meters which are well lit. Low-light adapted *Prochlorococci* are found mainly in deep euphotic zone of depth meters, which is a less bright environment but nutrient rich Dufresne et al. Low-light adapted *Prochlorococci* are generally found to be able to take up NO₃- Wyman, Another major contributor to the Sargasso ecosystem and closely related to *Prochlorococcus* is the cyanobacteria *Synechococcus*. Though less abundant than *Prochlorococcus* , *Synechococcus* has a larger cell size and broader lateral distribution Herdman et al. *Synechococcus* is restricted to living in the upper meters under the sea surface Bertilson et al. Unlike *Prochlorococcus* , *Synechococcus* contains a pigment composition typical of cyanobacteria consisting of chlorophyll a and phycobilins. It is known to be good at obtaining trace metals and major nutrients even in oligotrophic environments such as the Sargasso Sea Casey et al. *Photobacterium leiognathi* and *Photobacterium phosphoreum* constitute the rest of the population. Only *Vibrio fischeri* and *Lucibacterium harveyi* are found in the upper water layer, at depths of m to m. The average temperature here, at 20C, is where thermocline occurs. No luminous bacteria are found in surface microlayer.

Luminous bacteria are small rod shape, gram negative bacteria. They could be free-living planktons, parasites or they can symbiont with fishes. Their major role is the production of bioluminescence which serves as specific functions for different species. They are generally obligately aerobic and microorganisms of this type found in the Sargasso Sea are of a species similar to its terrestrial counterpart. Burkholderia bacteria are commonly found in the soil and in groundwater worldwide and it was unusual when scientists found it in the Sargasso Sea. The fact this new species of Burkholderia contains similar DNA and genes to its land species suggest genomic transfer. Shewanella The Shewanella bacterium, initially found in the freshwaters of the Oneida Lake, thrives in high nutrient aquatic conditions and is capable of cycling organic carbon owing to its numerous respiratory abilities Yang et al, Recently discovered in the Sargasso Sea are bacterial strains with genomic sequences directly associated to that of the Shewanella oneidensis bacterium. The existence of S. Venter et al, Recent studies reveal that this bacterium is very promising to the beneficial process of bioremediation. Diatoms found in the Sargasso are curiously extremely small and have sizes in the range of small prokaryotes. Coccolithophores are also found throughout the Sargasso and were named after the tiny calcium structures that compose their outer skeleton - the coccoliths Stingl et al. Cyanophages "as their name implies " kill cyanobacteria, thus they are actively involved in the control of cyanobacteria numbers as well as their evolution through genome insertion. Through lysogenic cycles, cyanophages are responsible for many alterations found in different strains of the same microbe species " they are responsible for moving genes across different cells which speeds up evolution Angly et al. Plants and Animals It is safe enough to assume that all living organisms living on the surface of the Sargasso sea are directly or indirectly dependent on the organisms mostly associated with it - Sargassum weeds. Sargassum is known to harbor epiphytes micro and macro , diverse fungi, over a hundred invertebrate species, dozens of fishes, and about four sea turtles species - one of which is the famous green turtle Chelonia mydas Coston-Clements et al. After a sea turtle hatches, it goes into the sea and migrates to an area with favorable conditions. The turtles generally spend years here then migrate back to the North American coast The Sargasso Sea. During their first year of life, turtles associate themselves with Sargassum rafts, mats of brown algae, about 7 million tons of which can be found in the Sargasso Sea Milton et al.

2: The Sargasso Sea - a unique ecosystem protected by seaweed

Sargasso Sea, area of the North Atlantic Ocean, elliptical in shape and relatively still, that is strewn with free-floating seaweed of the genus Sargassum. It lies between the parallels 20° N and 35° N and the meridians 30° W and 70° W inside a clockwise-setting ocean-current system, of which.

Unlike other seas, its location is defined using ocean currents. It lies within a large system of rotating ocean currents called the Northern Atlantic Subtropical Gyre. These borders flow in clockwise motion and are dynamic. They change season after season in accordance with the Azores High Pressure Center. The Sea is named after the genus of free-floating seaweed called Sargassum, named due to early Portuguese encounters with the seaweed, who named it Sargazzo or kelp in Spanish. Sargassum is a form of free-floating seaweed or algae that is unique in the sense that it reproduces vegetatively in the high seas, unlike other forms of floating seaweed that reproduce and originate in the ocean-floor. On the surface, the Sargassum mats provide habitats for a variety of marine organisms such as turtles, which use their platforms for hatchlings to flourish NOAA, undated. Beneath the Ocean Floor “Discovery of Ocean Ridge The Sargasso Sea Alliance” a conservation partnership led by the Bermudian government “highlight three interdependent areas that place a case for scientific conservation efforts over the Sargasso Sea Sargasso Sea Alliance, These include first, the unique ecosystem based on the floating Sargassum. Second, the area is a junction in the North Atlantic for migratory species that utilize the mats for food, reproduction and safety. Third, the unique conditions, the Sargasso Sea Alliance argues, are pertinent for research and require great vigilance. The surface ecosystem is based upon two species of Sargassum that reproduce through fragmentation, and is different from all other varieties of seaweed. Golden-brown in colour, the floating mechanism is possible due gas filled bladders in the Sargassum. Sargassum provide critical habitats for many permanent and migratory species. The drifting of the sargassum makes it collect marine organisms, particularly invertebrates that attract other marine species towards the mats. Oceans at Risk The Sargassum hosts more than invertebrate species and over species of fish. There is variance in this biodiversity owing to the season, location in the gyre and the age of the sea-weed. Larger marine species such as sharks and rays that prey on the spawning fish are also of great conservation value. Many spawning species represent rare species of marine life. Many migrating species of fish such as Bluefin Tuna feed in the Sargassum Sea, which are exploited as a food source but are largely protected in the Sargasso Sea by the natural floating Sargassum. Sargassum mats have been the source for many myths and legends over the centuries. They led many sailors to believe that their ships would be jammed and trapped in the seaweed in earlier times, which was accompanied with still waters and a lack of surface winds. These myths had an important role in the conceptualization of the southwestern region of the Sargasso Sea as the Bermuda Triangle, as the passage in the ocean where ships would disappear. The floating Sargassum provides a natural barrier to fishing expeditions, and the Sargasso Sea was recently earmarked to be a world heritage site by the UN, and a report was published in in this regard UN,

3: North Atlantic Garbage Patch – Sargasso Sea, Atlantic Ocean - Atlas Obscura

The Sargasso Sea, located entirely within the Atlantic Ocean, is the only sea without a land boundary. Mats of free-floating sargassum, a common seaweed found in the Sargasso Sea, provide shelter and habitat to many animals.

Equatorial Atlantic Ocean Currents Under the influence of prevailing trade winds [easterly trade winds], the north equatorial current and the south equatorial current start from the eastern Atlantic west coast of Africa , moving from east to west. This raises the level of western Atlantic north of the Brazil bulge ocean by few centimeters. And this creates a counter-equatorial current which flows between the north equatorial current and the south equatorial current in west-east direction. Antilles current The south equatorial current bifurcates into two branches near Cape de Sao Roque Brazil. Part of the current enters the Caribbean Sea along with north equatorial current into the Mexican Gulf, while the remainder passes along the eastern side of the West Indies as the Antilles current. There is a rise in water level in the Mexican Gulf because of large amounts of water brought by the Mississippi river and branches of north and south equatorial currents. Gulf Stream and North Atlantic Drift Antilles current creates a current that flows out through the Strait of Florida as Florida current, which mixes with Antilles current from the south. Here, westerly movement of North Atlantic Drift is due to the influence of westerlies. Norwegian current The North Atlantic Current breaks up into two branches on reaching the eastern part of the ocean. The main current, continuing as the North Atlantic Drift, reaches the British Isles from where it flows along the coast of Norway as the Norwegian current and enters the Arctic Ocean. Norwegian current is very important as it keeps ocean to the north of Norway partly free from ice and also moderates the extremes of climate. It is because of this current, Russia is able to move cargo in summers through Arctic ocean Barents Sea. The southerly branch flows between Spain and Azores as the cold Canary current. This current finally joins the north equatorial current completing the circuit in the North Atlantic. The Sargasso Sea, lying within this circuit, is full of large quantities of seaweed and is an important geographical feature. It is the only sea on Earth which has no coastline. This system of ocean currents forms the North Atlantic Gyre. All the currents deposit the marine plants and refuse they carry into this sea. The Labrador current flows along part of the east coast of Canada and meets the warm Gulf Stream. The confluence of these two currents, one hot and the other cold, produce the famous fogs around Newfoundland. The northern branch joins the north equatorial current a part of it flows in Antilles Current and other into Gulf of Mexico , whereas the southern branch turns southward and flows along the South American coast as the warm Brazil current. A small branch of West Wind Drift splits and flows between Argentinian coast and Falkland Islands and this current is called as Falkland cold current. It mixes with warm Brazil current at the southern tip of Brazil. Benguela current A branch of the South Atlantic splits at the southern tip of Africa and flows along the west coast of South Africa as the cold Benguela current, which joins the south equatorial current to complete the circuit.

4: Sargasso Sea & Its Mystery

The Sargasso Sea (/s ɜːr ˈɡɑːs ˈsiːə/) is a region of the North Atlantic Ocean bounded by four currents forming an ocean gyre. Unlike all other regions called seas, it has no land boundaries.

The term "Aethiopian Ocean", derived from Ancient Ethiopia, was applied to the Southern Atlantic as late as the mid-19th century. Extent of the Atlantic Ocean according to the IHO definition, excluding Arctic and Antarctic regions The International Hydrographic Organization IHO defined the limits of the oceans and seas in 1936, [13] but some of these definitions have been revised since then and some are not used by various authorities, institutions, and countries, see for example the CIA World Factbook. Correspondingly, the extent and number of oceans and seas varies. To the east, the boundaries of the ocean proper are Europe: In the southeast, the Atlantic merges into the Indian Ocean. Mid-Atlantic Ridge The MAR divides the Atlantic longitudinally into two halves, in each of which a series of basins are delimited by secondary, transverse ridges. The MAR is a barrier for bottom water, but at these two transform faults deep water currents can pass from one side to the other. While nine of these have collectively been nominated a World Heritage Site for their geological value, four of them are considered of "Outstanding Universal Value" based on their cultural and natural criteria: Continental shelves in the Atlantic are wide off Newfoundland, southern-most South America, and north-eastern Europe. In the western Atlantic carbonate platforms dominate large areas, for example the Blake Plateau and Bermuda Rise. The Atlantic is surrounded by passive margins except at a few locations where active margins form deep trenches: There are numerous submarine canyons off north-eastern North America, western Europe, and north-western Africa. Some of these canyons extend along the continental rises and farther into the abyssal plains as deep-sea channels. This involved little guesswork because the idea of sonar is straight forward with pulses being sent from the vessel, which bounce off the ocean floor, then return to the vessel. The Laurentian Abyss is found off the eastern coast of Canada. Path of the thermohaline circulation. Purple paths represent deep-water currents, while blue paths represent surface currents. Maximum temperatures occur north of the equator, and minimum values are found in the polar regions. The south tides in the Atlantic Ocean are semi-diurnal; that is, two high tides occur during each 24 lunar hours. Evaporation, precipitation, river inflow and sea ice melting influence surface salinity values. Although the lowest salinity values are just north of the equator because of heavy tropical rainfall, in general the lowest values are in the high latitudes and along coasts where large rivers enter.

5: Studying Microbes in the Sargasso Sea | The UCSB Current

The Sargasso sea lies within the North Atlantic ocean, surrounded by four currents that form an ocean gyre. For the uninitiated, an ocean gyre is a huge system of circulating ocean currents that are formed due to global wind patterns and the effects of Earth's rotation (Coriolis effect).

The sea area which is some miles wide, miles long and located in the North Atlantic, has no shores. It is bounded by ocean currents on all sides. The island of Bermuda is located on its western fringes. With such ocean currents on all sides, this sea area unlike the harsh cold North Atlantic, is strangely warm with stable weather conditions and with calm and weak winds. Another strange phenomena which is nowhere seen in the world is, this vast water area is covered with some dense seaweed which forms a thick mat on the surface. This free floating golden-brown seaweed is known as Sargassum and therefore such name of the sea. Although the Sargasso Sea remains calm with its surrounding currents, a subtropical gyre is formed here. As a result the entire sea area with its mat like weeds slowly rotates clockwise. The rotation also depends on the surrounding weather conditions. Some Portuguese sailors first discovered Sargasso Sea with its mat of seaweed in the early 15th century. Even Christopher Columbus who sailed through it in , thought that he must have reached the land as he looked at the vast stretch of dense brown surface. It has been proven today that these seaweeds are not blown into this area from the shores by the water currents. They are actually native to this area and grow here vigorously hundreds of miles away from the shores. Although there are other such currents like in the South Pacific and in North Pacific that too circle around, but there is no record of such thick formation of seaweed in any such areas. It is also known that due to the ocean currents, vast amount of marine plants and even trash get drifted into Sargasso Sea from the nearby ocean areas and become embedded into these weeds. Once these move into the area, it is unlikely that they are ever able to move out due to the nature of the currents on all sides. Sargassum Seaweed found in Sargasso Sea Many sailing vessels that tried to pass through this area requiring wind to sail along, sometimes became virtually motionless due to the exceptionally weak and calm winds. And the thick seaweed also would have played their role in stalling the vessels. The Sargasso Sea is also known as the Horse Latitudes because the becalmed Spanish ships stranded for weeks had to often throw away their horses overboard in order to save drinking water. The Bermuda Triangle Connection Sargasso Sea is located at the heart of the triangle area with one of its corners Bermuda being on its western fringes. While it is known that the large freighters and barges can steam through this area with ease and the seaweed not a real threat to shipping, there have been many mysterious incidents that took place in this area. Starting from early days and until recent times, there have been many cases where ships after having been lost were later found floating derelict without a single soul on board. As reported in London Times, the Rosalie was one such case when it sailed through the Sargasso Sea in not to be found. When it reappeared, there was nobody on board. The American schooner Ellen Austin found another ship in this area in travelling in good speed but with no one on board. The captain sent his prize crew on board the unnamed ship. But the ship disappeared. When it was retraced after two days, like before there was no one on board. There have been many derelicts found in this area even in recent times. Like the Connemara IV that was drifting on its own in about miles away from Bermuda. Apart from this there were also a number of boats and yachts found floating unmanned on the Sargasso Sea between s and s. Conservation of Sargasso Sea Despite its strange nature, the international marine scientists and oceanographers recognize the importance of Sargasso Sea and its role with the wider North Atlantic ecosystem. The Bermuda Institute of Science has been studying this area for over 50 years. The dense mat of seaweed are home to fish, turtles and many types of marine life. The American and European eels come here and use the weeds as their breeding ground. Young Sea Turtles use the ocean currents to travel to the mat of weeds to get a cover from their predators and return once they become mature. The plant materials available here serve as rich food for Wahoo, Tuna and other types of fish who migrate through this sea area. It serves a great place of forage for even the migrating humpback whales. Unfortunately, while the ocean currents bring in lots of marine plants into this area, the same currents also bring a vast amount of garbage from the other parts of the ocean including the non biodegradable plastics. This is the main reason for

the initiative taken up by the Bermuda Government to conserve and protect the Sargasso Sea.

6: Sargasso Sea – North Atlantic Ocean - Atlas Obscura

Sargasso Sea. The Sargasso Sea is a region in the gyre in the middle of the North Atlantic Ocean. It is the only sea on Earth which has no coastline.; It is bounded on the.

Ever imagined about a sea without a seashore? The Sargasso Sea is the only sea on the Earth without a coastline, a sea without shores. This strange and unique creation of nature is located in the middle of the North Atlantic Ocean and is surrounded by ocean currents. Bermuda Island is near the western fringes of the sea. Even though the Sargasso Sea is surrounded by such strong currents, its currents are largely immobile. Unlike the harsh cold climate of the North Atlantic, the Sargasso Sea is strangely warm. The temperature of the water inside the sea is much more than the water on the outside. Sargasso-Sea Huge mats of dense seaweeds cover the surface of the sea. This floating golden-brown seaweed is known as Sargassum. So the sea is named Sargasso. Columbus discovered this huge ellipse and on seeing the seaweeds, he thought that he was close to the shores whereas he was many hundreds of miles away from the land. A fascinating belief is associated with this area. It is said that it robs the people from the sailing boats and therefore several ships have been found wandering without any person in the waters of Sargasso. One such ship found was a French merchant ship, Rosalie. In it sailed through the waters and disappeared, but later it was found with its sail sets and no crew members on it. In , an American schooner, Ellen Austin found another ship traveling at a good speed but no crew members on board. The captain sent his crew to this ship, but the ship disappeared. It was found after a couple of days but there was no one on board. Many other ships floating unmanned were found later. One was The Connemara IV in which was found sailing on its own. Between the s and s, many boats and yachts were found drifting on their own. There are stories of ships that were found with the skeletal remains of the crew members. The exact reasons of their death remained unidentified. Some also believed that the sea algae might be the cause of the death of the members on board. None of the maritime experts are able to solve the mystery of the disappearances till date. The Sargasso Sea still remains a big mystery. Vast amounts of seaweeds accumulate at the center of the sea where the powerful currents slowly circulate, creating a huge whirlpool. Sylvester came up with a theory that the huge whirlpool of the Sargasso Sea is like a centrifuge. This huge whirlpool creates smaller whirlpools that travel out and reach the area of the Bermuda Triangle. These whirlpools are strong enough to rotate a ship and drag it inside. These small whirlpools cause mini-cyclones in the air. These cyclones continue the spiral movement of water, from which they appear, and may thus make small aircraft crash into the ocean. Signup now and receive an email once we publish new content.

7: Sargasso Sea | Sargasso Seaweed | DK Find Out

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8: Sargasso Sea - Simple English Wikipedia, the free encyclopedia

Sargasso Sea, Atlantic Ocean North Atlantic Garbage Patch The lesser-known cousin of the Great Pacific trash island.

9: Where Is the Sargasso Sea? | Wonderopolis

The Sargasso Sea, on the other hand, is a vast area of the North Atlantic Ocean defined by four ocean currents: the Gulf Stream to the west, the North Atlantic Current to the north, the Canary Current to the east, and the North Atlantic Equatorial Current to the south.

The City Is Built to Music 2012 honda pilot owners manual The West Indies, by Sir D. Morris (delivered Feb. 9, 1911 Note on the oil resources of The West Indies, b Lipid Storage Disorders: Biological and Medical Aspects (Nato Science Series: A:) Reliability improvement with design of experiments Understanding theories and concepts in social policy Braeswood Tapestry Appendix C: How other churches are using the bod4God program Field-book for railroad engineers. Performing the electrocardiogram Fanciful faces coloring book Wireless confusion. The way to cook 39 clues unstoppable book 4 10. Ambiguity and relevance in the works of Khannatha Bannuna Criticisms and rejoinders Glamorous Movie Stars of the Seventies Paper Dolls The Sad Clown and Other Stories; Childrens Storytime Collection; Five-minute Tales for Bedtime JCAHO education standards Financial accounting an introduction 4th edition jacqui kew Mechanical tools list with pictures Hawa the bus driver Happily Ever Now (Urban Christian) Degradation and Failure of Some Polymers (Polyethylene and Polyamide for Industrial Applications Boubaker D.C. Health Benefits Extension Act of 1992-disapproving New materials in architecture Economics of environmental policy Brave New Neighborhoods Rebuke of secession doctrines, The Emperors China, peoples China Benefits of becoming a seeker Gulf war 1990 to 1991 Hunt, J. D. Grace, art, and the neglect of time in Loves labours lost. World record paper airplane book Ultimate Security O praise the name piano sheet music myriversidechurch FDRs Deadly Secret Proceedings of the 1996 IEEE/RSJ International Conference on Intelligent Robots and Systems The yoga tradition its history literature philosophy and practice The way of sanchin kata