



Shipwreck

DISCOVERING LOST TREASURES



RICHARD AND PAT
JOHNSON
PALM BEACH COUNTY
HISTORY
MUSEUM

Educators' Guide



The Historical Society of Palm Beach County is a non-profit organization whose mission is to collect, preserve, and share the rich history and cultural heritage of Palm Beach County.

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The Richard and Pat Johnson Palm Beach County History Museum's Educators' Guide, in combination with ongoing teacher workshops and field trips to its permanent and temporary exhibitions, will help you structure learning experiences that correspond to the following **Florida Sunshine State Standards**. This guide contains materials and resources to supplement and enhance student learning in the classroom and during in-gallery experiences, tying the **SHIPWRECK** exhibit to the state standards and enhancing school field trips.

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FLORIDA SUNSHINE STATE STANDARDS

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Vocabulary

Barkentine – A sailing vessel having three or more masts, square-rigged on the foremast and fore-and-aft-rigged on the other masts.

Bullion – Gold or silver in the form of bars or ingots.

Flotsam – The part of the wreckage of a ship and its cargo found floating on the water.

Gulf Stream – A warm ocean current flowing North from the Gulf of Mexico, along the East coast of the U.S., to an area off the South East coast of Newfoundland, where it becomes the western terminus of the North Atlantic Current.

Ore – A metal bearing mineral or rock, or a native metal, that can be mined at a profit.

Refuge – Shelter or protection from danger, trouble, etc.: *to take refuge from a storm.*

Salvage – The act of saving a ship or its cargo from perils of the seas.

Tempest – A violent wind or storm

Travails – Painfully difficult or burdensome work; toil.

Treasure – Wealth or riches stored or accumulated, especially in the form of precious metals, money, jewels, or plate.

Lesson One

THE GULFSTREAM

Grade 4

Objectives:

- 1) Students will be able to discuss the history of the Gulf Stream as it pertains to early American History.
- 2) Students will be able to generally describe the effects of the current on ship travel.
- 3) Students will be able to describe what causes the Gulf Stream.

Essential Question:

How is the Gulf Stream an important part of the history of shipwrecks?

MATERIAL NEEDED

- Atlantic Basin Hurricane Tracking Chart
- Benjamin Franklin & Timothy Folger Gulf Stream Chart
- Crayons/colored pencils (preferable Blue [cold water], and Red [hot water])
- Background on Ocean Currents
- Computer with internet [optional]

INTRODUCTION

Actual observations of the Gulf Stream, or rather the currents contributing to it, Columbus was the pioneer in Western recorded history. Later related by Peter Martyr, in 1492 Columbus remarked about the strong currents of the Caribbean Sea. However, the first record of satisfactory evidence of the discovery of the Gulf Stream current comes from Ponce de Leon's expedition in 1513 to search for the "fountain of youth". Referring to the current in the ship's journal, it seemed as if the ship was moving quickly through the water, but they soon recognized it was an illusion. In fact that they were being driven back because the current was stronger than the wind. Two vessels, which were somewhat nearer the coast, came to anchor; the third vessel, a brig, being in deeper water, could not anchor, and was soon "carried away by the current and lost from sight although it was a clear day."

PROCEDURE

- Review Background on Ocean Currents
- Review the History of the Gulf Stream
- Compare and contrast Benjamin Franklin's Gulf Stream map with more modern maps
- Have students draw the direction of the Gulf Stream and identify cold and hot currents using crayons/colored pencils

STUDENT QUESTIONS

- 1) What is the principal cause of surface currents in the ocean?
- 2) If someone asked what the Gulf Stream is, what would you tell them?

- 3) How was Benjamin Franklin's understanding of the Gulf Stream the same as our modern views of the current?
- 4) Use specific examples to explain how the Gulf Stream influences climate.
- 5) Why did Matthew Maury say there was a river in the ocean?

ASSESSMENT

After reviewing and reading the background on ocean currents have students read the History of the Gulf Stream. Ask students, "Why did Matthew Maury say there was a river in the ocean?" Have students respond by drawing out Maury's description of the Gulf Stream and identifying the general areas with labels on their maps.

LESSON EXTENSION

- Working in pairs, use the additional resources and internet to research why the Gulf Stream was such an issue for ships traveling towards the United States. Report your findings to your class.

ADDITIONAL RESOURCES

- <http://oceanexplorer.noaa.gov/history/early/early.html>
- <http://fermi.jhuapl.edu/student/phillips/index.htm>
- <https://florida.pbslearningmedia.org/resource/ess05.sci.ess.watcyc.gulfstream/what-causes-the-gulf-stream/>
- <http://www.keyshistory.org/gulfstream.html>
- <https://www.nha.org/library/hn/HN-v44n2-gulfstream.htm>

BACKGROUND ON OCEAN CURRENTS

Ocean currents move in response to global wind patterns and Earth's rotation. Uneven heating of Earth creates global winds that form three separate bands in each of the northern and southern hemispheres. Earth receives more solar radiation at the equator than it does at the poles, and this uneven distribution of heat creates pressure differences, which in turn cause the movement of air, or wind. Earth's rotation causes fluids — both air and water — to be deflected as they move across our planet's surface. This is known as the Coriolis effect. The Coriolis effect causes winds to move in an eastward or westward direction in addition to their northward or southward flow.

Ocean currents mirror these wind patterns to some extent. However, continents impede the flow of water. When currents encounter a landmass, they are deflected and ultimately form circular patterns, called gyres, around the perimeter of Earth's oceans and seas. The Coriolis effect acting on these currents causes northern hemisphere gyres to move in a clockwise direction and southern hemisphere gyres to move in a counterclockwise direction.

The Gulf Stream forms the western edge of the North Atlantic Gyre. Originating near the southern tip of Florida, this swift, warm current travels along the east coast of the United States and across the North Atlantic. South of Greenland, the Gulf Stream widens and slows, becoming a vast, slow-moving, warm current known as the North Atlantic Drift. Further on, the North Atlantic Drift splits. One part continues north as the Norway Current. The other, the Canary Current, heads south toward the northwest coast of Africa, where its waters are warmed again by the intense solar radiation in the tropics.

The Gulf Stream reaches depths of up to several hundred meters (a thousand feet) below the surface and travels up to 10 kilometers (6.2 miles) per hour. It moves as much as 100 million cubic meters (3.5 billion cubic feet) of water per second. By comparison, the Mississippi River moves about 15,000 cubic meters (530,000 cubic feet) per second.

Even more important than the volume of water moved by the Gulf Stream is the heat it carries and the effect of that heat on climate. Living at 51 degrees north latitude, Londoners might expect their winters to resemble those in Calgary, Alberta. At 60 degrees north latitude, the west coast of Norway should look very much like Siberia in January. Instead, the Gulf Stream delivers a steady flow of heat to the atmosphere near the North Atlantic. As a result, London sees plenty of rain but very little snow. And the west coast of Norway remains ice-free all winter, not at all like Northern Saskatchewan or Siberia.

HISTORY OF THE GULF STREAM

BY Jerry Wilkinson

Historians can be called "the scientists of hindsight." Hindsight can be focused on a single event or a chain of events. Much of Keys history is chained to the great quantity of ships passing, or trying to pass, their shores since they were discovered. Why are thousands of ships lying sunken on and off our reefs? The primary answer is the flow of the Gulf Stream, bad weather and poor judgment.

The Gulf Stream exerted a tremendous influence on the colonization of North America. Most all colonization from Virginia to the south chose the southern route across the Atlantic even though it was 2,000-3,000 miles farther. Few return voyages to Europe failed to utilize at least part of the Gulf Stream.

Cortez was perhaps the first to send large numbers of ships from Mexico northward through the Florida Straits, then eastward following the clockwise motion of the Gulf Stream to return to Spain. A visit with any of the shipwreck museums will reveal the results of the unsuccessful voyages.

A notation in the Herrera's summary of the log of Ponce de Leon's voyage log, on April 22, 1513, noted, "A current such that, although they had great wind, they could not proceed forward, but backward and it seems that they were proceeding well; at the end it was known that the current was more powerful than the wind." This is probably the first written evidence of the Gulf Stream and Ponce de Leon is considered its discoverer.

It was not until six years later that one Anton de Alaminos set sail for Spain from Vera Cruz, Mexico following the Florida coastline northward before turning eastward to Europe. This same Anton de Alaminos was the chief pilot aboard Ponce de Leon's ship on his earlier trip and had also sailed with Columbus on his last voyage. Some historians credit Alaminos with the discovery of the Gulf Stream, since he was the first to take advantage of it.

The use of the Gulf Stream resulted in many treasure-laden ships traveling northward along the Keys, many of which wrecked upon its reefs. The indigenous Indians were the first to take advantage of these unfortunate shipwrecks. Soon an industry followed known as "wrecking," or salvaging goods from wrecked ships. The Bahamians perfected the wrecking industry. When Florida became a U.S. territory, Key West and Indian Key became the Keys' primary headquarters for this industry. A captain Ben Baker, known as "King of the Wreckers," settled on Key Largo in 1866 and grew pineapples between shipwrecks.

Years followed Ponce de Leon's discovery and not much was written about this ocean river. Perhaps they were keeping it as secret as possible. Charts in the 1800s labeled the general area as the 'Gulf of Florida', 'Straits of Florida' and 'Canal de Bahama.' You can find a 1842 Sidney Morris and Samuel Breese map using the label Gulf Stream. (See the maps page or [click here](#) then "Back.") Alexander Dallas Bache of the U.S. Coast Survey began detailed observations of the phenomenon in 1845. Matthew Maury in 1855 wrote, "There is a river in the ocean. In the severest droughts it never fails, and in the mightiest floods it never overflows. Its banks and its bottoms are of cold water, while its currents are warm. The Gulf of Mexico is its fountain and its mouth is in the Arctic Seas. It is the Gulf Stream. There is in the world no other such majestic flow of waters. Its current is more rapid than the Mississippi or the Amazon."

The Gulf Stream generally flows northward between the Keys and Cuba up the northeast coast toward Cape Hatteras and then turns eastward across the north Atlantic. The temperature

of the stream differs from its surrounding water. In fact, the temperature at the surface may be around 80 degrees while 400 fathoms down it may be 45 degrees.

The stream remains relatively narrow here in the Florida Straits since the Keys makes a physical retaining wall or boundary on the western side, but the eastern boundary does meander considerable - nothing like it does when it flows further northward. The eastern channel wall is primarily formed by the colder deep waters as the continental shelf falls away. These are much the same as the boundaries of the atmospheric 'jet stream,' cooler therefore denser air molecules on each side. In the case of the Gulf Stream which is much warmer water it is channeled and deflected by the dense Atlantic upwelling of cold water, as well as changes in salinity, etc. Wind has almost no effect on its width.

Years before the above quotations, Benjamin Franklin while in England in 1769 was told of complaints that westward mail from Europe to America took weeks longer than the east-bound ships from America. Franklin was the U.S. Deputy Postmaster General, so he was interested in the alleged complaint. A Nantucket whaler by the name of Timothy Folger said that the English ships had to buck the Gulf Stream.

There are early maps, really charts, depicting the Gulf Stream, but Benjamin Franklin and Timothy Folger printed the first map of the Gulf Stream in 1769-1770. Copies remained lost for nearly 200 years until found in France. One clue is that it shows Florida as East and West Florida, something that the British did in 1773.

Franklin, being the scientist that he was, took water temperature measurements on three more North Atlantic crossings, and scientifically recorded the readings. From his readings, he could determine whether a vessel was in or out of the stream, and even approximately how close or distant a ship was from America. Franklin postulated that, "This Stream is probably generated by the accumulation of water on the eastern coast of America between the tropics, by the trade winds that constantly blow there . . ." He also recorded that the western bank of the stream is significantly cooler (shallower water) than the eastern bank. He reasoned that the velocity of the stream gradually slowed as it flowed north, but could maintain its relative warmth to the colder North Atlantic.

In typical Franklin style, his observations were quite extensive and resulted in a relatively accurate engraved chart accompanied with scientific observations of the stream. He published a chart in 1770 to assist the mail ships in avoiding it on their westward journeys. Franklin is generally given credit for correctly explaining the stream's cause.

Franklin even suggested the name "Gulf Stream," even though it is a huge, circular motion in the Atlantic Ocean and has little to do with the Gulf of Mexico. Later, corrections to Franklin's postulates were made for ocean bottom changes, declinations of the moon and surface wind effects. Most agree, though, when all the temporary changes are accounted for, the Gulf Stream is accurately predictable and over a great period of time is immutable.

Today, northbound ships choose the maximum velocity stream current while southbound ships hug the outer edges to conserve fuel. One problem is that the stream does not have definitive banks and meanders back and forth as well as in width as it proceeds north. The maximum current off the coast of Florida ranges from two to four knots, although speeds of eight knots have been reported. Its width varies, but generally is 40 to 50 miles in width. Its volume through the Florida Straits is about 30 million cubic meters per second - that is a lot of sea water! For a comparison, the combined volume of all the rivers that empty the Atlantic is about 0.6 million cubic meters per second.

The Gulf Stream was probably the vehicle that carried the strange woods and fruits found on the shores of Europe long before Columbus sailed.

Lesson Two

THE VICTOR SHIPWRECK

Grade 4

Objectives

- 1) Students will be able to interpret life abroad the *Victor* by artifacts recovered
- 2) Students will be able to recall the history of the *Victor* shipwreck
- 3) Students will be able to write a descriptive account of an event

Essential question

Why was the *Victor* shipwreck important to those who lived on shore?

MATERIAL NEEDED

- Excerpt from *Pioneer Life in Southeast Florida*
- Excerpt from *Thirty Florida Shipwrecks*
- Images of *Victor* artifacts from *Tequesta*
- Paper & Pencil

INTRODUCTION

On October 20, 1872, the S.S. *Victor* while enroute from New York to New Orleans, broke her shaft near the Jupiter, Florida lighthouse. It filled with water and quickly sank without the loss of life. The crew and much of its cargo made its way to shore where the inhabitants and staff of the Jupiter Lighthouse recorded and participated in the recovery of the wreckage.

PROCEDURE

- Have students take a moment and read through the excerpt from *Pioneer Life in Southeast Florida* and *Thirty Florida Shipwrecks*
- Students should list out items that came ashore from the *Victor*. From this information have students interpret in writing what kind of cargo the *Victor* was bringing to New Orleans.
- Ask the students to recall an exciting event in their life. Much of this story is understood because Charlie Pierce wrote a journal entry. Using a paper and pencil they will write down a descriptive account like Charlie Pierce did.

STUDENT QUESTIONS

- 1) What was the responsibility of Pierce, Armour and Carlin?
- 2) Why were the Pierce and Armour Families afraid of the canoe coming on the Loxahatchee River?
- 3) Why were the Seminoles interested in the shipwreck?
- 4) What caused the *Victor* to shipwreck?

ASSESSMENT

- Collect the journal entries for student portfolios

- Additional assessments can include additional research of the historical persons (the Pierce, Armour and Carlin Families) and create a family tree.

LESSON EXTENSION

- Using the information from *Pioneer Life in Southeast Florida* divide the class into 2 groups. Have each group create jobs (news caster, news writers, film directors etc.), write up a news report about the *Victor* shipwreck, and have each group film/act it out.

ADDITIONAL RESOURCES

- http://digitalcollections.fiu.edu/tequesta/files/1963/63_1_02.pdf
- <http://www.wrecksite.eu/wreck.aspx?137647>
- <http://www.ftlmc.org/assets/Newsletters/10.13%20newsletter.pdf>
- <http://www.theadventuresofcharliepierce.com>

Excerpt from *Pioneer Life in South East Florida*

Father's work at the lighthouse was not hard, but particular and exacting in every detail. An hour before sundown the keeper and his two assistants would go up in the tower, taking with them enough lard oil to last the big lamp throughout the night. Each evening the outside of the lantern and the glass prisms of the great lens were cleaned with Spanish white and spirits of wine and carefully wiped and polished. Then the clock mechanism that turned the lens was wound, started, and timed to a second so that the slash, carried by fixed lights, would be in the exact time allotted to the Jupiter Lighthouse. This work was usually finished some fifteen or twenty minutes before sundown, the time for lighting the big lamp, and while waiting for darkness, the men would go out onto the balcony for a breath of fresh air and to view the scenery spread out before them for many miles in all direction.

One afternoon, as the men were making ready to go up in the tower for their evening's routine, I asked if I might go also; I wanted to see what the inside of a lighthouse looked like. As usual, after the word was finished inside, all hands went out on the balcony to wait for sundown. Gazing around in wonder at the panorama spread out in all directions, I saw far to the south something white and glimmering through the green of trees on the distant horizon. Captain Armour told me that it was the northern end of Lake Worth, a large lake, some twenty-two miles long and in some places more than a mile wide. He added that no one lived there now, though a German named Lang and his wife had lived there for some time during the Civil War.

We had been living at the lighthouse about a month by the first week of October 1872. There had not been an opportunity to renew our stock of clothing, so sadly depleted by the fire, except by donation from the people at the lighthouse. Mother, when talking about the condition of our wardrobe, said she wished some ship would throw overboard a few cases of dry goods when passing Jupiter.

That night the wind blew a stiff breeze from the east, and white combing breakers rolled in onto the beach three or four deep. It was father's watch first in the tower; at midnight, he would call Carlin to take his place until sunrise. It was Captain Armour's all night in. The following night Armour would stand first watch and Carlin would have his all-night in.

About eleven o'clock father came down and told Captain Armour that there was a steamer in the breakers near the inlet. Armour, knowing father was new to the country, thought he was mistaken and answered that since the inspector was due about this time it was probably his boat.

Father went back on watch, but he soon returned with the news that it was not the inspector's boat but a large steamship in distress. He said the ship was broadside on the beach and that he could see the seas breaking over her. On hearing this, Armour jumped out of bed to see for himself.

One look was enough to convince him that it was a large steamship in the breakers, just a little south of the inlet. The heavy seas were coming in from the northeast, and the ship, although pounding on the bottom, was slowly working to the southward. As it was now twelve o'clock and time to change watch they called Carlin, and providing themselves with a lighted lantern and an axe, they hoisted sail on the captain's dinghy and started for the inlet.

When the sun rose, Carlin came down from the light, ate a hurried breakfast, and then left for the inlet, leaving no one at the lighthouse but the three women and the children. At

about nine o'clock I was running around the porch when I glanced towards the point where Lake Worth Creek comes into the Loxahatchee and saw a long dark canoe come out from behind the point and head toward the lighthouse dock. As I stared at it, another came into sight, and another, until there were seven canoes loaded with people and coming straight for the lighthouse landing.

As I ran back to where the women were sitting, I cried, "Mama, mama!" There's a lot of boat full of people coming from up the river." The women jumped up and ran around to the front porch. After one look Mrs. Armour exclaimed, "Oh goodness, they are Indians! Oh, I wish the men were here."

As if in answer to the wish, we now saw sail going up on Carlin's boat, the *Sea Gull*, down at the inlet. The *Sea Gull* had the wind and tide in her favor, while the Indians had both against them and were moving slowly under paddles. Soon it became apparent to the frightened women and children standing in a huddle on the porch that the *Sea Gull* would reach the landing before the Indians, and she did round up to the dock a little in advance of the leading canoe.

It was not until then that we noticed the passengers of the *Sea Gull*. In addition to the men from the lighthouse, there was another man, two women, and a small girl. Mrs. Libby, her seven-year-old daughter, and the young man, a Jewish merchant of New Orleans, were passengers from the ship; the other young woman was the ship's stewardess. The captain and crew remained on the beach near the wreck where they prepared to stand by until picked up by some passing steamer.

The wrecked steamer's name was the *Victor*, one of the Mallory Line from New York, bound for New Orleans. When the ship was off Jupiter the night before, she had broken her shaft, and the propeller had fallen back against the rudder, jamming it. The hole made by the broken shaft was so large that water rushing through in a torrent threatened to sink the ship. Thirty-two new blankets were stuffed into this hole and leak was temporarily stopped, but then the officers of the ship became afraid the blankets would not hold the water in check for any length of time, and so they slipped her cable and the steamer drifted on shore.

The captain was afraid that his old ship would not hold together in the pounding sea, and was anxious to get al on shore before she broke up. When daybreak came, the men from the lighthouse saw that the crew of the ship was trying to float a line to shore. The captain was afraid to trust any of his crew to the oars of the lifeboats, but wanted a cable so that they might pull themselves to land. Those on shore found a large timber and sank one end deep in the sand. To this post they could fasten the cable from the ship.

Meantime the men on the ship tied a small line to a lifebuoy and were trying to float it to shore. There was a strong current that carried their float to the south but not to the beach. For nearly two hours their attempts resulted in failure. At last a big comber caught the float as it landed in the water and carried it well inshore; another big sea following carried it close to the beach, and the men from the lighthouse waded in up to their armpits and got hold of it. The three men hauled the heavy cable to the post and made it fast, and then the small boats from the steamer were pulled to land.

When the shipwrecked people walked up to the house from the dock, they were closely followed by the whole crowd of Indians; each Indian appeared to have his entire family with him, for about half were squaws and there were many piccaninnies, as the Seminoles call their children. They never used the word papoose, and it is very doubtful if they knew what it meant.

The Indians remained for about an hour, but then all of a sudden, they started for their canoes, the squaws and piccaninnies trailing along behind. They went up Lake Worth Creek for a short distance and made camp, prepared to stay until there was nothing more to be picked from wreck.

The third night after the steamer went on the beach the wind commenced to blow hard from the east and a big sea was soon rolling in onshore. The next day, as the tide started in, the old ship commenced to break up. The lighthouse men went down to the beach right after breakfast, as they knew the steamer would not last long in that sea, and they wished to be on hand when the wreckage started coming onshore.

Father returned at half past eleven, but Captain Armour and Carlin remained, busy picking up the goods that came piling in on the beach. While father was at dinner, I went to look down the river to see if there was anything to report. The tide was coming in on a full flood and the water was full of wreckage of all kinds that had washed in through the inlet. On the east side of the dock a dry goods box and a big Saratoga trunk had grounded, and barrels and boxes of every description were floating by me. I flew back to the house and between gasps told father what I had seen. Forgetting his hunger, he jumped up from the table and ran to the landing. Seeing that the box and trunk were not likely to float away, he turned his attention to the things going upriver on the top of the tide.

He pushed out in Captain Armour's little catboat, *Kate*, after some of the stuff that was floating toward the Indian camp. At the moment of pushing away from the dock an immense box came floating past. He got a line fastened to it and hauled it onshore. This carton, when opened later, was found to contain fifty men's suits.

After landing the big box he saw two Indians trying to get a large container into their canoe. He sculled up alongside and told them it belonged to him; they gave it up without protest or hesitation as there were too many other things floating in the river to waste any time disputing the ownership of any one particular box. In telling of the incident later, father said he knew as soon as he came new that it was a sewing machine and that the Indians would not know what to do with it if he let them keep it. As he had suspected, it was a Wheeler and Wilson machine and mother used it for many years.

The large box and trunk that landed close to the dock were hauled up on shore and opened. The box contained bolts of bleached and unbleached muslin of fine quality, a lot of very colorful ribbons with broad horizontal stripes, and two large books. The trunk was full of very cheap valises made of some kind of patent leather.

When the Indians arrived at Jupiter they were dressed in regular Seminole style with fancy colored shirts that reached to their knees. Some of them also wore brown tanned buckskin leggings and large turbans made from red and black checked shawls that they folded and wound around their heads to form a flat top and bottom. Within a week or so after the breaking up of the *Victor* they came to the lighthouse decked out in white shirts and vests. As the white man's shirt was not nearly as long as the regular Indian shirt their new dress left quite a length of bare leg showing.

The squaws never changed their native style of long skirt reaching to the ground and a narrow cape around shoulders and arms, topped by a heavy load of beads around the neck. Their hair was banged over the forehead and the balance coiled in a high knot on the crown of the head.

Several hundred bottles of extract of perfumes were brought to the lighthouse and divided between the three families, also ten one-hundred-pound kegs of the best creamery butter. One Keg was opened and kept on the back porch for the use of all the cooks in the three families. The butter was covered with a strong brine and kept perfectly good to the last bit. The other nine kegs were buried beneath a large bay tree and kept sweet until used up more than a year later.

Lesson Three

STAR OF LIMA

Grade 4

Objectives:

- 1) Students will be able to discuss the history of the *Star of Lima* coins.
- 2) Students will be able to generally describe and identify *Star of Lima* coinage.
- 3) Students will be able to describe what caused the *Star of Lima* coins to be found in Florida.

Essential Question:

How did *Star of Lima* coins make their way to Florida?

INTRODUCTION

The Star of Lima is a reference to rare coins minted in Lima, Peru with a star on each design. Due to a shortage of coinage in Lima, the mint was re-opened without the permission of King Phillippe IV and the *Star of Lima* coins were produced. Upon learning that these coins were being made, King Phillippe IV ordered the mint to be closed and all coins it made returned to Spain. Delegates of King Phillippe IV rounded up most of the *Star of Lima* coins and sent them to Spain in 1659 aboard the San Miguel de Archangel, but she never reached Spain with her cargo.

MATERIAL NEEDED

- Image of Star of Lima Coins to identify
- History of *Star of Lima* and Spain's Currency
- US Currency (pennies, dimes, nickels and quarters)
- Interpretation of coin symbols
- Colored pencils/Crayons/ Art supplies(paper)

PROCEDURE

- Review the background history of the Star of Lima coins and the history of Spain's Currency
- Using the interpretation of coin symbol handout review the different series of *Star of Lima* coins and compare with US currency
- Create your own coins using art supplies available. Use symbols for values and create a chart/graph to annotate the meanings of symbols

STUDENT QUESTIONS

- 1) Why did the people of Lima re-open the mint?
- 2) Who had the authority to have the mint re-opened?
- 3) Why did King Phillippe IV request the coins to be returned to Spain?
- 4) What is a symbol? What makes a symbol have meaning?
- 5) What is a Real and Escudo? What are their values in today's currency?
- 6) What is an Assayer? How is this helpful for identification?
- 7) Why are *Star of Lima* coins valuable today?

ASSESSMENT

After reviewing images of *Star of Lima* coins, have students compare US currency coins with the images of *Star of Lima* coins. Have students create a chart with their own identification markers for coins, creating value (example: \$1 coins etc.) symbols and annotating these values on their chart. Have students make multiple of the same coins and compare their coins with one another. Incorporate adding, subtracting, multiplication and division with the created currency (example: if four quarters equal one dollar, how many quarters will equal seven dollars?).

Add invented coins and chart to portfolio.

LESSON EXTENSION

- Using the additional resources provided, have students research the *San Miguel de Archangel* and answer the essential question.
- Using the information for the History of Spain's Currency create a timeline of the changes that occurred.
- Plan a visit to the Richard and Pat Johnson Palm Beach County History Museum to learn more about the San Miguel Shipwreck and other shipwrecks in Palm Beach County.

ADDITIONAL RESOURCES

- <http://sanmiguelarchangel.blogspot.com>
- http://articles.sun-sentinel.com/1991-11-17/features/9102170164_1_cannon-silver-coins-civil-war
- <https://history.knoji.com/shipwrecks-and-treasure-the-san-miguel-de-arcangel/>
- <http://explorersvacationclub.com/wreck-history.html>
- <http://www.ameliaresearch.com/gallery/PROJECTS/Jupiter/archangel.htm>

History of Spain's Currency (Excerpt from don Quijote)

Spain's currency history prior to the euro consisted of the Spanish *Real*, the Spanish *Escudo*, and the Spanish *Peseta*. Most of the changes in Spanish money occurred due to conceptual shifts, when certain denominations of an old Spanish currency began to be mentioned with words that would later be used to describe what would eventually become the new currency in Spain.

The Spanish *real*, meaning Royal, was the Spanish currency for several centuries from the mid-14th century until 1864, when the *escudo* replaced the *real* in the Spanish economy. The *real* was introduced by King Pedro I of Castile as a standardized coin with a value of 3 *maravedies* (Iberian gold and silver coins). Eight *reales* was equivalent to one silver peso, or Spanish dollar, which would be introduced as Spanish money the same year. The Spanish dollar was used in American and Asia and Spanish coinage became popular during this period in international trade and commerce.

The Spanish *escudo* referred to two different types of Spanish currency denominations: silver and gold. The first Spanish *escudo* was a gold coin and was introduced in 1566 which continued to be issued until 1833. The Silver *escudo* was used from 1864-1869 until it was replaced by the new Spanish currency called the *peseta*. Each *escudo* represented a certain value of *reales*, the previous currency of Spain.

Before the euro became the main currency of Spain, the money in Spain was called *pesetas*. *Pesetas* were in use from 1869 until the implementation of the euro in 2002. The word *peseta* comes from the word *peceta*, a diminutive of the Catalan word *peça*, meaning "a small piece." By the 15th century the word referred to a silver coin and by the Middle Ages the word was used to describe the value of two *reales* (previous Spanish currency). In an effort to unite the currency in Spain, a decree was issued in October of 1868 when Spain joined the Latin Monetary Union that established the *peseta* as the national Spanish currency with the intention of strengthening the economy, business and promoting a stable financial system.

Appendix

Spanish Colonial Coinage

A detailed summary to help you identify coins.



One of the most fascinating areas of world coin collecting is that of *Spanish colonials*. These coins circulated freely during the colonial period of the New World, both North America and South America. You can find essentially the same coins minted in the Spanish colonies of Bolivia, Chile, Columbia, Guatemala, Mexico, and Peru, from the early 1600s to the early 1800s. They circulated as far north as Canada and as far east as Florida.

These coins look alike, with subtle differences in mint marks and other small details, so it takes detailed knowledge to tell them apart. This page discusses some these details and gives approximate values. But, this is only a web page. Coin catalogs and reference books have much more detail. For instance, Spanish colonies in Dominican Republic, Venezuela, Nicaragua, and the Philippines produced small amounts of coinage, but they are not included here. There are also pre-1600 coins and small denominations not addressed. You can learn from this summary, but it is just a starting point.

It is important to know the kings of Spain during this period, as their names and portraits appear on many coins.

- Philip III, 1598-1621
- **Philip IV, 1621-1665**
- Charles II, 1665-1700
- Philip V, 1700-1746
- Luis I, 1724
- Fernando VI, 1746-1759
- Carlos III, 1759-1788
- Carlos IV, 1788-1808
- Jose Napoleon, 1808-1813
- Ferdinand VII, 1808-1833

Methods of manufacture - There are two major types of Spanish colonials, and several sub-types. At the highest level there are *cob* coins and there are *milled* coins. Both come in gold and silver.

Cob

Milled

Silver



Gold



The rich deposits of precious metal in the New World were too much for Spanish royalty to resist. They were therefore exploited and carried back to Spain. To hasten this process, bars of silver and gold were hacked into chunks of proper weight and struck with heavy hammers between crude, hard-metal dies. The strike imparted a Spanish pattern, or part of a Spanish pattern, into the coin. The Spanish word *cabo* (English *cob*) refers to the end of the bar. The size, shape and impression of these cobs was highly irregular. However, they were of proper weight, and that is what mattered to Spanish officials. If a cob was overweight, the minter simply clipped a piece off.

Eventually the crude manufacture of cob coins was replaced by more modern minting technology. Milled coins were made by rolling the silver and gold into sheets of uniform thickness and punching out coin blanks, or *planchets*, for striking in large screw presses. The presses did a much better job than the hammers used to produce cobs.



Denominations - There are two major denominations of Spanish colonials: *reales* for silver coins and *escudos* for gold coins. The denominations have associated numeric values, e.g., one-quarter, one-half, 1, 2, 4, and 8. You can often tell the denomination by 'R' and 'S' marking for reales and escudos. For example, R = 1/2 real, 1R = 1 real, 2R = 2 reales, 2S = 2 escudos, and 8S = 8 escudos. There are 16 reales in one escudo. Perhaps you have heard American folk tales with mysterious references to *gold doubloons* and *pieces of eight*. The escudos are the doubloons, and the reales are the pieces. In fact, the US monetary system has roots in Spanish reales, with 8 reales equivalent to one dollar, 4 reales to 50 cents, 2 reales 25 cents (two bits), one real 10 cents, and half real 5 cents. The graphic figure shows some typical denominational markings. A stand-alone number, 1, 2, 4, or 8, with or without an R or S, indicates denomination. Of course the size and weight of the coin indicates denomination as well. Generally, 8 reales contain about 0.8 troy ounces of silver and 8 escudos contain about 0.8 troy ounces of gold.

Mint Marks - Mint marks are important because they indicate the country of origin. The table below summarizes a few of the major mint marks for New World Spanish colonials. Spain herself is not included.

Country	Mint Mark	City
Bolivia		Potosi
Chile		Santiago
Colombia	NR	Bogota
Colombia	NR	Bogota
Colombia	P	Popayan
Colombia	PN	Popayan
Guatemala	NG	Nueva Guatemala
Guatemala	G	Guatemala City
Mexico		Mexico City
Peru	CUZ	Cuzco
Peru		Cuzco
Peru	IME	Lima
Peru	LM	Lima



Assayer Initials - In addition to mint marks, the collector should discern *assayer initials*. Assayers were people at the mints whose job it was to ensure proper weight and purity of the precious metal in the coin. Usually their initials appear as two or more letters prominently displayed on the coin, but sometimes a single letter appears. See the graphic

Summary - To completely identify a Spanish colonial coin, you need:

- The date, either explicitly on the coin or by Spanish ruler
- The method of manufacture, cob or milled
- The numeric denomination, e.g., 1 real, 2 escudos, 8 reales
- The country of origin, as coded by the mint mark
- The assayer initials



Silver with king's bust - Milled coins with a King's likeness are generally newer than other types, spanning from Carol III to Ferdinand VII (1759 to 1833).



Crowned arms between pillars - This pattern is always paired with silver busts. The example in the picture is a 4 reales (4R) from Chile (Santiago mint) with assayer initials F and J. These are sometimes called *pillar dollars*, but there are other Spanish colonials with pillars, so the name is misleading. The coat of arms with lions and castles is a classic symbol of Spain.



Gold with king's bust - Bust gold coins date as far back as Philip V and span through Ferdinand VII (1700 to 1833).



Gold flared arms with Order chain - This is the most recent reverse for bust gold Spanish colonials, starting around 1770. The coat of arms is flared at the top and encircled by a chain. The chain, with a sheepskin at the bottom, is from the *Order of the Golden Fleece*, an order of chivalry founded in 1430. The example in the picture is an 8 escudos (8S) from Bolivia (Potosi mint) with assayer initials P and J.



Gold tall arms with Order chain - The coat of arms on earlier (c. 1760 to 1770) bust escudos is slightly taller, slimmer, and less flared than the later design. The coin in the picture is from Colombia (with the NR mint mark) but the denomination is not shown explicitly. It must be determined from the size and weight of the coin.



Gold royal arms with Order chain - The earliest bust milled gold coins had a royal Spanish arms on the reverse, starting in 1732 and continuing through about 1760. The same royal arms appears on silver coins. The gold coin in the picture is from Mexico (with the oM mint mark) but the denomination is not shown explicitly. It must be determined from the size and weight of the coin.



Gold royal arms no chain - Some of the smaller demonination gold bust coins omit the chain around the royal arms. There is also a silver version of this no-chain pattern.



Hemisheres between pillars - These are the *pillar dollars* most often referred to. The VTRAQUE VNUM (both are one) inscription appears over a Spanish crown that links Old and New Worlds together. The pillars bear a PLUS ULTRA (more beyond) inscription and are usually called the *pillars of Hercules* because they form a portal to both worlds, approached through the wavy sea beneath. The sample in the picture comes from Peru (Lima mint mark). Dates span from the 1730s to the 1770s.



Silver royal arms - This pattern is paired with the Hemisphere between pillars pattern, and approximate values are explained there. These are almost always milled coins, but Guatemala used this pattern on a few cobs between 1733 and 1753. The coin in the picture is an 8 reales of Fernando VI with assayer initials MF. The other side has the mint mark (Mexico City).



Silver Jerusalem cross - Silver cobs from Mexico City have a Jerusalem cross on one side. The cross can be plain or with *foils* around it. Castles and lions appear in the angles of the cross. Cobs like this date back before 1600 to the early 1700s. Silver cobs were produced in Bolivia, Colombia, Mexico, and Peru.



Gold Jerusalem cross - Almost all gold cobs have a Jerusalem cross on one side. The cross has prominent *foils* around it or a circle of dots. Sometimes castles and lions appear in the angles of the cross, but not always. The pictured coin has a *quatrefoil* and *flurs de lis* in the angles. These are very valuable coins. Gold cobs were produced in Colombia, Mexico, and Peru.



Silver crowned shield - A crowned shield with the Spanish coat of arms is often paired with the Jerusalem cross on silver cobs. Most of the time, only part of the design is actually visible. In the example here, the crown, which sits on top of the shield, is not at all present. But the oM (Mexico City) mint mark is plainly visible, the assayer initial P is visible, and a hint at the date (perhaps 1654) also appears.



Gold crowned shield - A crowned shield with the Spanish coat of arms is often paired with the Jerusalem cross on gold cobs. Most of the time, only part of the design is actually visible. The example pictured is extraordinary. You can plainly see the crown, the oM (Mexico City) mint mark, the assayer initial I or J, and a clear date of 1714. The denomination does not show on the coin, but from its size and weight it is easily identified as an 8 escudos. Further, turning to the coin catalogs which list all assayers, we know the initial is J, Jose E deLeon, who served as assayer between 1708 and 1723. This is a very valuable coin. Escudos with shields were produced only in Colombia and Mexico.



Silver pillars and waves - Instead of a crowned shield, some silver cobs use this pillars and waves design. Most of the time, only part of the design is actually visible. In the example here, the 8 at top center means 8 reales, and the 704 just above the waves is the date (1704). Silver reales with pillars and waves were produced only in Bolivia and Peru.



Gold pillars and waves - Instead of a crowned shield, some gold cobs use this pillars and waves design. Most of the time, only part of the design is actually visible. The example pictured is extraordinary. The L - 8 - M on the top row gives the mint mark (Lima), the denomination (8 escudos), and the assayer initial. The middle row, P - V - A, is an abbreviation for PLUS ULTRA or *more beyond*. The bottom row, just above the waves, gives the date as 1718. This is a very valuable coin. Escudos with pillars and waves were produced only in Peru.

Star of Lima Coins



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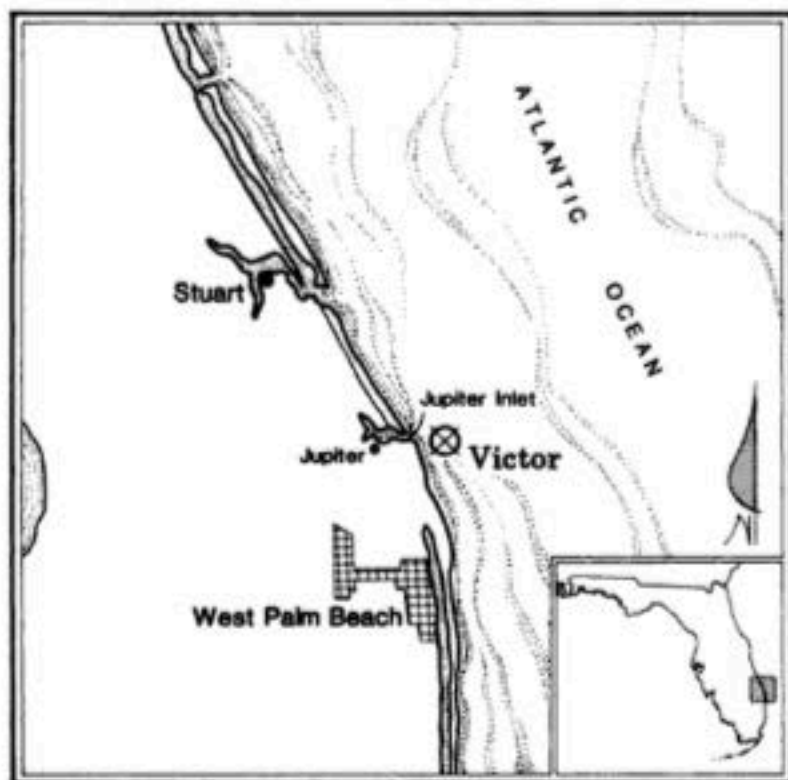






CHAPTER 17

VICTOR, 1872



Location: The remains of the shipwreck lie in 20 feet of water about 300 yards off the Jupiter Civic Center.

Jupiter Inlet, which offers a break in the long Florida coastline, has had an erratic geologic history. Drifting sands have sometimes closed the inlet until fall floods or human exertion opened it again. Fish from the Gulf Stream have found themselves up the Loxahatchee River to the delight and surprise of local fishermen, and the outgoing tides have cleansed the river of any debris it had collected.

Among the shipwrecks that might have occurred near Jupiter Inlet was that of the son of Pedro Menéndez de Avilés, the great Spanish explorer who founded St. Augustine. One of the reasons Pedro Menéndez sailed to Florida in the 16th century was to look for his shipwrecked son — but in vain. The father may have stopped at Jupiter Inlet to look for the boy and seen the gold ornaments the Indians had taken from shipwrecks along the coast there. He may have wondered if any of the gold was from his son's expedition.

Many vessels continued to wreck along Jupiter Inlet in subsequent centuries. One particularly bad day for such ships was October 20, 1870. On that day, the steamer *Varuna*, on her way from New York to Galveston, Texas, sank about 35 miles off the coast from Jupiter. Fifty-two persons lost their lives in that accident, including all the passengers and most of the crew. Although only one year old and supplied with excellent engines and boiler, the steamer could not withstand the force of a severe hurricane and a sudden change of wind direction, which caused the ship

to swamp and sink.

Exactly two years later the steamer SS *Victor* was heading from New York to New Orleans when she broke her shaft near Jupiter Inlet during a northeaster. The captain at first ordered the crew to anchor the vessel, but, as the ship began filling with water and threatened to sink, they slipped the cable and allowed the ship to drift toward shore. The \$150,000 cargo was a complete loss, but everyone on board survived. The only passengers were the wife of a ship captain in New Orleans (Mrs. Libby), her seven-year-old daughter, and a New York merchant. The three-decked, round-sterned steamer, which had been built in 1863 in Mystic, Connecticut, was 205 feet long, 36 feet wide, 19 feet deep, and weighed 1,326 gross tons. The steamer had two masts, brig-rigged, and was commanded by Captain Gurdon Gates when she wrecked.

The keeper on duty that night in Jupiter Lighthouse, H. D. Pierce, noticed the glow of a ship's lights south of the inlet during the storm and woke the other two keepers, Captain Armour and Charles Carlin. The three men loaded the *Almeida*, Captain Armour's sailboat, with ropes and other rescue equipment and sailed down before daybreak to the south side of the inlet.

At daybreak they saw the steamer lying broadside with the ocean breaking over her and the people huddling in the middle of the vessel. The site of the shipwreck was fortunate since no other white settlers who could come to the passengers' rescue lived within a hundred miles of the site. The ship's crew lowered a large buoy from the stern and watched while it slowly made its way to shore. The three lighthouse keepers on the beach buried a large timber in the sand, retrieved the ship's buoy from the surf, and hauled the heavy cable attached to the buoy up to the buried timber, to which they attached the cable. The steamer's crew then took up the cable's slack and launched three boats, pulling them to land by the cable. The third boat was swamped by a large wave, but the lighthouse keepers on shore succeeded in pulling the capsized crew to safety.

The pigs and sheep on board the steamer all drowned, but three dogs managed to swim to shore. The lighthouse families adopted the collies and named them "Vic," "Surf," and "Wreck." From then on the dog named Wreck hated storms so much that

he would hide under the nearest bed during gales and hurricanes. The keepers took Mrs. Libby, her daughter, and the ship's stewardess back to the lighthouse for food and shelter, while the captain and crew pitched tents made out of the ship's sails and camped on the beach. The passengers told their rescuers how relieved they were when they saw the gleaming light from the lighthouse or the lantern as the lighthouse keepers walked along the beach to the wreck. With the wind roaring, the sea crashing onto unseen rocks, the rain drenching everything, and panicky passengers screaming for help, the sight of a steady light on shore usually indicates that the ship's passengers can be saved if they just make it to shore.

Meanwhile seven canoes full of Seminoles appeared on the scene, ready to claim their share of the beach-strewn cargo washing ashore from the wreck. Before the Indians could seize a sewing machine, keeper Pierce quickly claimed it, something that his wife used for years afterwards. The salvage claimed by the Pierces replaced much of what they had lost in a fire just before they had come to Jupiter. A case of 50 men's suits washed up along with bolts of muslin and a case of Plantation Bitters; the Indians retrieved the latter and much of the foodstuffs and proceeded to have a noisy party. The Indians eventually salvaged what they could from what washed ashore and returned home with their booty. Such shipwrecks provided the Indians living along the coast with much-needed supplies.

Four days later the lighthouse keepers signaled the steamer *General Meade* to stop, and it took on the *Victor's* crew and passengers. The crew eventually returned to New York, and the passengers went on to New Orleans. The ship's two rusty boilers, which remained in place at the shipwreck site, were why local fishermen used the name "The Boilers" for the place. Grouper and snapper made their home in and around the wreck, and gradually people forgot the details of the *Victor's* demise.

In 1957, two young men flying along the coast near Jupiter Inlet in a small plane noticed that an ocean current had swept the sand from what appeared to be the remains of a shipwreck. After landing their plane, they made their way to the Inlet and obtained permission from a local dock owner to keep their barge and equipment at the dock while they attempted to salvage the metal from the steamer's engines. Over the

next few days they brought up silverware, china plates, a clock, and personal possessions, as well as the scrap metal that had corroded over the years. In time researchers discovered the story of the *Victor* and added another chapter to the history of the area.

Other episodes in the maritime history of Jupiter Inlet have included blockade runners and rum runners. During the Civil War southern sympathizers darkened the lighthouse there in order to allow blockade runners to sneak in and out of Indian River with provisions for the Confederacy. Local residents have occasionally found Civil War cannonballs, which suggests that federal patrol boats fired on the fleeing blockade runners.

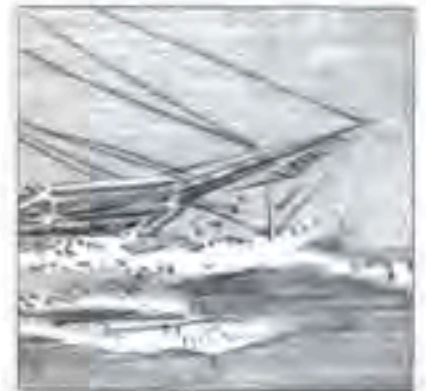
In the 1920s rum runners often made the short trip to West End in the Bahamas and returned with cases

of liquor to help satisfy the thirsts of Palm Beach socialites. Once inside Jupiter Inlet the boats could disappear up branches of the Loxahatchee, the Indian River, or the Inland Waterway. Whenever a rum-running boat would wreck at the inlet, the word would quickly spread and locals would descend on the site to scoop up the burlap sacks of liquor, called "hams" by the knowledgeable, and take them home. Different kinds of shipwrecks hold a different kind of "treasure" for different people.

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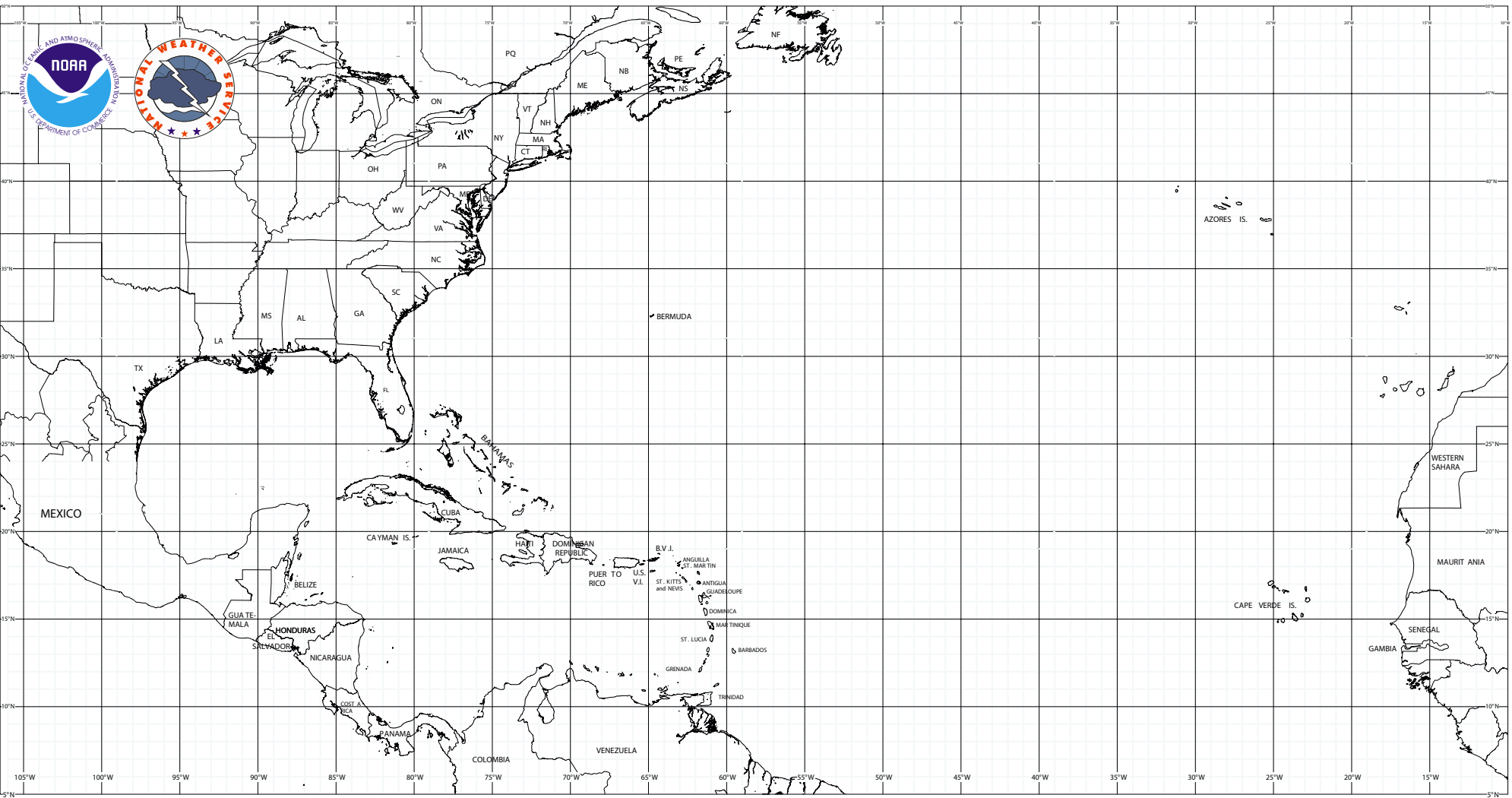
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Atlantic Basin Hurricane Tracking Chart

National Hurricane Center, Miami, Florida



This is a reduced version of the chart used to track hurricanes at the National Hurricane Center



