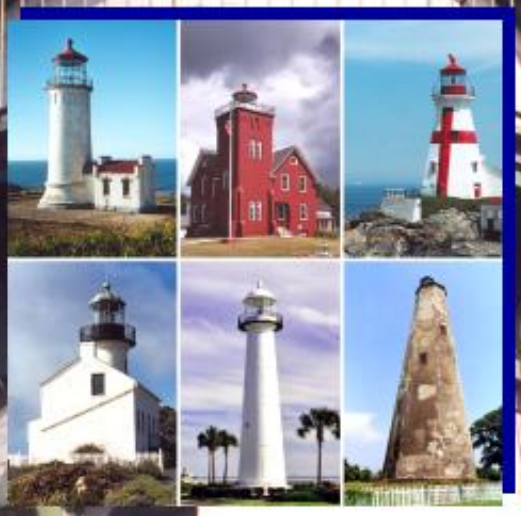
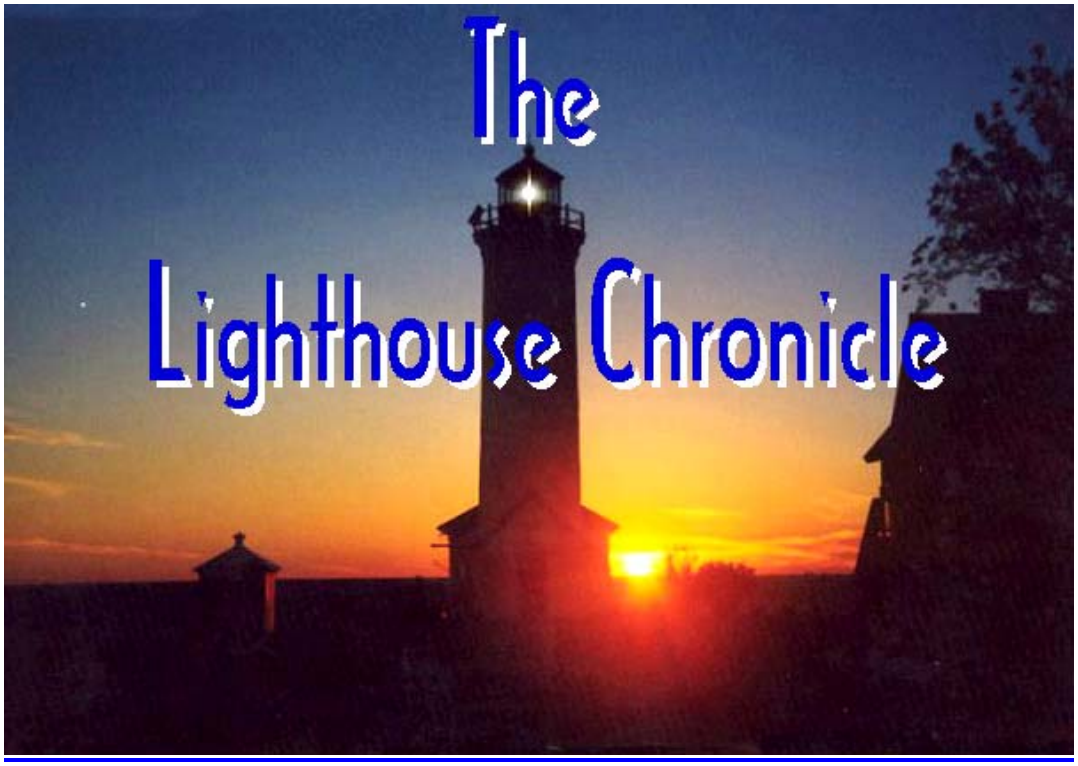
The Lighthouse Chronicle



Photographic Lighthouse History and Details

United States and Canada

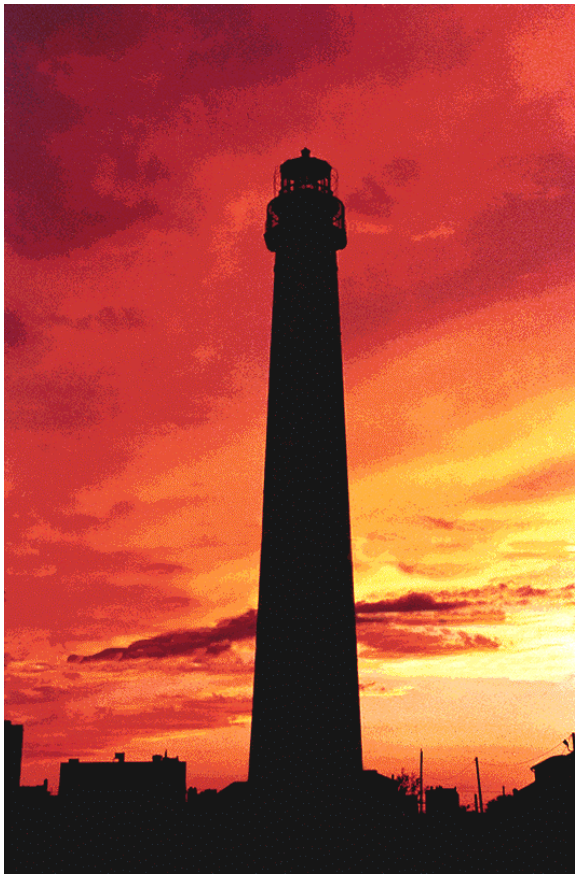
Rudell A. Bess



Tibbetts Point Light,
Cape Vincent, New York

The rocky ledge runs far into the sea,
and on its outer point, some miles away,
the lighthouse lifts its massive masonry.
A pillar of fire by night, of cloud by day.
From 'The Lighthouse' - a poem by
Henry Wadsworth Longfellow

by
Rudell A. Bess



The Abescon Light in Atlantic City, New Jersey stands tall like a majestic monument in the fiery evening sky along the Atlantic Coast as it has for the past 145 years. At a height of 171 feet, the light is one of the tallest in the United States only to be exceeded in height by Pensacola Light in Florida, Cape Charles Light in Virginia and Cape Hatteras Light in North Carolina. The light was first lit in 1857 and remained in service until it was deactivated by the Coast Guard in 1933. It was turned over to the city in 1948. Thanks to a citizens committee, the light was restored and still serves as one of the Atlantic Coast's bright and shinning beacons.

Unless otherwise indicated, all artwork and photographs are by Rudell A. Bess

Front Page Photographs: Background; New Presque Isle Light - Michigan. Inset, Clockwise from Upper Left; North Head Light – Washington, Two Harbors Light – Minnesota, East Quoddy Head Light – New Brunswick, Bald Head Island Light – North Carolina, Biloxi Light – Mississippi, Old Point Loma Light – California

Back Page Photograph: Split Rock Light – Minnesota

Acknowledgements

The Author would like to thank the many individuals across the continent that provided insight and historical material including those that staffed the lights and the museums, those that were members of lighthouse historical societies, and private property owners and members of the U.S. and Canadian Coast Guards that allowed us to access the lights and adjoining land. Particular thanks are due to the following photographers who provided permission to reproduce their photographs; Calvin Cooper III, Frank Dalton, Ronald Luczak, Gary Meissner, Joyce Noble and James O'Farrell. A special thanks goes to Ken Trethewey of the Lighthouse Society of Great Britain for his encouragement and counsel.

A special thanks also goes the National Park Service Maritime Heritage Program that works to advance awareness and understanding of the role of maritime affairs in the history of the United States. Through leadership, assistance, and expertise in maritime history, preservation, and archeology, they help to interpret and preserve our maritime heritage. For more information on the Program see http://www.cr.nps.gov/maritime/.

Hope Light Foundation

"Lighting the way"

This eBook CD is made possible thanks to the Hope Light Foundation. It represents over 12 years of photography and research by Rudell A. (Rudy) Bess and his wife Beverly who founded The Hope Light Project and The Hope Light Foundation. The Project is dedicated to 1) communicating cancer awareness information, cancer prevention, cancer victim survivorship and saving lives and 2) to promoting cancer education and research. The Hope Light Project provides for constructing Hope Lights with attached Cancer Information Centers along the Ohio River. The first Hope Light will be located in Metropolis, Illinois on the bank of the Ohio River at the entrance to the beautiful and peaceful Dorothy Miller Park.

For more information on the Project, how to fight cancer and how to donate to the Hope Light Foundation, see http://www.hopelightproject.com/.

Contents

Introduction

For more than 2000 years, lighthouses have been known for guiding ships into safe harbors, through channels, and around treacherous waters. These structures are respected as guiding lights in the darkness and sources of inspiration which somewhat attributes to their mystique attractiveness and romantic appeal. As a result, these sentinels have become symbols of positive direction in our lives and hope for a bright and peaceful future.

At no other time in history have lighthouses received so much exposure as they have in the past ten years. They are used as logos for churches, social service organizations, companies and company products. Lighthouses appear in many advertisements and movies as a backdrop and as a main focus. Calendars, CD's and posters are available with lighthouse pictures. Video's, DVD's and books containing details of lighthouse history and lore are available over the Internet and in libraries, bookstores and lighthouse and nautical specialty gift shops. Lighthouse enthusiasts and lighthouse societies have developed web sites containing lighthouse photographs and historical information. Lighthouse sculptures, paintings, table lamps and other items adorn the décor of many homes and offices. Television documentaries have been produced about lighthouses. Music and poems have been written with a lighthouse theme including; *The Lighthouse*, a Christian song with words and music by Ronnie Hinson and *The Lighthouse*, a poem by Henry Wadsworth Longfellow. Societies dedicated to the preservation of lighthouses and lightships also exist to include; American Lighthouse Foundation, The United States Lighthouse Society, The Lighthouse Preservation Society, Outer Banks Lighthouse Society, Great Lakes Lighthouse Keepers Association, and Nova Scotia Lighthouse Preservation Society. All these societies can be contacted through their respective web sites.

Over the years, many of these proud sentinels have withstood the test of time including effects of the environment, wars, neglect, and changes in navigational technology. Not until recently have there been so much attention to saving these lights and preserving our maritime heritage for future generations. Although navigation technology has turned to satellites and Global Positioning Systems, lighthouses are still the preferred navigational aid of many mariners. Regardless of whether the lights are active or inactive, they still stand as a reminder of our historic heritage.

Some of the reasons for the renewed interest in lighthouses, is their spectacular natural environment, their historic significance and their becoming extinct. The purpose of this book is to provide the reader with an understanding of the history of lighthouses, an explanation of the types of lights and their components, a pictorial glimpse of the lights, and a listing of the remaining United States lights and their construction dates. Hopefully, this information will be used to create an appreciation for these magnificent structures and an interest to seek further knowledge through additional reading, visiting and photographing the lights and contributing to the preservation of one the most important links to our maritime past.

When visiting lighthouses, please respect the hazards, property, natural beauty and nature preserves surrounding the lights, off-limits postings and owner privacy.

For more information on U.S. Coast Guard History to include lighthouses and lightships, go to http://www.uscg.mil/hq/g-cp/history/collect.html. For information on Canadian lighthouses, go to the Canadian Coast Guard web site at http://www.ccg-gcc.gc.ca/usque-ad-mare/chapter06-01_e.htm.

History of Lights

The First Lights

Lighthouses have been used for over 2500 years as navigational aids to guide mariners along coastal waters to identify current position, entrances into safe harbors and to provide warnings of navigational hazards. Lighthouses are known to exist along the coast of the Mediterranean Sea as early as the 7th century B.C. These ancient lights were basically high towers with a beacon of open fire at the top. In the absence of these primitive lighthouses, people would light fires on high cliffs and mountains along the coast to bring the ancient mariners safely home from the sea.

The Greco-Egyptian lighthouse, known as the Pharos of Alexandria, was built along the Nile River during the 2nd century B.C. This lighthouse was located on the Island of Pharos, just North of Alexandria and was believed to be about 140 meters or 460 feet in height that was then the tallest man-made structure on Earth. At night, the fires were lit atop the tower to guide the Greeks, Romans, Phoenicians, and other mariners into the port of Alexandria. A large mirror was positioned at the top of the tower to reflect sunlight during the day and fire at night. The lighthouse survived the invasion of the Arabs in the 8th century, an earthquake in the 9th century and was reported to still be an active lighthouse in the 12th century. Although it was reported to be visible in the 14th century, it was completely destroyed by an earthquake and overpowered by the sea during the 15th century.

Pharos of Alexandria

Herod the Great constructed a similar lighthouse in 21 B.C. in the Mediterranean seaport city of Caesarea Maritima along the coast of Palestine. Caesarea was located at the junction of major shipping routes and was a rival to Alexandria in the eastern trade. Two breakwaters were used to protect Caesarea's inner harbor from strong currents and waves. The lighthouse was located at the end of the Southern breakwater. The light, fueled by oil or wood, burned 24 hours a day to guide ships into the harbor.
The first lighthouse in England, or fire tower as it was known, was constructed in the 1st century during the reign of the Roman Emperor Claudias. It was one of a pair of fire towers located on each side of the English channel with the other being constructed at Boulogne about 40 years earlier. It is unclear whether the towers were used for signaling across the channel or navigation or both. The site of the first tower in England is on the grounds of Dover Castle.

The Early Lights

The first lighthouse in North America was constructed in Boston Harbor on Little Brewster Island in 1716 by the Colony of Massachusetts. As opposed to earlier fire towers, the Boston Light was constructed with a glassed-in lantern to guide trading ships with their valuable cargo into Boston Harbor. This light remained active until destroyed by the British in 1776 during the Revolutionary War. It was reconstructed in 1783 and is still operational after more than 215 years of active use.

Boston Harbor Light – Boston, Massachusetts

The second-oldest lighthouse in North America was built in 1734 at the French Fortress of Louisbourg on Cape Breton Island in Nova Scotia followed by the Sambro Island Light in Halifax. The Louisbourg Light was destroyed by British troops during the war of 1758 and was later rebuilt in 1842. The current Louisbourg Lighthouse was constructed in 1924.

The English colonists began constructing lighthouses along the East Coast in the mid 1700's near ports with significant trading. These early lights included; Brandt Point Light-Massachusetts in 1746, Tybee Island-Georgia in 1748, Beavertail Light-Rhode Island in 1749, New London Light-Connecticut in 1760, Sandy Hook Light-New Jersey in 1764, Cape Henlopen Light-Delaware in 1767, Charleston Light-South Carolina in 1767, Plymouth Light-Massachusetts in 1768, Portsmouth Light-New Hampshire in 1771, and Cape Ann Light-Massachusetts in 1771. All these lights were constructed before the Civil War and most were built north of Delaware Bay. Construction of lights below the Delaware Bay did not begin until the 1820's. Of these early lights, Sandy Hook is the only original structure that is currently standing and active as a navigational aid. This light was located at the mouth of the Hudson River and lit the way into New York City Harbor.

Sandy Hook Light – Fort Hancock, New Jersey

A tremendous lighthouse construction program was underway in the 1790's to include; Cape Henry Light-Virginia in 1792, Portland Head Light-Maine in 1791, Tybee Light-Georgia in 1791, Seguin Light-Maine in 1795, Bald Head Light-North Carolina in 1794, Montauk Point Light-New York in 1797, Bakers Island-Massachusetts in 1791, Cape Cod Light-Massachusetts in 1797, Gay Head Light-Massachusetts in 1799 and Eaton's Neck Light-New York in 1799.

The Portland Head Light is the oldest light in Maine. The light is located on a rocky headland on the Southwest side of the entrance to Portland Harbor. The lighthouse has been renovated several times since it was constructed, however, it appears today almost as it did in the 18th Century. Originally, it contained a fourth order Fresnel lens. The lens was removed in 1989 and replaced with and modern aerobeacon producing a flash that can be seen from 27 miles at sea. It was at this light, that Henry Wadsworth Longfellow wrote two of his poems, *The Wreck of the Hesperus* and *The Lighthouse*.

Portland Head Light – Portland, Maine

The original Gay Head Light was an octagonal wooden tower located on a 125 foot high cliff. In 1856, a brick tower with a first order Fresnel replaced the wooden tower. The light functions as both a seacoast light and as a guide for ships entering the Vineyard Sound.

Gay Head Light – Martha's Vineyard, Massachusetts

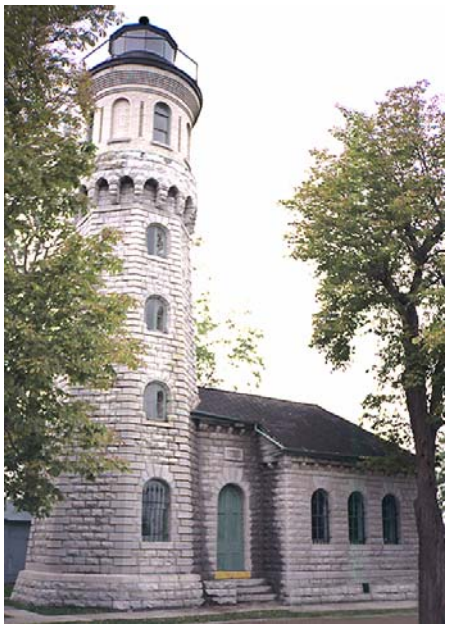
The early colonists constructed the tower of the Tybee Island Light in 1773 for use as a daymark. It was passed to the federal government in 1791 who installed a Second-Order lens in the tower in 1857. The tower was damaged by cannon fire during the Civil War, was cracked from gale force winds on two occasions, and suffered additional cracks and broken lens when hit by an earthquake in 1886. The tower stands today at a height of 145 feet as a testimonial to the early settlers and is the oldest active light on the southeast coast.

Tybee Island Light – Tybee Island, Georgia

The Great Lake Lights

The five Great Lakes, i.e., Superior, Michigan, Huron, Erie and Ontario, together with the rivers and canals that join them, form one of the most important waterway systems in the world. The lakes are connected to the Atlantic Ocean via the St. Lawrence River and to the Gulf of Mexico via the Illinois and Mississippi Rivers.

By 1780 and the beginning of the Revolutionary War, the British established a strong Navy on the Great Lakes. During one of the treacherous storms, the British lost one of their best warships, the HMS Ontario. This was the driving factor for constructing the first navigational light fueled by whale oil atop Fort Niagara at the mouth of the Niagara River on Lake Ontario in 1781. The French built the fort in 1726 to protect fur traders in the upper lakes. The British took control of the fort following the French and Indian War. Following the Revolutionary War, the fort became the property of the United States of America who discontinued the light at the fort in 1796. In 1823, another light was constructed on top of the old French Castle. This light remained in service until 1872 when the current Fort Niagara Light with its distinctive octagonal stone tower was constructed on the Lake Ontario shore just South of the fort.



Fort Niagara Light – Youngstown, New York

Upon opening of the Erie Canal in 1825, the need for lighthouses increased in the Great Lakes to accommodate shipping of lumber and grain from the Upper Midwest to the East. Some of the oldest lights constructed on the Great Lakes that are still standing are; Marblehead Light constructed in 1821 on Lake Ontario, Charlotte-Genesse Light constructed in 1822 on Lake Erie, Fort Gratiot Light constructed in 1829 on Lake Huron, Buffalo Main Light constructed in 1833 on Lake Erie, and Old Presque Isle Light constructed in 1840 on Lake Huron.

Charlotte-Genesse Light – Rochester, New York

Buffalo Harbor South Entrance (Bottle) Light on right
Buffalo Main Light – Buffalo, New York

Fort Gratiot Light – Port Huron, Michigan

Old Presque Isle Light – Presque Isle, Michigan

In 1844, U.S. government surveyors discovered the first of the great iron ore deposits in the Great Lakes states. By the late 1850s these were being aggressively exploited. The northern part of the Upper Midwest region, near Lake Superior, contained huge deposits of iron in the Mesabi Range in Minnesota and in several locations on the Upper Peninsula. The mining of the ores required heavy equipment and huge investments. Initially, iron ore was smelted by means of locally produced charcoal, however, the wood supply soon gave out and the ore began to be shipped east. With the abundance of rich iron ore around Lake Superior and the low cost of water transportation available on the Great Lakes, this area soon became the center of the American iron and steel industry. In 1855, the Sault Ste Marie Locks opened which connected Lake Superior to Lake Huron. This gave way for iron ore to begin moving from Minnesota's Mesabi Range eastward to the steel mills. As the production of iron and steel became the driving force of the Industrial Revolution, maritime traffic over the Great Lakes increased significantly as well as the construction of lighthouses. The builders of these lighthouses faced great difficulties in erecting the structures on high bluffs, sandy coasts and shoals during severe weather conditions associated with the Great Lake waters. During the 1850's, the Lighthouse board constructed several lighthouses on Lake Superior including the Point Iroquois Light at the entrance to St. Mary's River and the Sault Ste Marie Locks. The original wooden Point Iroquois tower was constructed in 1855 and was replaced with the present day brick tower in 1871.

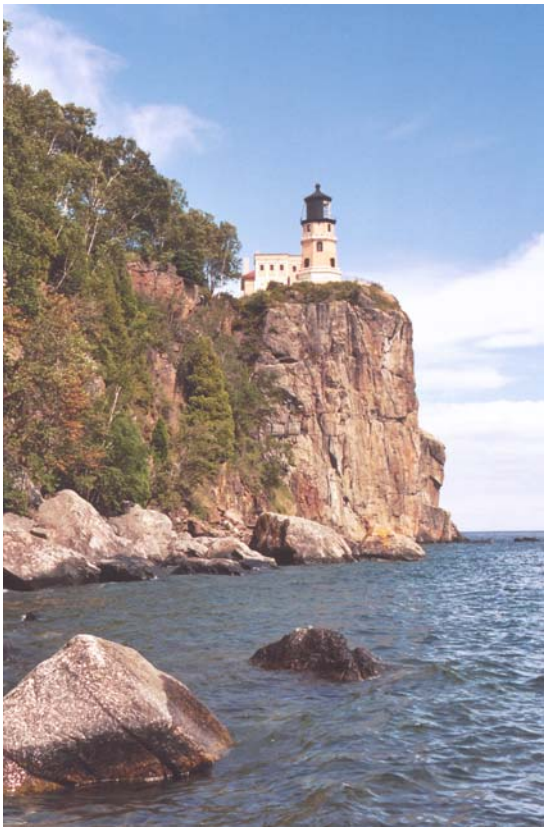
Point Iroquois Light – Bay Mills, Michigan

By the mid 1860's, 72 lights were erected to guide ships to into safe harbors. By the beginning of the 20th Century, more than 100 lights lined the shores of the Great Lakes and the St. Lawrence River.

The oldest continuous operating light on the North Shore of Lake Superior is Two Harbors Light that was first lit in 1891. The light was built to provide safe passage of ships into Agate Bay Harbor which was the major shipping point for iron ore from the Mesabi Range.

Two Harbors Light – Two Harbors, Minnesota

In the early 20th Century, iron ore shipments began to double and triple. The fleet of United States Steel bulk ore carriers became the predominate means of shipping iron ore from the North Shore of Lake Superior to Chicago and Cleveland-Pittsburgh areas, where the ore was turned into iron, steel and other products. In November of 1905, a single hurricane-like blizzard damaged 29 ships that, for the most part, were uninsured. Two of these carriers were driven into the rocks on the North Shore in the vicinity of Split Rock which is known to be one of the most dangerous coastlines in the world. As a result, the USS steamship company sent a delegation to Washington, D.C. to request a lighthouse and fog signal be constructed on the high Split Rock cliff overlooking Lake Superior. The Split Rock Light was completed in 1910 and operated until it was deactivated in 1969.



Split Rock Light – Beaver Bay, Minnesota

S.S. William A. Irwin – Iron Ore Carrier

The Northeastern Lights

At the turn of the 19th Century, trade traffic began to grow along the Northern coast of Maine and in and around Campobello Island and Passamaquoddy Bay. Fishing, shipbuilding and shipping flourished and the area witnessed a significant growth in trade between Canada and the United States. The marine traffic passing in the West Quoddy area was severely affected by the knife-edge rocks and the thick fog banks that frequently rolled out of the nearby Bay of Fundy. Many ships were lost in the fog and met their destiny on the jagged rocks. In 1806, President Thomas Jefferson recognized the need for a lighthouse and ordered the construction of West Quoddy Head Light which was completed in 1808. The Canadians also responded to this danger by constructing the East Quoddy Head Light in 1830 on a rocky outcropping at the Northern tip of Campobello Island. The East Quoddy Head Light is one of the most picturesque lights in North America. The original white, wooden shingle clad, octagonal tower with a huge red cross painted on one side and its red lantern still stands today. The purpose of the red markings is to make it more visible in the snow. In 1858, the West Quoddy Head Light tower was demolished and a new tower was constructed in its place.

East Quoddy Head Light – Campobello Island, New Brunswick

West Quoddy Head Light – Lubec, Maine

The Mid-Atlantic Lights

During the 1820's, many new lighthouses began to populate the mid-Atlantic shores from the Hudson River to Chesapeake Bay. These lights include; Cape May Light-New Jersey in 1823, Navesink Light-New Jersey in 1828, Brandywine Shoal Light-Delaware in 1828, Concord Point-Maryland in 1827, and Pooles Island and Thomas Point Lights in the Upper Chesapeake Bay in 1825. Of these early lights, the only original structures to survive were Concord Point and the Pooles Island Lights although neither are active navigational aids. The Concord Point Light was constructed at the mouth of the Susquehanna River on the upper Chesapeake Bay near the town of Havre de Grace. The purpose of the light was to protect ships from dangerous shoals and strong currents at the confluence of the river and the bay. The Pooles Island Light is located on Pooles Island near the mouth of the Gunpowder River and is one of the oldest remaining original lighthouse structures on the Chesapeake Bay as well as the oldest light in Maryland.

Concord Point Light – Havre de Grace, Maryland

In 1831, due to the absence of a light between the Delaware and Chesapeake Bays, Congress appropriated funds to construct a light on Asssateague Island on the Atlantic Coast. When originally lit, the tower was found to be too low and not adequately illuminated to warn ships of the dangerous shoals. Following the Civil War, the light was increased in height and was equipped with a first order Fresnel lens that was visible from nineteen miles at sea. Today, the original tower is still an active navigational aid.

Assateague Island Light –Chincoteague, Virginia

The oldest, still remaining light on the Chesapeake Bay is the Old Cape Henry Light constructed in 1791 on the south entrance to the bay. The old sandstone tower began to crack during the 1870's and the Lighthouse Board decided it could not be adequately repaired to withstand a powerful storm. During the late 1870's, Congress appropriated funds to construct a new Cape Henry Light located within 100 yards of the old light. The new light, which was a octagonal pyramidal cast-iron plate over a masonry tower, was completed in 1881. The old light was allowed to remain standing as a monument to the landing of John Smith and the first English settlers. The second Cape Henry Light is still used as an aid to navigation.

Cape Henry Lights (Old and New) – Virginia Beach, Virginia

In 1802, the Old Point Comfort Light was constructed at Fort Monroe in Virginia to mark the mouth of the James River and the entrance to Hampton Roads Harbor. Today, the original tower remains in use as an active navigational aid.

Photo by Calvin Cooper III

Old Point Comfort Light – Hampton, Virginia

The Southern Lights

At the turn of the nineteenth century, lighthouses began to appear along the Southern coastal shores. Although not appearing to be as dangerous as the rugged, rocky Northern shores, the sandy flat Southern coastline had its own kind of perils that challenged the mariner's navigational skills. Along the coast of the Carolina's, Georgia and Florida, dangerous shoals and sand bars lie beneath the waters surface. The construction of lighthouses provided sailors a visual means to warn them of these underwater hazards. The first lighthouse constructed in North Carolina was on the southwest point of Bald Head Island in 1794 to guide ships safely into the Cape Fear River. The lighthouse was destroyed by erosion in 1813 and was replaced by an octagonal tower in 1817. This new light, known as "Old Baldy", was deactivated in 1930. The original Ocracoke Lighthouse was constructed on Shell Island in North Carolina's Outer Banks in 1803. In 1818, this light was destroyed by lightning and was replaced by a light near Ocracoke Village in 1823. This second light still stands and is one of the oldest active lights along the Southern coast. The first Cape Hatteras Light was constructed in 1803 to mark the dangerous shoals along the North Carolina coast known as the "Graveyard of the Atlantic". This light was destroyed during the Civil War and replaced by the current structure in 1871. The second light stands at a height of 198 feet making it America's tallest brick lighthouse.

Bald Head Light – Bald Head Island, North Carolina

Ocracoke Light – Ocracoke Island, North Carolina

Old location left (1871 –1999) – New location right (1999-Pres)

Cape Hatteras Light – Buxton, North Carolina

Lights began to be constructed from South Carolina to Florida in the early 1800's, such as, South Carolina's Georgetown Light in 1812, Georgia's St. Simons Light in 1810, Sapelo Island Light in 1820, Florida's St. Johns River Light in 1830 and Amelia Island Light in 1839.

The original St. Simons Light was constructed on the Southern shore of St. Simons Island to mark the St. Simons Sound. In 1862, the Confederate army destroyed the light. After the war, a new 106 foot high tower was constructed which stands today as an active navigational aid.

St. Simons Island Light – St. Simons Island, Georgia

The significance of the Amelia Island Light increased during the mid 1800's with the construction of the first railroad to span Florida from Cedar Key on the Gulf coast to Fernandina Beach on the Atlantic Coast. The Fernandina Beach port was used mainly for shipping lumber and military supplies during the Civil War.

The original St. Johns River Light was constructed in 1830 in the Territory of Florida. About five years later, the light became the victim of the strong river current and shifting sands at the mouth of the St. Johns River. A second tower was constructed a mile further down the river in 1835, however, this tower was also victimized by the river and the shifting sands. In 1859, the current red brick tower was constructed across the bar from the previous structure. The light remained active until 1929 when it was replaced by a yellow-hulled lightship located 6½ miles East of the old structure.

St. Johns River Light – Mayport, Florida

Soon after Florida became a state in 1845, the Lighthouse Board recognized the need for lighthouses along the Southern shores. One of the most dangerous areas in Southern Florida was the offshore shoal in the vicinity of Jupiter Inlet where the Loxahatchee River flows into the Atlantic Ocean. Construction of the Jupiter Inlet Light began in 1854. However, due to hostile Seminole Indians, heat, mosquitoes and shallow water that prohibited navigation and delivery of building materials, the light was not completed until 1860. About a year later, the Confederate forces removed the huge first order Fresnel lens and hid it to disrupt the movement of Union ships. At the end of the war, the lens was discovered buried in Jupiter Creek. In 1866, the lens was reinstalled and the light was returned to active service.

Jupiter Inlet Light – Jupiter, Florida

In the early 1800's, the Government began an aggressive lighthouse construction program along the Northern and Western Gulf Coast. Due to the powerful hurricanes and numerous tropical storms, many of these early lights were destroyed by the winds and floods and were rebuilt. During the Civil War, both Union and Confederate ships and artillery blasted the lights to prevent them from being used as navigational aids and observation towers. In 1852 and 1853, the Government built several lights along the Texas coast including Matagorda Island Light, Point Bolivar Light and Port Isabel Light. Of these three lights, the Port Isabel Light is the only original structure to survive the Civil War, erosion, vandalism and neglect.

Point Bolivar Light – Bolivar, Texas

Port Isabel Light – Port Isabel Texas

The Western Lights

Lighthouse construction continued to spread to the West Coast in the mid 1800's. In 1852, Congress ordered a survey along the West Coast to identify critical locations for lighthouses. Based on the survey results, Congress appropriated funds to construct 16 lighthouses with an initial contract for eight along the Southern California coast. These eight lights were Alcatraz Island, Fort Point, Point Bonita, Farallon Islands, Point Loma, Santa Barbara, Point Pinos and Point Conception. All eight of these lighthouses were completed in 1854 with Alcatraz being the first in 1854 and Point Loma being the last in 1855. The remaining eight lighthouses were completed by 1858. The Old Alcatraz Light was demolished in 1907 when the island became a U. S. Military Prison. At that time, Point Pinos became the oldest light on the West Coast.

Point Pinos Light – Pacific Grove, California

Construction of the remaining eight lights continued from 1856 through 1858 with the construction of Humboldt and Crescent City Lights in Northern California, Umpqua River Light in Oregon, and Cape Disappointment, Cape Flattery, New Dungeness, Smith Island and Willapa Bay Lights in Washington.

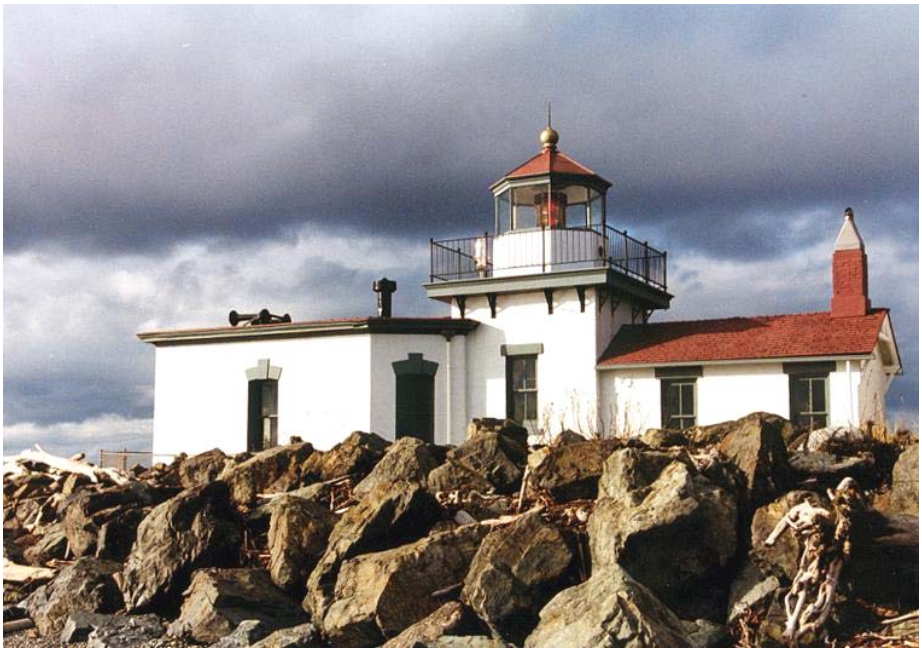
Crescent City Light – Crescent City, California

Umpqua River Light – Winchester Bay, Oregon

Of the eight lights constructed between 1856 and 1858, the only original structures still standing and operational are Crescent City, Cape Disappointment, Cape Flattery, and New Dungeness. All of the 16 lights originally constructed were designed as a Cape Cod stone dwelling structures with a cylindrical light tower rising from the center with the exception of the Cape Disappointment Light. This light consisted of a conical tower with a separate Cape Cod stone and brick dwelling. The basic difference between the other lights was the height of the cylindrical tower.

Cape Disappointment Light – Illwaco, Washington

During the late 1870's, several inland waterway lights were constructed to provide safe navigation from the Juan de Fuca Strait into Admiralty Inlet and Puget Sound. Two of these lights, West Point Light in Seattle constructed in 1879 and Point No Point Light in Hansville constructed in 1880, still remain as active navigational aids. Both lights consist of a white rectangular fog horn building and a short tower with the lantern barely protruding from the roof.



West Point Light – Seattle, Washington

Point No Point Light – Hansville, Washington

As maritime traffic increased in lower Puget Sound between Seattle and Tacoma, the Government recognized a need for a light on Robinson Point on Maury Island to mark a safe channel in this narrow waterway. The first Robinson Point Light was constructed in 1887 and was replaced with the current light in 1915.

Point Robinson Light – Tacoma, Washington

The Northwestern Lights

By the mid 1800's, Canada recognized the need for lighthouses to safeguard maritime shipping traffic along the rugged and treacherous Pacific Northwest coast. The first official lighthouse's to be constructed in British Columbia were Fisgard and Race Rocks Lights in 1860. These lights were constructed to guide ships safely into Esquimalt Harbour near Victoria on Vancouver Island. The lights were two of Canada's "Imperial Lights" which were constructed at the expense of the British Empire's Board of Trade. Both lights still serve as active navigational aids.

Fisgard Light – Victoria, British Columbia

Lighthouse construction continued in British Columbia throughout the 1800's with a combination of tapered square and octagonal white wooden and masonry towers with distinctive red painted lanterns. Around the turn of the 20th Century, the old wooden tower replacements and new construction turned to octagonal concrete towers such as Cape Mudge Light on Quadra Island and buttress reinforced towers such as Atkinson Point in West Vancouver.

Atkinson Point Light – Vancouver Island, British Columbia

Cape Mudge Light – Quadra Island, British Columbia

Alaska was the last maritime frontier recognized by Congress to need lighthouses. This area was ignored mainly due to the ruggedness, remoteness and vast length of the Alaskan coastline. Around the turn of the 20th Century, the Klondike Gold Strike resulted in a significant increase in maritime traffic along the Alaskan coast. Many ships with their gold seeking passengers and sacks of gold were destroyed by severe storms, crashing on jagged rocks and striking large icebergs. The first two Alaskan lighthouses were constructed on Five Fingers Island and Sentinel Island in 1902. These were followed by construction of ten additional lights within the next three years. The oldest light in Alaska is the Eldred Rock Light that was constructed in 1905. Later lights constructed included; Cape Hinchinbrook in 1910, Cape St. Elias in 1916, Cape Spencer in 1925, and Cape Decision in 1932. Of all the lights constructed between 1902 and 1910, Eldred Rock was the only one that never had to be rebuilt. Today, twelve lights serve as active navigational aids to guide ships along the deadly Alaskan coast.

Alaska Lights

The Hawaiian Lights

In 1900, Congress formally constituted Hawaii as a Territory of the United States. The territory had a predominately agriculture economy with a well-established trade business with other Pacific islands, North America and the Orient. At the turn of the century, the islands had 18 primitive lights consisting mainly of ordinary oil lamps in small lantern rooms located atop wooden trestle towers. The first light constructed with a Fresnel lens was at Diamond Head on the island of Oahu in 1899. In 1904, President Theodore Roosevelt transferred Hawaii's lighthouses from the territorial government to the Lighthouse Board. At that time, the Board began to take three specific actions; 1) Begin installing Fresnel lens in all existing lights, 2) Assume ownership of private aids, and 3) Conduct an evaluation to determine where additional lights are required to ensure safe navigation. Between 1907 and 1920, the lighthouse Board constructed over a dozen lights to mark harbor entrances and warn mariners of hazardous rocks and shoals.

Today, the Hawaiian Islands has 18 active/inactive lights including many of the original structures constructed before 1910 during the administration of the Lighthouse Board to include; Makahuena Point Light (1908), Makapuu Point Light (1909), Molokai Light (1909), Molokini Light (1909) and Napoopoo Light (1908). The Makapuu Light was built on the southeastern end of Oahu Island to provide a landfall for ships coming from the United States. In 1913, the Kilauea Point Light was constructed on the northern end of Kauai Island as a marker for ships heading to the Orient. The Kilauea Point Light tower is 52 feet high and is located atop a cliff that provided a focal plane of 216 feet above sea level. Today, the light is used as museum within a national wildlife refuge.

Photo by Ronald Luczak

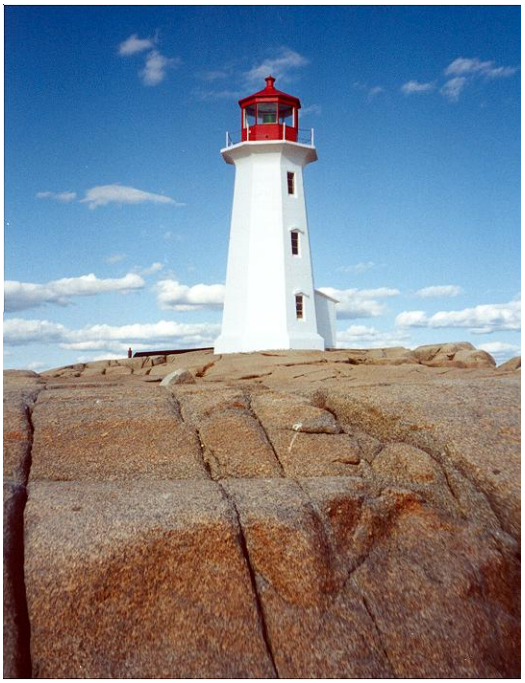
Kilauea Point Light – Hawaii

Types of Lighthouses

Lighthouses exist in various sizes, shapes, styles, and colors depending on the location, environment, weather, and architectural and geological considerations. The six most popular shapes are cylindrical, conical, square, octagonal, pyramidal and skeletal. Lighthouses are built both on land and in the water. Those located in the water are normally built on reefs or ledges. Keeper's houses are normally located adjacent to, attached to, or sometimes, in the case of Old Point Loma and Point Pinos in California, an integral part of the lighthouse structure.

Old Point Loma Light – San Diego, California

One of the most popular types of lights constructed in Canada is the tapered octagonal shaped, white concrete tower topped with a red lantern. An example of this type of light is Peggy's Cove Light located on Peggy's Point at the entrance to St. Margaret's Bay in Nova Scotia. This light was constructed in 1915 to replace the original light built in 1868. The landscape surrounding the cove consists of granite rock formations and boulders that were remnants of the northerly receding glaciers at the end of the last Ice Age.



Peggy's Cove Light – Nova Scotia

The most popular shaped light in the United States is conical, such as, Pemaquid Point Light on Maine's Atlantic coast at the entrance to St. Johns Bay. The light with its white rubblestone tower was originally constructed in 1835 and, due to the severe weather, was rebuilt in 1857. The Ice Age also left its mark in this area in the form of striated rock formations carved from the glacial ice.

Pemaquid Point Light –Pemaquid Point, Maine

During daylight hours, mariners can distinguish one light from another by its general location, shape, color and painting scheme or daymark. By night, mariners must rely on the visual characteristics or signature of the projected light.

Cape Henry Light
Virginia Beach, VA

Cape Hatteras Light
Buxton, NC

Assateague Light
Chincoteague, VA

East Quoddy Head Light
New Brunswick, Canada

Distinct Daymarks

The height of the lighthouse structure is based on its location, use and the environment that it must overcome. The relatively flat land on the Southern shores requires significantly taller structures than the Western shores with tall bluffs along the shoreline. A good example is the tallest lighthouse in the United States being Cape Hatteras Lighthouse in North Carolina at a height of 196 feet. The light is located adjacent to the level shoreline. Compare this height with most of the coastal lighthouses on the West Coast being less than 100 feet tall which could place the "focal plane" at 200 plus feet Above Sea Level (ASL) when the light is located on a bluff at a height of 100 feet. The "focal plane" is a plane that passes through and is perpendicular to the principal axis of the projected beam from the lighthouse lens. Most of the harbor lights and river lights have relatively short towers due to the lesser amount of light projection distance required for ships to navigate into a harbor or river such as the Coquille River Light in Bandon, Oregon.

Coquille River Light – Bandon, Oregon

The most common types of lights placed in water are skeletal tower, masonry, caisson, and screwpile lights. Skeletal towers have an enclosed cylindrical stairway in the center of the structure to provide access to the lantern room. Masonry lights consist of a concrete pier constructed atop a shoal or a reef with a keepers dwelling and lantern above. Caisson lights were constructed using a large round tubular base filled with rocks or concrete to serve as a foundation for a keepers dwelling and lantern. Screwpile lights were constructed in protected bays and sounds with slow moving, shallow water that was unlikely to freeze. These lights contained skeletal type, cross-braced foundations with eight iron stilts. Each stilt consisted of cork-screw type, cast iron tips that were turned into soft mud or sand beds. This skeletal foundation was topped with a wooden keepers dwelling, a lantern and a lens, such as, the Seven Foot Knoll Light in Baltimore, Maryland.

Seven Foot Knoll Light – Baltimore, Maryland

Some lighthouses are known as range lights. These are constructed in pairs with towers located strategically to guide sailors into harbors and channels. The front range light is low and the rear range light is either taller or located on a taller structure, such as, a church steeple or higher land mass. The front range light is quick flashing while the rear range light flashes at equal intervals. The two lights are located several thousand feet from each other and indicate a correct course when the two are lined up with one on top of the other. The Newburyport Lights in Massachusetts in 1788 were the first lights to be used as range lights. These lights were used to guide ships safely around the hazardous sandbar at the entrance to Newburyport Harbor.

Newburyport Front Range Light - Massachusetts

Newburyport Rear Range Light - Massachusetts

Old Presque Isle Front Range Light - Michigan

Hospital Point Range Light - Beverly, Massachusetts

Range Lights

Breakwater and pierhead lights are constructed on piers that mark harbor entrances. This type of light was required to be relatively small due to the limited space and lightweight but strong enough to withstand the impact of the waves. The majority of breakwater and pierhead lights were constructed along the Great Lakes, such as, the Sodus Point Pierhead Light in Sodus Point, New York, the Holland Harbor South Pierhead Light in Holland, Michigan and the Michigan City East Pier Light in Washington Park, Indiana.

Sodus Point Pierhead Light
Sodus Point, New York

Holland Harbor South
Pierhead Light
Holland, Michigan

Michigan City East Pier Light
Washington Park, Indiana

Pierhead Lights

Crib lights were being constructed extensively on the Great Lakes beginning in the 1870's. Wooden cribs were constructed ashore, towed to the site for the light, filled with stone and allowed to settle to the bottom. It was then capped with a layer of concrete to support the light structure. The Cheboygan Crib Light was constructed off shore in 1910. When the crib became unstable, the light was salvaged and moved to the Cheboygan City Park where it stands today.

Cheboygan Crib Light – Cheboygan, Michigan

Light Station Complex

The typical shore based light station includes the light tower, adjacent keeper/assistant keeper dwellings and other supporting structures including; oil storage building, work shop, fog signal building, cistern, chicken house, barn, storage building, boathouse, tramway and outdoor toilet.

Some light towers were standalone structures, some were integral to the keeper's house and, in cold climates, some were connected to the keeper's house by an enclosed walkway. Keeper's houses were constructed of wood, stone or brick and were mostly single-family dwellings. Some stations had separate assistant keeper dwellings and some had only one dwelling to accommodate both the keeper's and assistant keeper's families.

Oil containers were sometimes stored in the lighthouse and in some cases were stored in separate buildings. Once kerosene became the predominate fuel, separate oil storage buildings were constructed using fireproof materials, such as, concrete, brick, stone and iron.

Fog signal buildings were constructed to house bells, sirens, horns and trumpets. Some buildings were wooden bell towers with a tapering square design topped by a pyramidal roof. In most cases, the tower was open at the bottom and enclosed at the top to protect the bell striking mechanism. Due to the harsh marine environment and vibrations from striking the bell, they had to be replaced on a frequent basis. Some fog buildings were constructed of masonry or wood to house the steam or compressed air apparatus, generators, pumps, engines and other related equipment. Today, these buildings are no longer required due to the exclusive use of electric horns.

All light stations had a means of collecting and storing water for drinking, washing and for steam-powered fog signals. Rainwater was collected from the roofs of structures and channeled into reservoirs including cisterns and water holding tanks such as at the Crescent City Light in California.

In some cases, tramways running from adjacent landings to the light station were used to transport supplies and equipment from the supply boat. In the case of Cape Neddick Light in Maine, a cable lift with a bucket was used to transport supplies and people across the water separating the small island from the land.

Keepers/Assistant Keepers Dwelling

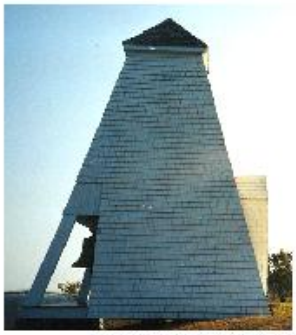
Covered Walkway

Light Tower

Oil Storage Building

Cape Neddick Lighthouse
York, Maine

Typical Lighthouse Complex



Fort Point Lighthouse
Stockton Springs, Maine

Fog Bell Tower

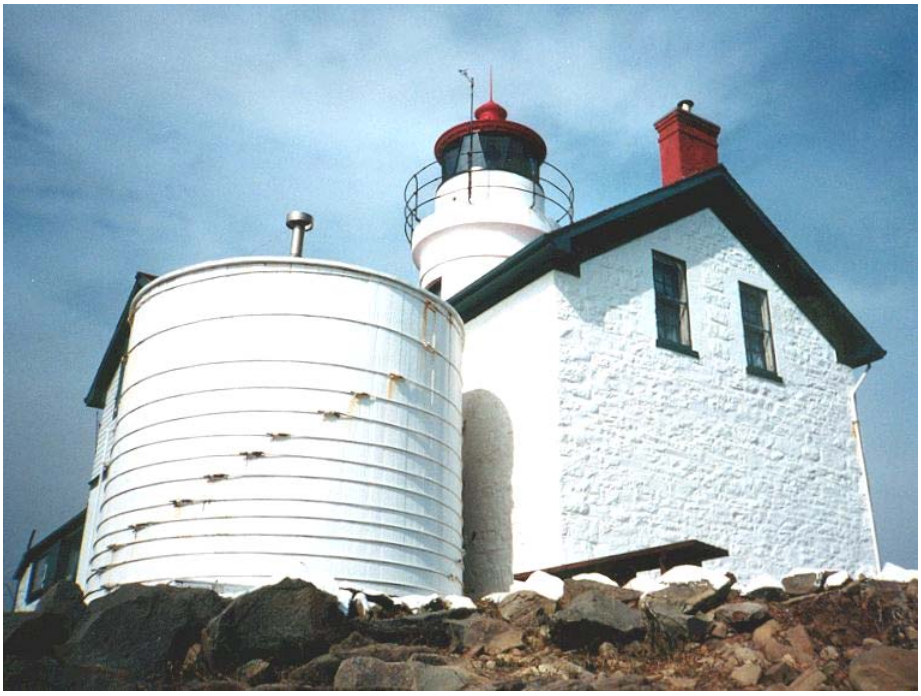
Fog Bell Striker

Stevens Fog Bell
Striking Apparatus

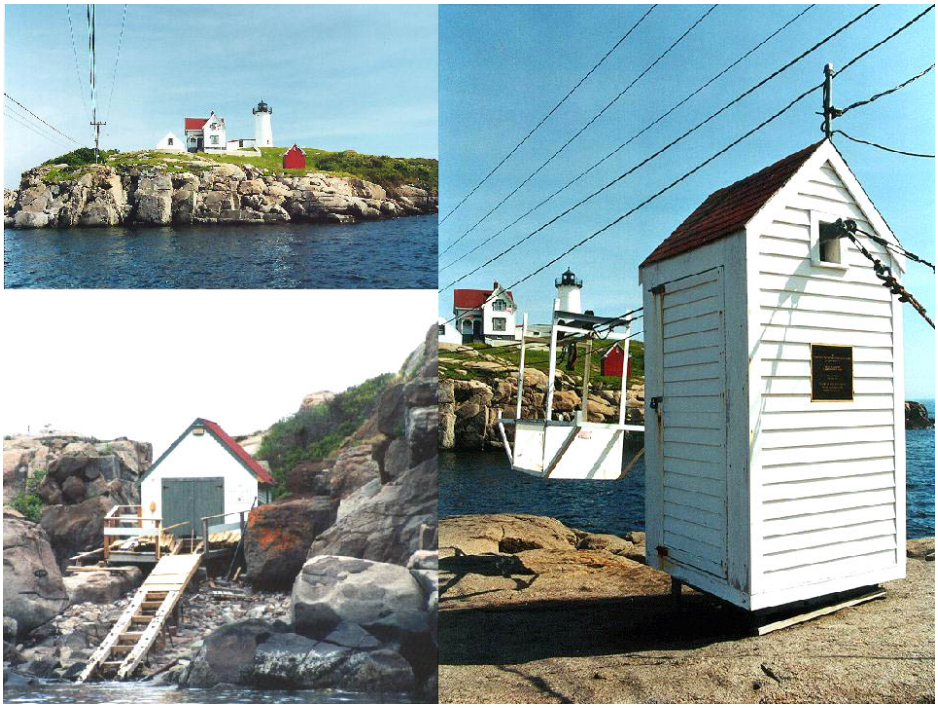
Fog Horn

Kohler Electric Generator

Lighthouse Buildings/Equipment



Water Holding Tank – Crescent City Light, California



Boathouse and Cable Lift – Cape Neddick Light, Maine

Light Tower Construction and Configuration

Conventional light towers were constructed using metal, cast iron, masonry, brick or stone built on granite foundations. Those built on a sandy soil required piles driven into the ground topped by compacted rock, several layers of timbers, and several layers of granite. A work room was located at the base of the tower or in a separate structure adjacent to the tower for the purpose of performing maintenance on lighthouse equipment. A spiral staircase inside the tower provided access to the lantern room which was mounted atop the tower to contain the lens. A peaked metal roof with a ventilator ball and lightning rod was mounted on top of the lantern room which was grounded to the earth by means of a grounding cable. Some towers contained a watch room immediately below the lantern room for storage of fuel, minor maintenance, preparation of lanterns, and for use as a watch room. This room was surrounded by a walkway with a metal railing for use as a lookout balcony. A shallow walkway surrounded the outside of the lantern room which allowed the keeper to clean the outside of the glass panels. A lens was installed inside the lantern room and a lamp was placed inside the lens as a source of illumination. Some lens were fixed and some lens rotated by means of a clockwork type mechanism that was installed in the watch room directly beneath the lens assembly.

Lantern Room Lens and Clockwork Type Rotating Mechanism

One of the most popular types of lights along the low coastal shores of the South is the conical tower. Most of these towers are brick and masonry structures in excess of 160 feet tall and were designed to support the weight of a lantern room containing a 2,000 pound First Order Fresnel lens assembly and a rotating mechanism. These lens assemblies were 6 feet in diameter and 10 feet tall such as those originally installed in Currituck Beach, Cape Hatteras, Bodie Island, St. Augustine and Ponce de Leon Inlet Lights. The Ponce de Leon Inlet light is 176 feet tall as measured from the ground level to the top of the lightning rod and contains about 1.25 million bricks. The exterior diameter of the tower at the base is 32 feet and at the first level is 28 feet with 8-foot thick walls. The brick tower tapers toward the top to a height of 140 feet above ground level with a 1-1/2 foot thick wall just below the Gallery Deck. The tower consists of a spiral stairway with 213 steps from the ground level to the lantern room. The tower is supported on a 12-foot deep octagonal foundation that is 45 feet in diameter at the base and 38 feet in diameter at the ground level.

Ponce de Leon Inlet Light Lantern and Gallery Deck

St. Augustine Light Tower Interior Wall View

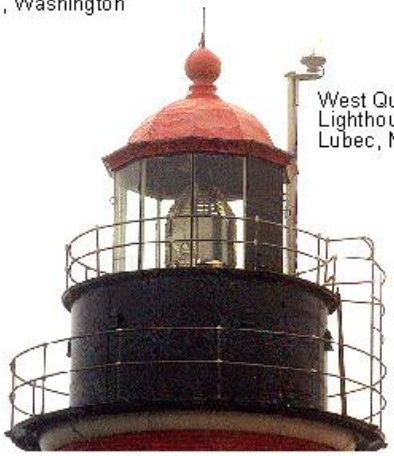
St. Augustine Light Lantern with First Order Fresnel Lens

The last traditional style lighthouse in the U.S. was built in 1962 on Sullivans Island near Charleston, South Carolina. This lighthouse is a triangular shaped, aluminum clad masonry structure that rises to a height of 163 feet and is the first lighthouse to be equipped with an elevator.

Charleston Light – Sullivan's Island, South Carolina

North Head Lighthouse
Ilwaco, Washington

Spiral Staircase



West Quoddy Head
Lighthouse
Lubec, Maine

Lantern Room with
Watch/Service Room and
Balcony Below

Lighthouse Configuration

Fiberglass towers were first developed by the English in order to minimize the need for maintenance. The color of the tower was molded into the plastic tower material, which eliminated the need for painting. Very little metal was used in the towers and the light lens was plastic, therefore minimizing saltwater corrosion. The U. S. Coast Guard adopted fiberglass towers in the 1960's. The first fiberglass tower used as a lighthouse was the white Deer Island Light constructed in Boston Harbor in 1982 to replace the previous iron tower caisson light. In 1984, a red-brown fiberglass light tower built on the original caisson replaced this light.

Deer Island Light – Boston Harbor, Massachusetts

The Lighthouse Lens

The first navigational lights were open flames produced using wood or coal. In the 18th century, this progressed to oil lamps fueled by sperm whale oil and lard oil. During the late 1700's, a parabolic reflector in the shape of a soup bowl was used with a small oil lamp in the center. The light from the lamp was focused into a concentrated beam of light that was considered to be the beginning of modern day lighthouse technology. The use of arc lamps began in England in 1862. Vaporized kerosene and acetylene gas lamps began to be used around the turn of the 20th century. Electric-filament lamps, which are today's standard, were introduced in the 1920's.

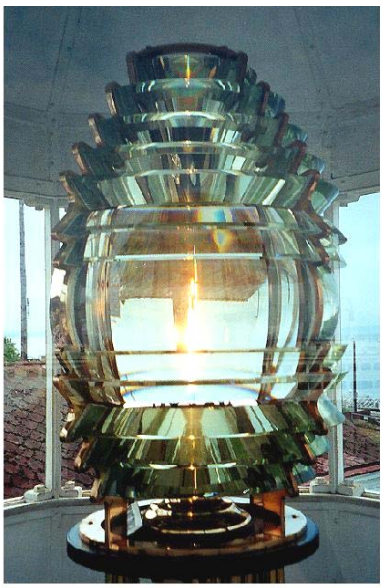
Various types of lamps and reflectors were developed in England and France, however, were never perfected until Augustin Fresnel developed his lens in 1822. Fresnel, a French physicist, developed a beehive shaped glass lens within a brass framework, with a single lamp located in its center. The lens consisted of a series of prisms at the top and at the bottom that refracted and reflected many rays of light into a narrow beam which was focused and magnified by the glass in the center of the lens. As a result of this bending and magnifying process, the lens produced a single, narrow beam of highly concentrated light.

Fourth Order Fresnel Lens

The Fresnel lens was manufactured in several sizes known as 'Orders'. These lens were numbered First-Order through the Sixth-Order with the First–Order lens being six feet in diameter and the Sixth-Order lens being 10 inches in diameter. The first three orders were used as seacoast lights and

the fourth through sixth orders were used as harbor, river and bay entrance lights. Later, a 3-1/2 Order lens was developed which was primarily used for the Great Lakes and harbor entrances. A First-Order lens is about eight feet tall, weighs about two tons and can project a beam of light to a distance of 26 miles. The initial source of light for Fresnel lens was concentric-wick type lamps fueled with whale oil, lard oil, kerosene or mineral oil. Later they adopted incandescent oil vapor lamps that eventually became the standard used by Coleman in camping type lanterns. By 1860, all U.S. lighthouses were equipped with Fresnel lens.

Fresnel Lens were produced in two types; Fixed Lens and Revolving Lens. The Fixed Lens contains a light source that is either steady or one that flashes within a given period of time. The Revolving Lens contains flash panels that rotate around a steady light source at a given rate to produce flashes at certain intervals. These flash patterns or light sequence, are known as Characteristics and differentiate one light from the other. The Characteristics are expressed in flash intervals or in periods of darkness or brightness. Signatures of lighthouses, including Characteristics, duration of the light cycle, and color, are defined in *a Light List*, published by the U. S. Coast Guard, and appear on navigational charts. These signatures allow mariners to identify the lights for the purpose of determining position and direction and locating navigational hazards.



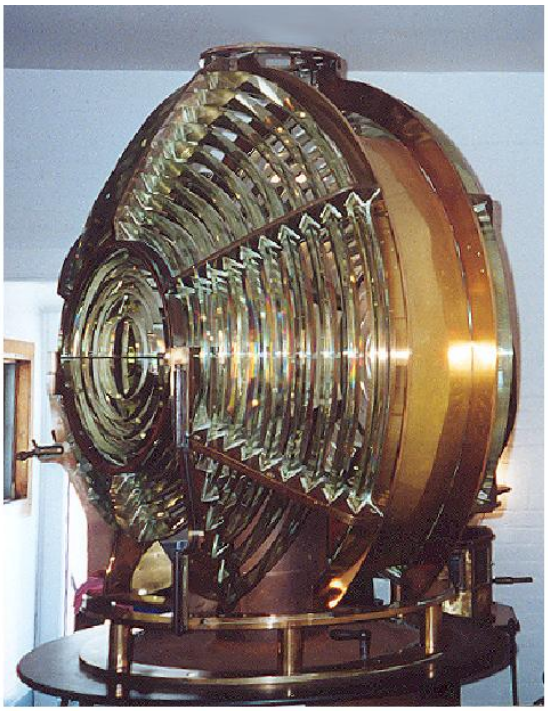
Fixed Lens

Revolving Lens with Bullseye Type Panels

Fresnel Lens Types

At the beginning of the 20th century, the use of electric bulbs became popular as a source of light. However, since most of the lights were remotely located, the use of power generators were necessary in the absence of power distribution lines. In 1898, one of the largest lighthouse lenses ever constructed was installed in the South Tower of Navesink Twin Lights in New Jersey and became the first primary seacoast light in the U.S. to be produced by electricity. This "hyper-radiant" bivalve lens used an electric arc light and at 60,000,000 candle power and was for many years the most powerful light in the U.S. Some sailors reported seeing the light from as far away as 70 miles at sea. The South Tower was deactivated in 1952. The North Tower was automated in 1962 and is still operational. In 1903, a 3-1/2 order Fresnel bivalve lens was installed in Montauk Point Light and remained in service until it was automated in 1987. The lens is currently on display in the Montauk Point Lighthouse Museum.

North Tower (left) and South Tower (right)
Navsink Twin Lights – Highlands, New Jersey



3-1/2 Order Fresnel Bivalve Lens
(1903 to 1987)

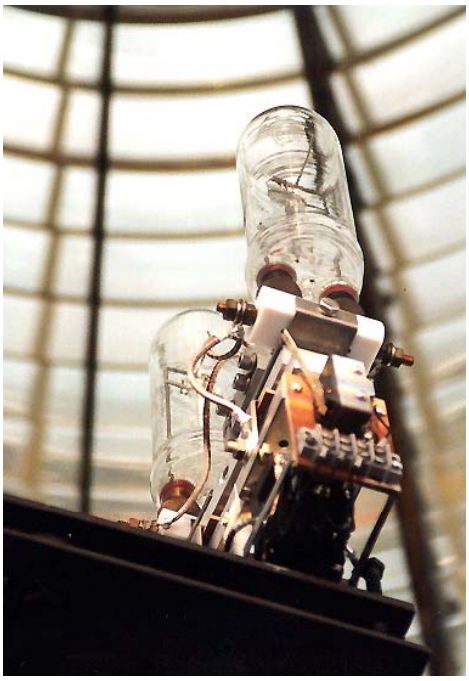
Lantern Room

Aerobeacon
(1987 to Present)

Montauk Point Light – Montauk Point, New York

Aerobeacon Optic – Ponce de Leon Inlet Lighthouse Museum

During the 1920's and 1930's, most of the lighthouses were converted to electricity with the light source being a 1,000 watt lamp. The lamps were mounted on a rotating holder with several lamps that automatically moved one lamp to an upright position to replace the lamp that burned out. Later, modern day airport beacons, or aerobeacons, were used to replace the Fresnel lens in some lighthouses. Several Fresnel lens still exist today in lighthouses, however, the trend is to convert or replace the lens with modern, automated beacons with fixed or rotating lens such as the optic at Horton Point Light on New York's Long Island.



Electric Lamp Holder

FA-251 Rotating
Flashing Optic

Horton Point Light – Southold, New York

First Order Fresnel Lens Made in France - *Removed from Destruction Island Lighthouse and placed on display at Westport Maritime Museum, Westport, Washington*

800,000 Candlepower First Order Fresnel Lens - Cape Meares, Oregon

Lens Rotating Mechanism – Cape Hatteras Light

Lighthouse Lens Assembly

Several lights constructed on the East and West coast in the 1930's, consisted of concrete tower structures equipped with exposed automated rotating or fixed flashing optics. These lights include; Santa Barbara Light in Santa Barbara, California, Browns Point Light in Tacoma, Washington,

Cattle Point Light in the San Juan Islands and Elm Tree Light on Staten Island, New York. The original Santa Barbara Light was built in 1856 and destroyed by an earthquake in 1925. Ten years later, in 1935, the current white concrete tower was constructed. The Elm Tree Light was constructed in 1939 on Miller Field on Staten Island, New York. The light contained a red band around the middle for use as a daymark and two lights at the top; a green light for aviators and a white light for mariners. This light worked in tandem with the New Dorp Light as a front range light to guide mariners into Swash Channel. Elm Tree Light was removed from service in 1964 when the range light system was replaced by channel markers.

Santa Barbara Light
Santa Barbara, California

Browns Point Light
Tacoma, Washington

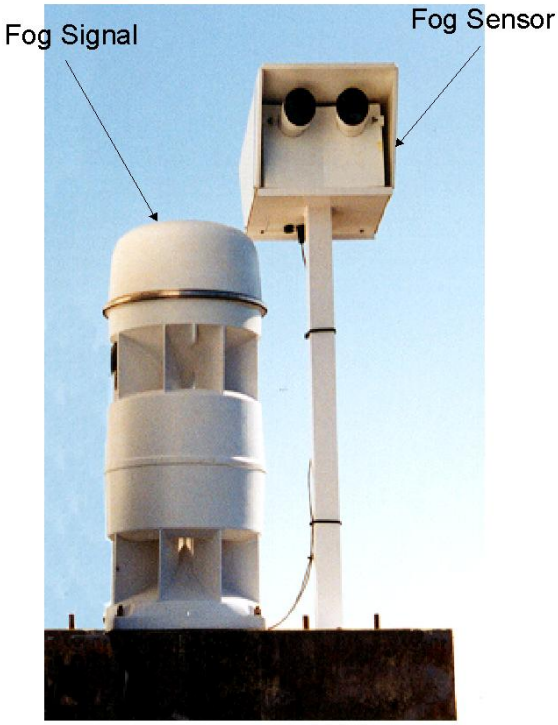
Cattle Point Light
San Juan, Islands

Elm Tree Light
Staten Island, New York

Modern Exposed Lights

Fog Warning

One of the most difficult challenges facing the early mariner was navigating in fog. This was especially hazardous when navigating close to the rugged coastline with exposed and hidden rocks, submerged reefs and associated swirling waters. Lighthouse complexes include fog warning devices where the hazard of fog exists which is primarily from the Mid-Atlantic states to the North, in the Great Lakes and along the Pacific Coast. Fog bells began to be installed adjacent to New England lighthouses in the early 1800's. Prior to this time, fog guns or cannons were used as fog warning devices. The early bells were rung by hand and were later operated by means of a mechanical clockwork system with falling weights normally installed in an enclosed pyramidal tower structure on the lighthouse complex. Since then, several types of fog warning devices have been used including, whistles, trumpets, sirens, and horns powered by steam, compressed air and electricity. Today, automatic fog sensors are used activate fog signals. These sensors detect the presence of moisture in the air and automatically activate the fog signal.



Fog Signal and Sensor Units

Point Reyes, North of San Francisco, is known to be one of the most fogged-in sites in the Northwestern U.S. with West Quoddy Head in Maine having a similar notoriety in the Northeast. The Point Reyes Lighthouse, which was automated in 1975, is constantly exposed to high winds, rain and fog. A 500 pound bell was installed at West Quoddy Head in 1820 to warn mariners of the perils of the rocks when surrounded by the fog coming out of the Bay of Fundy. The West Quoddy Head Light Station is currently equipped with a modern foghorn activated by an automatic fog sensor.

Fog Signal Building (Upper Right) and Electric Horn (Right of Building)

West Quoddy Head Light – Lubec, Maine

The Pemaquid Point Light Station contains a brick Bell House built in 1897 to contain two Shipman fog-signal engines that operated the fog bell. In 1899, these two engines were replaced with a Stevens Fog Bell Striking Apparatus and a wooden tower for the weights that were used to activate the striker mechanism.

Bell House (Foreground) and Wooden Bell Tower (Rear)
Pemaquid Point Light – Pemaquid Point, Maine

The Split Rock Light Station had a fog signal building that contained two 22-horsepower gasoline engines that drove two large compressors. The compressors supplied compressed air to two diaphone trumpet-shaped fog signals that protruded from the lake side of the building. The diaphones were two-tone design that, reportedly, could be heard up to a distance of five miles.

Light tower (rear) and Fog Signal Diaphones (foreground)
Split Rock Light – Beaver Bay, Minnesota

Point Reyes Light, California

Automated Equipment
Point Reyes Light
Auxiliary Light, Fog Signal and Rotating Twin-Aerobeacons

Mulholland Point Light
New Brunswick, Canada

West Quoddy Head Light
Lubec, Maine

Heceta Head Light, California
Lighthouse, not visible, is located above the Keeper's house shown on the right.

Point Montara Light
Pacifica, California

Effects of Fog and Lighthouse Automation

Lighthouse Keeping

The life of a Lighthouse Keeper was highly regimented and full of strict rules and routine duties. The Keeper was responsible for complete care and maintenance of the lighthouse tower, grounds, ancillary buildings, equipment, and the keeper's house. His duties included; cleaning and polishing the lens, shining the all the brass, trimming and adjusting burnt lamp wicks to keep the lamp from smoking, cleaning soot off the tower windows, cleaning the outside of the windows, and maintaining a daily journal on the condition of the light, the weather and amount of fuel used.

The light was lit punctually at sunset and kept at its full intensity until sunrise. During the night, the Keeper was required to climb the spiral stairway in the tower several times to check on the lamp, transport fuel and wind the weights. In some cases, the tower had in excess of 200 steps such as the St. Augustine Light in St. Augustine, Florida.

St. Augustine Light Tower Stairway

When the light was extinguished in the morning, the Keeper would immediately begin his daily chores of cleaning the lantern room and its apparatus to be ready for relighting the lamp at the next sunset. These duties were performed with great care including covering the lens with a linen cloth before the cleaning began and wearing a linen apron during the cleaning process to preclude the lens from being scratched when coming in contact with clothing items. Cleaning the lens is an enormous chore especially when it is an eight foot high, six foot in diameter first order lens such as the one originally installed in the Cape Canaveral Light in Florida.

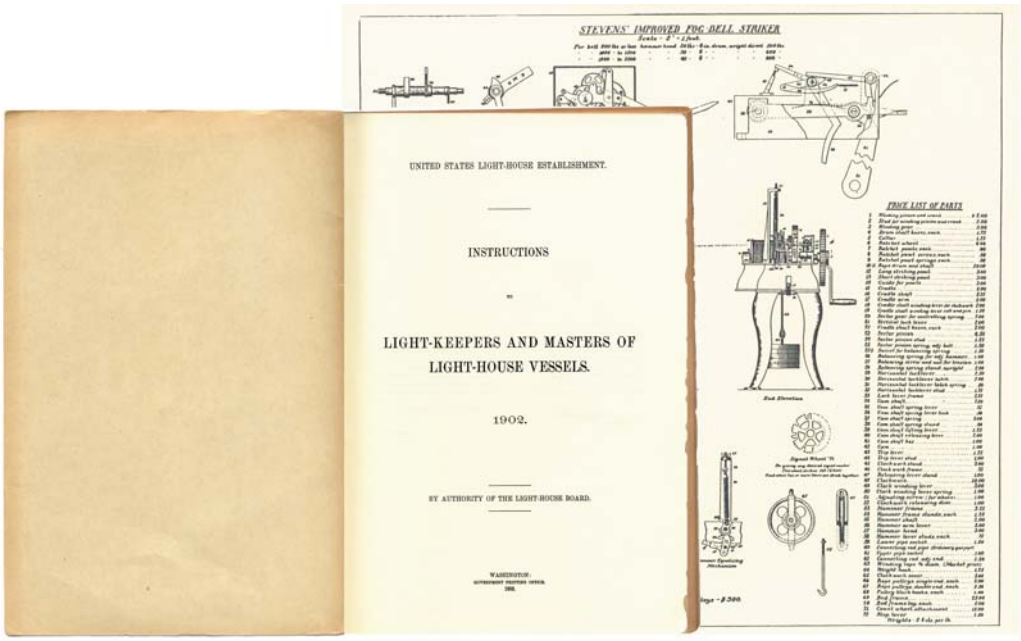
On-display at Ponce de Leon Inlet Lighthouse Museum
Cape Canaveral Light – First Order Fresnel Lens

The lighthouse could never be left unattended. If the Keeper had an assistant, either the Keeper or the assistant would always be present. If there were only one Keeper, some member of his family or other responsible person would be at the station during his absence. Rules and regulations along with directions for maintaining the light station and equipment were contained in the *Instructions to Light-Keepers and Masters of Light-House Vessels*. The book was published by the U.S. Lighthouse Establishment as guidance "whenever they have any doubts in regard to their duties or the manner of performing them".

The keeper and his family endured many hardships including isolation, monotony, harsh weather, and earthquakes. Most of the Keepers were highly dedicated to their jobs and were expected to maintain the highest standards in performance of their duties. In some cases, the Keeper was required to go above and beyond the call of duty and perform rescue missions in the general vicinity of the lighthouse during storms.

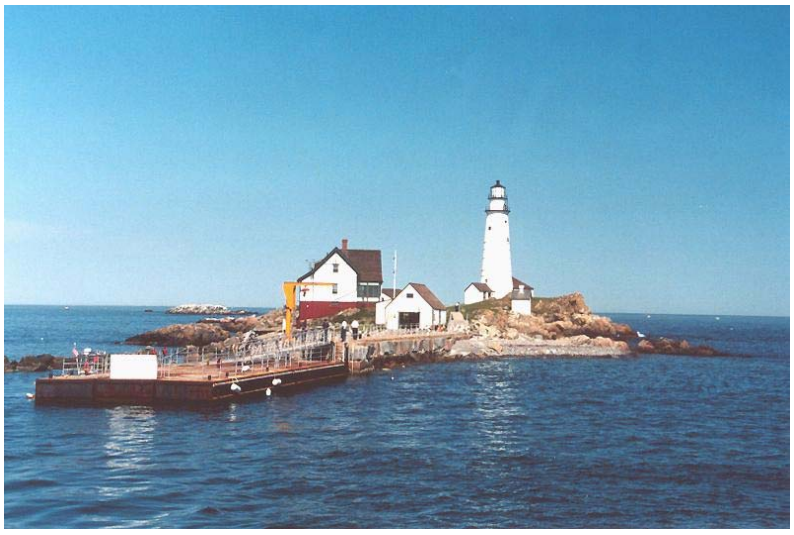
New Presque Isle Light
View from Keepers House

The Light Keeper



Light Keeper Instruction Book

Today, all the U.S. lighthouses have been automated and have no keepers with the exception of the Boston Light, which was the first lighthouse built in the U.S. and the last to remain staffed. The Coast Guard has no plans to automate Boston Light. Current staffing is comprised of active duty Coast Guard personnel, whose daily routine involves recording meteorological data, verifying positions and operations of aids to navigation, as well as maintaining the Boston Light and structures on Little Brewster Island.



Little Brewster Island – Boston Harbor

Lighthouse Management

United States Lights

Before the federal government recognized the need for managing aids to navigation, each of the thirteen colonies were responsible for satisfying their individual needs and located lights along the coast without careful planning nor regards for each other. However, once the government realized that these navigational aids were becoming a serious concern, President George Washington signed an act passed by the Congress in 1789 which created the first Lighthouse Establishment as a part of the U. S. Treasury Department. This act gave the Federal Government the responsibility for construction, operation and maintenance of all aids to navigation including lighthouses. Originally, the governing authority was known as the Lighthouse Board, followed by the Bureau of Lighthouses before being transferred to and consolidated with the U.S. Coast Guard in 1939. One of the first lights ordered to be constructed by George Washington was the Montauk Point Light on the Eastern tip of Long Island. This light, which was first lit in 1797, still serves as an active navigational aid.

Montauk Point Light – Montauk, New York

When the Lighthouse Board was established in 1852, the country was organized into 12 Lighthouse Districts. In the beginning, the Board was busy developing new technology and acquiring and installing Fresnel lens. They also began constructing screwpile lights and the first lights along the Eastern Florida Coast, the Northern and Western Gulf Coasts and the Western Pacific coast. By the beginning of the Civil War, all lighthouses were equipped with Fresnel lens. In 1910, Congress reorganized the lighthouse system into the Bureau of Lighthouses and changed lighthouse management from military to civilian.

Today, the U. S. Coast Guard continues to maintain the high standards established over 150 years ago by the Lighthouse Board by providing high quality service for the mariners while continuously improving navigational aids to keep up with state of the art technologies including; LORAN (Long Range Navigation), SHORAN (Short Range Navigation) and GPS (Global Positioning System). As a result of these technologies, the ownership of many lighthouses are being transferred to local government agencies, non-profit organizations and, in some cases, private citizens such as the Selkirk Light in Pulaski, New York and the Bass River Light in West Dennis, Massachusetts.

Selkirk Light – Pulaski, New York

The Selkirk Light was originally built at a cost of $3,000 in 1838 at the mouth of the Salmon River on Lake Ontario. The light was a 2-1/2 story

fieldstone structure with a 'birdcage style' lantern room mounted on the peak of its gabled roof. The area in which the light was constructed hoped to become a major port and attract fishing and ship building industries. However, when the industries and marine traffic began to decline, the light was removed from service in 1859. The light was eventually sold and used as a private dwelling and later as a hotel. In 1989, the Coast Guard permitted the owners to install an automated light in the lantern and recognizes it as an active aid to navigation.

The Bass River Light was constructed at the mouth of the Bass River near West Dennis, Massachusetts in 1855. The light remained in service until 1914 when it was deactivated, sold at an auction and remodeled to serve as a private dwelling. The property was later bought by a couple that decided to convert the structure into the Lighthouse Inn that is now an oceanfront resort. In 1989, the lantern was relit and became the only privately owned, privately maintained and family funded lighthouse in the country. Today, the light is recognized by the U. S. Coast as an active navigational aid.

Bass River Light – West Dennis, Massachusetts

The National Historic Lighthouse Preservation Act of 2000 (NHLPA) amended the National Historic Preservation Act of 1966 to establish a national lighthouse preservation program. This act allowed lighthouse properties to be transferred at no cost to federal agencies, state and local governments, nonprofit corporations and community development organizations for park and recreation, cultural and historic, and educational uses. The pilot phase of the program began when nine lighthouses were excessed in October 2001. In September 2002, the Department of the Interior and the U.S. Coast Guard announced an additional 20 lighthouses as being available to organizations meeting eligibility requirements. These excessed lighthouses included; Sentinel Island in Alaska, Pigeon Point and Point Sur in California, New London Harbor in Connecticut, St. Augustine in Florida, St. Simons Island and Tybee Island in Georgia, Molokai in Hawaii, New Canal in Louisiana, Thomas Point Shoal in Maryland, Bakers Island in Massachusetts, Gull Rock and Manitou Island in Michigan, Currituck Beach in North Carolina, Newport News Middle Ground in Virginia, and Grays Harbor and West Point in Washington. This process of transferring lighthouse ownership to eligible organizations is expected to continue over the next decade through the NHLPA application process.

St. Simons Island
Georgia

New Canal
Louisiana

Pigeon Point
California

West Point
Washington

Excessed U.S. Lighthouses – 2001/2002

Canadian Lights

In 1867, at the time of the Confederation and formation of the Dominion of Canada, the Department of Marine and Fisheries was organized and assigned the responsibility for the affairs of maritime shipping. The Dominion government acquired full responsibility for all navigational aids, lifesaving stations, canals and waterways, regulatory bodies and associated fleets of vessels, including supporting shore infrastructures. Prior to the confederation, shipping was handled independently by the provinces of Quebec, Ontario, New Brunswick, and Nova Scotia. In the 1870's, responsibility for navigational aids was transferred from the Department of Public Works to the Department of Marine and Fisheries. As maritime shipping traffic began to increase in the Northwest at the turn of the 20th Century, the Canadian Government recognized the need for better navigational aids including buoys and lighthouses. This led to the establishment of the Lighthouse Board of Canada in 1904 who reported to the Minister of the Department of Marine and Fisheries. This Board consisted of the Deputy Minister, a Chief Engineer, the Commander of the Canadian Marine Service and the Commissioner of Lights. The Board was responsible for selection of lighthouse sites and construction and maintenance of lighthouses and fog alarms. Once the Board was formed, they began to receive many requests for buoys and navigational lights and began a major construction program. Reflector-type lights were being upgraded to state-of-the art Fresnel Lens and many old wooden towers were replaced with reinforced concrete or prefabricated cast iron towers. These newer towers were required to support the weight of the higher order of Fresnel lens that floated in a bed of mercury. Most of the early lights were pyramidal four or eight sided wooden tower structures. These lights were economical to build and easy to relocate in the event the site became threatened by water or erosion. An example of this type of tower is the Mulholland Point Light on Campobello Island in New Brunswick constructed in 1885.

Mulholland Point Light – Campobello Island, New Brunswick

The Lighthouse Board of Canada remained active until the Department of Transport was formed in 1936 under the Department of Transport Act. At this time, all agencies of transportation, including the Department of Marine Services, were placed under a single authority. By the late 1930's, the waterway's became densely populated with state-of-the art navigational aids which decreased the need for the Lighthouse Board. In 1995, the Canadian Coast Guard left the Department of Transport and merged with the Department of Fisheries and Oceans. Today, the Canadian Coast Guard is responsible for establishing and maintaining all marine aids to navigation, developing waterways, and protecting navigable waters.

National Historic Landmarks

Today, less than 2,500 nationally significant historic places have been designated by the Secretary of the Interior as National Historic Landmarks. These historic landmarks include the following nine magnificent lights due to their exceptional value to the heritage of the United States.

- Block Island Southeast Light (1875), Block Island, Rhode Island
- Boston Harbor Light (1783), Little Brewster Island, Massachusetts
- Cape Ann Light Station (1771), Thacher Island, Rockport, Massachusetts
- Cape Hatteras Light (1870), Buxton, North Carolina
- Old Cape Henry Light (1792), Virginia Beach, Virginia
- Grosse Point Light (1873), Evanston, Illinois
- Ponce de Leon Light (1835), Ponce Inlet, Florida
- Sandy Hook Light (1764), Highlands, New Jersey
- Thomas Point Shoals Light (1875), Chesapeake Bay, Maryland

Boston Harbor Light

Cape Hatteras Light

Sandy Hook Light

Ponce de Leon Light

Block Island Southeast Light

Old Cape Henry Light

Grosse Point Light

Historic Landmarks

Lightships

United States Lightships

Lightships have been used as aids to navigation in waters prohibiting the construction of lighthouses since first introduced by the English in 1731. This first lightship was a single-masted ship with two lanterns suspended 12 feet apart on a cross arm attached to the mast. In 1820, the first U.S. lightship was developed for use in the Chesapeake Bay near Portsmouth, Virginia. In 1823, the first coastal lightship was placed into service for duty near Sandy Hook, New Jersey near the entrance to New York Harbor. The first lightships had displacements of 100 to 200 tons and equipped with lanterns for lights. These lightships were positioned at strategic locations off the coastline to help mariners avoid shoals and enter safely into harbors.

The ship contained a lantern and lens assembly mounted atop the mast, bells, and a fog horn to warn mariners of dangerous waters. Normally, a lightship carried a crew of 12 to 15 sailors that included a Captain, also known as the Lightship Master, and a Chief Engineer. The Master had the same responsibilities as the Lighthouse Keeper including; ensuring the ship and the lights were well maintained, recording any wrecks in the vicinity of the ship, assisting in rescue operations, keeping a watch on duty at all times, and maintaining a detailed journal which included documenting each vessel that passed the lightship. Only until 1891 were the lightships equipped with engines. The engines were small since they were seldom used and only sailed short distances. Once they reached their position, they dropped anchor and stayed in the same position for several years or until repairs were required. At this time, it would sail to a nearby shipyard and another lightship would take its place until the repairs were complete.

Eventually, the Lighthouse Board began to replace lightships with screwpile and caisson lighthouses, four-legged “Texas Towers” and later large navigational buoys. The last lightship to be decommissioned was the Nantucket in 1975 that was located at the Nantucket South Shoals station in Massachusetts. The Nantucket was 149 feet in length and had a displacement of 1,110 tons. Today, the U.S. has no lightships in active service. For more information on U.S. Lightships, see http://www.uscg.mil/hq/g-cp/history/LightshipIndex.html.

Canadian Lightships

At the time of Confederation in 1867, more than a dozen lightships were stationed in Canadian waters with most of them located between the lower St. Lawrence Seaway and The Great Lakes. The early lightships were wooden and were normally converted from schooners and other small ships. The first iron lightships, such as the Manicouagan, were built in England, and were fitted with a steam foghorn and the necessary boiler. The only means of propulsion for these lightships was a sturdy rig, such as a two masted schooners, with a square topsail on the fore which allowed the ship to be moved for emergency purposes only. By the late 1800's, lightships were being built in Canada and were equipped with steam reciprocating engines and later with diesel engines.

In 1903, the Board of Trade at St. John, New Brunswick, requested two lightships; one to be stationed on the Lurcher shoal to protect the approaches to the Bay of Fundy and a second lightship to be moored off the northeast coast of Anticosti Island. These new lightships were 112 feet long, two-masted steel ships that carried a jury rig of fore and aft sails and were equipped with low powered propulsion equipment. The lights were electric with seventh order lenses at each masthead and were visible from a distance of thirteen miles from all points of approach. The lightship contained an air diaphone and a bell in the event the diaphone became inoperative. Canada continued to order lightships from England into the 20th Century, such as, Halifax No. 19. During delivery in 1914, the Halifax overturned in a gale near Liscombe, Nova Scotia which resulted in the loss of all crew members aboard.

Lightships built from 1950 to 1959 in Canadian shipyards were 128 feet long and were equipped with 500 H.P. diesel engines and modern aids to navigation. As in the United States, offshore towers are now replacing Canadian lightships.

For more information on Canadian Lightships, see http://www.ccg-gcc.gc.ca/usque-ad-mare/chapter06-05_e.htm.

U.S. Lightship Overfalls (Formerly Boston)
1938 - 1973

Canadian Lightship Beacon on display at the Maritime Museum of the Atlantic in Halifax

U.S. Lightship Nantucket
1936 -1975

U.S. Lightship Huron
1920 -1970

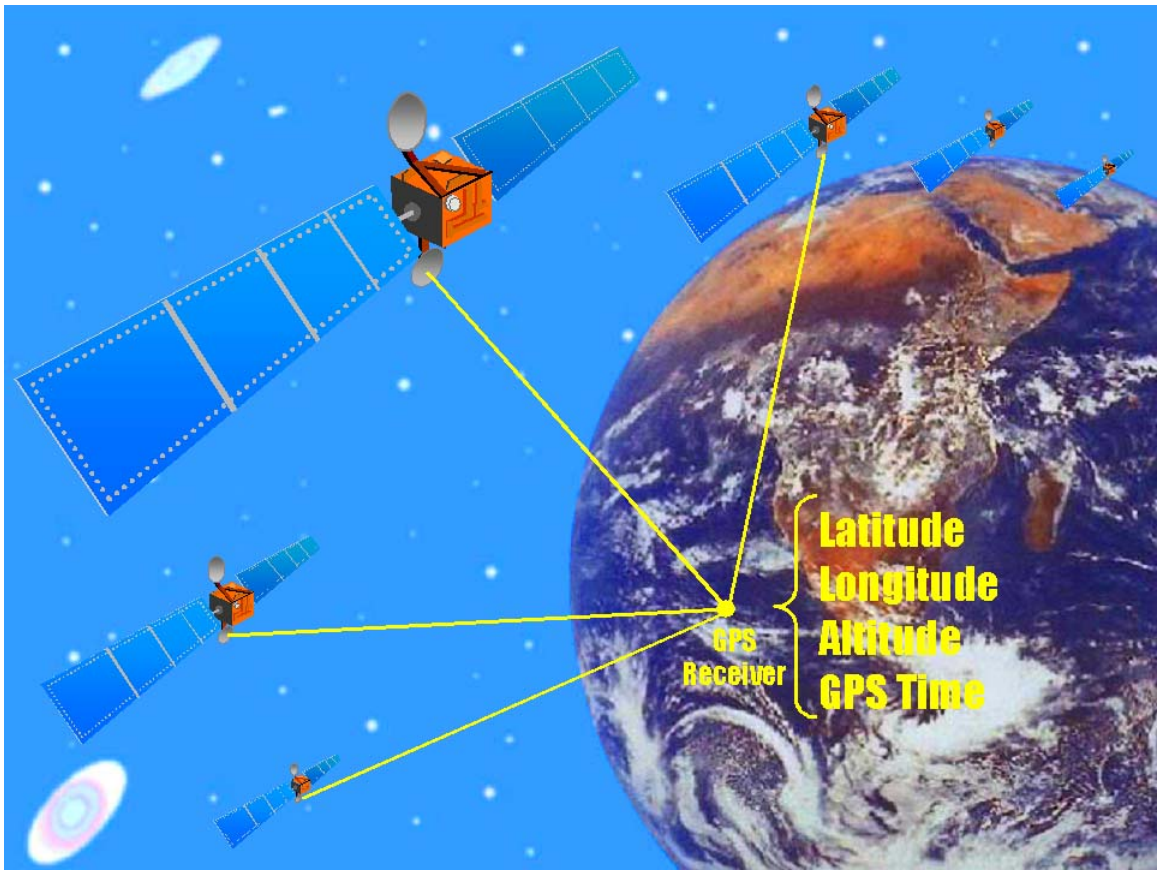
U.S. Lightship Portsmouth
1916 - 1964

Lightships

End of an Era

The demise of the use of lighthouses as navigational aids was significantly intensified on October 4, 1957, with the launch of the artificial Russian satellite Sputnik I. This launch ushered in new political, military, technological, and scientific developments that led to the United States development of the Global Positioning System (GPS).

GPS is a radio-navigation system consisting of 24 satellites in orbit at 11,000 nautical miles above the Earth. The satellites are spaced in orbit to allow a minimum of 6 satellites to be in view to a user at any given time. Each satellite transmits signals that are continuously monitored by ground stations located worldwide to ensure satellites transmit precise navigational data. A GPS receiver detects these signals and determines real-time position, velocity and time throughout the world in any weather condition.



Global Positioning System

A GPS receiver measures the amount of time it takes for a radio signal to travel from a satellite to its Earth position. The GPS receiver compares its time to that of the satellite and uses the difference between the two to calculate the distance. By using measurements from three or four satellites to solve basic geometric equations, the receiver can pinpoint latitude, longitude and altitude, correct errors in its clock to that of the satellite and display the resultant data as navigational information.

GPS was originally designed for military use, however, in the 1980's its application was expanded for worldwide use to include recreational boaters, fishing and shipping fleets, general and commercial aviation, surveyors, and engineers.

In the past, mariners have relied on the compass, naval charts, radios and lighthouses as primary means of navigating along the coast, from deep sea approaches or landfall and into harbors and estuaries. Today, GPS chart plotters with multi-color backlit map displays are used as marine navigation aids to determine present position and locate fixed and floating buoys, obstructions, wrecks, estuaries, harbors and marinas. This technology, with the occasional use of Radar for collision avoidance and a depth sounder to navigate in shallow waters and around underwater hazards, will bring an end to the lighthouse era and over 2500 years of dedicated maritime service.

Conventional Navigation Plotting Tools

United States Lighthouse List

The following lists of lighthouses in the United States, including Alaska and Hawaii, account for over 600 lights that are currently standing. These lights are either active or inactive and could be in a restored/fully operational condition or be in various states of repair. These listings, along with the date the lights were first lit, were compiled using information from the U.S. Coast Guard, the National Park Service and several other sources including lighthouse societies and lighthouse attendants. The first listing is a chronological listing of the Oldest 50 Existing Lights in the United States based on the year they were first lit or first placed into service as an active navigational aid. It also includes columns identifying active/inactive status and the date a previous tower was first activated where applicable. If a previous tower is listed as Not Applicable (NA), the existing tower is the original tower constructed at a particular site. The Lighthouse Reference List includes all active and inactive lights and is in alphabetical order by state and by name and identifies the year the light was first lit.

The first Lighthouse in the United States was built in Boston Harbor in 1716. The oldest light remaining in service in the United States is Sandy Hook Light in New Jersey and the newest coastal light is the Charleston Light in South Carolina. The first Great Lakes lighthouses were constructed in Buffalo, New York and Erie, Pennsylvania in 1818. The tallest lighthouse is Cape Hatteras Light in North Carolina at a height of 208 feet. The highest lighthouse above the water is Cape Mendocino Light in California at 515 feet above sea level. The first American-built West Coast Lighthouse was Alcatraz Island Light in California in 1854. The most expensive light built was St. George Reef Light in California in 1892 at a cost of $704,633.78. The light took 10 years to build and remained active until it was decommissioned in 1975. The light still sits on a 300 foot diameter rock at six miles off the Pacific coast.

For detailed information on each of the lights listed in the following lists, see the National Park Service Inventory of Historic Light Stations at http://www.cr.nps.gov/maritime/ltsum.htm.

Oldest 50 Existing Lights

Ref	Light	Current Active Aid PVT=Private	State	Existing Tower First Lit	Previous Tower First Lit
1	SANDY HOOK LIGHT	YES	NJ	1764	NA
2	BOSTON HARBOR LIGHT	YES	MA	1784	1716
3	PORTLAND HEAD LIGHT	YES	ME	1791	NA
4	CAPE HENRY LIGHT (FIRST)	NO	VA	1792	NA
5	MONTAUK POINT LIGHT	YES	NY	1797	NA
6	EATONS NECK LIGHT	YES	NY	1799	NA
7	NEW LONDON HARBOR LIGHT	YES	CT	1801	1761
8	FAULKNERS ISLAND LIGHT	YES	CT	1802	NA
9	OLD POINT COMFORT LIGHT	YES	VA	1802	NA
10	NEW POINT COMFORT LIGHT	NO	VA	1806	NA
11	SANDS POINT LIGHT (OLD)	NO	NY	1809	NA
12	SCITUATE LIGHT	YES	MA	1811	NA
13	GEORGETOWN LIGHT	YES	SC	1812	NA
14	BALD HEAD "OLD BALDY" LIGHT	NO	NC	1817	1794
15	BLACK ROCK HARBOR (FAYERWEATHER ISLAND) LIGHT	NO	CT	1817	NA
16	BIRD ISLAND LIGHT	YES-PVT	MA	1819	NA
17	SAPELO ISLAND LIGHT	YES	GA	1820	NA
18	BAKERS ISLAND LIGHT	YES	MA	1821	1791
19	BURNT ISLAND LIGHT	YES	ME	1821	NA
20	MARBLEHEAD LIGHT (FORMERLY SANDUSKY LIGHT)	YES	OH	1821	NA
21	PORT OF GENESEE (CHARLOTTE-GENESSE) LIGHT	NO	NY	1822	NA
22	OCRACOKE ISLAND LIGHT	YES	NC	1823	NA
23	POOLES ISLAND LIGHT	NO	MD	1825	NA
24	CONCORD POINT (HAVRE DE GRACE) LIGHT	NO	MD	1827	NA
25	COVE POINT LIGHT	YES	MD	1828	NA
26	BARCELONA (PORTLAND HARBOR) LIGHT	NO	NY	1829	NA
27	DICE HEAD LIGHT (OLD)	NO	ME	1829	NA
28	FORT GRATIOT LIGHT	YES	MI	1829	NA
29	POINT LOOKOUT LIGHT (OLD)	NO	MD	1830	NA
30	POPLAR POINT LIGHT	NO	RI	1831	NA
31	BUFFALO (MAIN) LIGHT	NO	NY	1833	1818
32	PEMAQUID POINT LIGHT	YES	ME	1835	NA
33	PINEY POINT LIGHT	NO	MD	1836	NA
34	EAGLE ISLAND LIGHT	YES	ME	1838	NA
35	LITTLE CUMBERLAND ISLAND LIGHT	NO	GA	1838	NA
36	NED'S POINT LIGHT	YES	MA	1838	NA
37	SELKIRK (SALMON RIVER) LIGHT	YES-PVT	NY	1838	NA
38	AMELIA ISLAND LIGHT	YES	FL	1839	NA
39	LYNDE POINT (SAYBROOK) LIGHT	YES	CT	1839	NA
40	SADDLEBACK LEDGE LIGHT	YES	ME	1839	NA

Oldest 50 Existing Lights

Ref	Light	Current Active Aid PVT=Private	State	Existing Tower First Lit	Previous Tower First Lit
41	PRESQUE ISLE LIGHT (OLD)	NO	MI	1840	NA
42	NEWPORT HARBOR (GOAT ISLAND) LIGHT	YES	RI	1842	1824
43	PLYMOUTH (GURNET) LIGHT	YES	MA	1843	NA
44	FIVE MILE POINT (OLD NEW HAVEN) LIGHT	NO	CT	1845	NA
45	CAPE FLORIDA (CAPE BRAGGS) LIGHT	YES-PVT	FL	1846	1825
46	JUNIPER ISLAND LIGHT (OLD)	NO	VT	1846	NA
47	KEY WEST LIGHT	NO	FL	1846	1825
48	MOUNT DESERT ROCK LIGHT	YES	ME	1847	1830
49	BILOXI LIGHT	YES-PVT	MS	1848	NA
50	LIBBY ISLAND LIGHT	YES	ME	1848	NA

Abbreviations:

PVT	**Private (Privately owned)**
Ref	Reference (In order of date first lit)
NA	Not Applicable

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
1	CAPE DECISION LIGHT	AK	1932
2	CAPE HINCHINBROOK LIGHT	AK	1934
3	CAPE SARICHEF LIGHT	AK	1950
4	CAPE SPENCER LIGHT	AK	1925
5	CAPE ST. ELIAS LIGHT	AK	1916
6	ELDRED ROCK LIGHT	AK	1905
7	FIVE FINGER ISLANDS LIGHT	AK	1935
8	GUARD ISLANDS LIGHT	AK	1924
9	MARY ISLAND LIGHT	AK	1937
10	POINT RETREAT LIGHT	AK	1923
11	SENTINEL ISLAND LIGHT	AK	1935
12	TREE POINT LIGHT	AK	1935
13	MOBILE MIDDLE BAY LIGHT	AL	1885
14	MOBILE POINT (RANGE REAR) LIGHT	AL	1873
15	SAND ISLAND LIGHT	AL	1873
16	ALCATRAZ ISLAND LIGHT	CA	1909
17	ANACAPA ISLAND LIGHT	CA	1932
18	BATTERY POINT (CRESCENT CITY) LIGHT	CA	1856
19	CAPE MENDOCINO LIGHT (OLD)	CA	1868
20	CARQUINEZ STRAIT LIGHT	CA	1910
21	EAST BROTHER ISLAND LIGHT	CA	1874
22	FARALLON ISLAND LIGHT	CA	1855
23	FORT POINT LIGHT	CA	1864
24	LIME POINT LIGHT	CA	1900
25	LONG BEACH HARBOR (ROBOT) LIGHT	CA	1949
26	LOS ANGELES HARBOR LIGHT	CA	1913
27	OAKLAND HARBOR LIGHT	CA	1903
28	PIEDRAS BLANCAS LIGHT	CA	1879
29	PIGEON POINT LIGHT	CA	1872
30	POINT ARENA LIGHT	CA	1908
31	POINT BLUNT LIGHT	CA	1956
32	POINT BONITA LIGHT	CA	1877
33	POINT CABRILLO LIGHT	CA	1909
34	POINT CONCEPTION LIGHT	CA	1882
35	POINT DIABLO LIGHT	CA	1923
36	POINT FERMIN LIGHT	CA	1874
37	POINT HUENEME LIGHT	CA	1941
38	POINT LOMA LIGHT (NEW)	CA	1891
39	POINT LOMA LIGHT (OLD)	CA	1855
40	POINT MONTARA LIGHT	CA	1928
41	POINT PINOS LIGHT	CA	1855
42	POINT REYES LIGHT	CA	1870
43	POINT SUR LIGHT	CA	1889
44	POINT VICENTE LIGHT	CA	1926
45	PUNTA GORDA LIGHT	CA	1912
46	SAN LUIS OBISPO (PORT HARFORD) LIGHT	CA	1890
47	SAN PEDRO ROCK LIGHT	CA	1929
48	SOUTHAMPTON SHOALS LIGHT	CA	1905
49	ST. GEORGE REEF LIGHT	CA	1892
50	TABLE BLUFF LIGHT	CA	1892

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
51	TRINIDAD HEAD LIGHT	CA	1871
52	YERBA BUENA ISLAND (GOAT ISLAND) LIGHT	CA	1875
53	NAVASSA ISLAND LIGHT	CS	1917
54	BLACK ROCK HARBOR (FAYERWEATHER ISLAND) LIGHT	CT	1817
55	FAULKNERS ISLAND LIGHT	CT	1802
56	FIVE MILE POINT (OLD NEW HAVEN) LIGHT	CT	1845
57	GREAT CAPTAIN ISLAND LIGHT	CT	1868
58	GREENS LEDGE LIGHT	CT	1902
59	LYNDE POINT (SAYBROOK) LIGHT	CT	1839
60	MORGAN POINT LIGHT	CT	1868
61	NEW HAVEN LONG WHARF LIGHT	CT	1900
62	NEW LONDON HARBOR LIGHT	CT	1801
63	NEW LONDON LEDGE LIGHT	CT	1909
64	PECK LEDGE LIGHT	CT	1906
65	PENFIELD REEF LIGHT	CT	1874
66	SAYBROOK BREAKWATER LIGHT	CT	1886
67	SHEFFIELD ISLAND (NORWALK) LIGHT	CT	1868
68	SOUTHWEST LEDGE (NEW HAVEN BREAKWATER) LIGHT	CT	1877
69	STAMFORD HARBOR (CHATHAM ROCKS) LIGHT	CT	1882
70	STONINGTON HARBOR LIGHT	CT	1840
71	STRATFORD POINT LIGHT	CT	1881
72	STRATFORD SHOAL (MIDDLE GROUND) LIGHT	CT	1877
73	BELLEVUE RANGE REAR LIGHT	DE	1909
74	BRANDYWINE SHOAL LIGHT	DE	1914
75	DELAWARE BREAKWATER LIGHT	DE	1885
76	FENWICK ISLAND LIGHT	DE	1859
77	FOURTEEN FOOT BANK LIGHT	DE	1888
78	HARBOR OF REFUGE (SOUTH) BREAKWATER LIGHT	DE	1926
79	LISTON RANGE REAR LIGHT	DE	1877
80	MARCUS HOOK RANGE REAR LIGHT	DE	1918
81	MISPILLION LIGHT (Destroyed by lightning in 2002-Status unknown)	DE	1910
82	REEDY ISLAND RANGE REAR LIGHT	DE	1910
83	SHIP JOHN SHOAL LIGHT	DE	1874
84	ALLIGATOR REEF LIGHT	FL	1873
85	AMELIA ISLAND LIGHT	FL	1839
86	AMERICAN SHOAL LIGHT	FL	1880
87	ANCLOTE KEY LIGHT	FL	1887
88	BOCA GRANDE LIGHT	FL	1890
89	CAPE CANAVERAL LIGHT	FL	1868
90	CAPE FLORIDA (CAPE BRAGGS) LIGHT	FL	1846
91	CAPE SAN BLAS LIGHT	FL	1885
92	CAPE ST. GEORGE LIGHT	FL	1852
93	CARYSFORT REEF LIGHT	FL	1852
94	COSGROVE SHOAL LIGHT	FL	1935
95	CROOKED RIVER (CARRABELLE) LIGHT	FL	1895
96	DRY TORTUGAS (LOGGERHEAD KEY) LIGHT	FL	1858
97	EGMONT KEY LIGHT	FL	1858
98	FOWEY ROCKS LIGHT	FL	1878
99	HILLSBORO INLET LIGHT	FL	1907
100	JUPITER INLET LIGHT	FL	1860

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
101	KEY WEST LIGHT	FL	1846
102	MOLASSES REEF LIGHT	FL	1921
103	PACIFIC REEF LIGHT	FL	1921
104	PENSACOLA LIGHT	FL	1859
105	PONCE DE LEON (MOSQUITO) INLET LIGHT	FL	1887
106	SAND KEY LIGHT	FL	1893
107	SANIBEL ISLAND LIGHT	FL	1884
108	SEAHORSE KEY (CEDAR KEYS) LIGHT	FL	1854
109	SMITH SHOAL LIGHT (1933)	FL	1933
110	SOMBRERO KEY LIGHT	FL	1858
111	ST. AUGUSTINE LIGHT	FL	1874
112	ST. JOHNS RIVER (MAYPORT) LIGHT	FL	1859
113	ST. JOSEPH POINT RR LIGHT "BEACON HILL"	FL	1902
114	ST. MARKS (RANGE REAR) LIGHT	FL	1842
115	TENNESSEE REEF LIGHT	FL	1933
116	TORTUGAS HARBOR (FORT JEFFERSON) LIGHT	FL	1876
117	COCKSPUR ISLAND LIGHT	GA	1857
118	LITTLE CUMBERLAND ISLAND LIGHT	GA	1838
119	SAPELO ISLAND LIGHT	GA	1820
120	ST. SIMONS ISLAND LIGHT	GA	1872
121	TYBEE ISLAND LIGHT	GA	1867
122	BARBERS POINT LIGHT	HI	1933
123	CAPE KUMUKAHI LIGHT	HI	1934
124	DIAMOND HEAD LIGHT	HI	1918
125	HANAMANIOA POINT LIGHT	HI	1918
126	HAWEA POINT LIGHT	HI	1911
127	KAENA POINT PASSING LIGHT	HI	1920
128	KAUHOLA POINT LIGHT	HI	1933
129	KAWAIHAE LIGHT	HI	1915
130	KILAUEA POINT LIGHT	HI	1913
131	LAHAINA LIGHT	HI	1917
132	MAKAHUENA POINT LIGHT	HI	1908
133	MAKAPUU POINT LIGHT	HI	1909
134	MOLOKAI (KALAUPAPA) LIGHT	HI	1909
135	MOLOKINI LIGHT	HI	1909
136	NAPOOPOO LIGHT	HI	1908
137	NAWILIWILI HARBOR LIGHT	HI	1933
138	PALAOA POINT (CAPE KAEA) LIGHT	HI	1934
139	PAUKAA POINT LIGHT	HI	1929
140	PAUWELA POINT LIGHT	HI	1937
141	CHICAGO HARBOR LIGHT	IL	1893
142	GROSSE POINT LIGHT	IL	1873
143	GARY BREAKWATER LIGHT	IN	1911
144	INDIANA HARBOR EAST BREAKWATER LIGHT	IN	1935
145	MICHIGAN CITY BREAKWATER LIGHT	IN	1911
146	MICHIGAN CITY EAST PIERHEAD LIGHT	IN	1904
147	MICHIGAN CITY LIGHT	IN	1858
148	CHANDELEUR ISLAND LIGHT	LA	1896
149	NEW CANAL LIGHT (Damaged by Hurricanes Katrina and Rita in 2005–Status unknown)	LA	1901
150	PASS A L'OUTRE LIGHT	LA	1855

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
151	PASS MANCHAC LIGHT	LA	1857
152	POINT AU FER REEF LIGHT	LA	1916
153	PORT PONTCHARTRAIN LIGHT	LA	1855
154	SABINE PASS LIGHT	LA	1856
155	SHIP SHOAL LIGHT	LA	1859
156	SOUTH PASS RANGE LIGHTS	LA	1881/1947
157	SOUTHWEST PASS ENTRANCE LIGHT	LA	1962
158	SOUTHWEST REEF LIGHT	LA	1858
159	TCHEFUNCTE RIVER RANGE REAR LIGHT	LA	1868
160	WEST RIGOLETS LIGHT	LA	1855
161	ANNISQUAM HARBOR LIGHT	MA	1897
162	BAKERS ISLAND LIGHT	MA	1821
163	BASS RIVER LIGHT	MA	1855
164	BIRD ISLAND LIGHT	MA	1819
165	BOSTON HARBOR LIGHT	MA	1784
166	BRANT POINT LIGHT	MA	1901
167	BUZZARDS BAY ENTRANCE LIGHT	MA	1961
168	CANAL BREAKWATER LIGHT (CAPE COD)	MA	1915
169	CAPE ANN LIGHT (THACHER ISLAND) LIGHT	MA	1861
170	CAPE COD (HIGHLAND) LIGHT	MA	1857
171	CAPE POGE (POGUE) LIGHT	MA	1893
172	CHATHAM LIGHT	MA	1877
173	CLEVELAND EAST LEDGE LIGHT	MA	1943
174	DERBY WHARF LIGHT	MA	1871
175	DUXBURY PIER LIGHT ("BUG LIGHT")	MA	1871
176	EAST CHOP (TELEGRAPH HILL) LIGHT	MA	1877
177	EASTERN POINT LIGHT	MA	1890
178	EDGARTOWN HARBOR LIGHT	MA	1875
179	FORT PICKERING (WINTER ISLAND) LIGHT	MA	1871
180	GAY HEAD LIGHT	MA	1856
181	GRAVES (THE) LIGHT	MA	1905
182	HOSPITAL POINT (RANGE FRONT) LIGHT	MA	1872
183	HYANNIS (RANGE REAR) LIGHT	MA	1849
184	LONG ISLAND HEAD LIGHT	MA	1901
185	LONG POINT LIGHT	MA	1875
186	MARBLEHEAD LIGHT	MA	1896
187	MINOTS LEDGE LIGHT	MA	1860
188	MONOMOY POINT LIGHT	MA	1849
189	NAUSET LIGHT	MA	1877
190	NED'S POINT LIGHT	MA	1838
191	NEWBURYPORT HARBOR (PLUM ISLAND) LIGHT	MA	1898
192	NEWBURYPORT HARBOR RANGE LIGHTS	MA	1873
193	NOBSKA POINT LIGHT	MA	1876
194	PALMER ISLAND LIGHT	MA	1849
195	PLYMOUTH (GURNET) LIGHT	MA	1843
196	RACE POINT LIGHT	MA	1876
197	SANDY NECK LIGHT	MA	1857
198	SANKATY HEAD LIGHT	MA	1850
199	SCITUATE LIGHT	MA	1811
200	STAGE HARBOR LIGHT	MA	1880

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
201	STRAITSMOUTH ISLAND LIGHT	MA	1896
202	TARPAULIN COVE LIGHT	MA	1891
203	TEN POUND ISLAND LIGHT	MA	1881
204	THREE SISTERS LIGHTS (THREE TOWERS)	MA	1892
205	WEST CHOP LIGHT	MA	1891
206	WINGS NECK LIGHT	MA	1889
207	WOOD END LIGHT	MA	1873
208	BALTIMORE LIGHT	MD	1908
209	BLOODY POINT BAR LIGHT	MD	1882
210	CONCORD POINT (HAVRE DE GRACE) LIGHT	MD	1827
211	COVE POINT LIGHT	MD	1828
212	CRAIGHILL CHANNEL LOWER RANGE LIGHTS	MD	1873
213	CUTOFF CHANNEL RANGE LIGHTS	MD	1886/1938
214	DRUM POINT LIGHT	MD	1883
215	FISHING BATTERY	MD	1853
216	HAMBROOKS BAR LIGHT	MD	1902
217	HOOPER ISLAND LIGHT	MD	1902
218	HOOPER STRAIT LIGHT	MD	1879
219	PINEY POINT LIGHT	MD	1836
220	POINT LOOKOUT LIGHT (OLD)	MD	1830
221	POINT NO POINT LIGHT	MD	1905
222	POOLES ISLAND LIGHT	MD	1825
223	SANDY POINT SHOAL LIGHT	MD	1883
224	SEVEN FOOT KNOLL LIGHT	MD	1855
225	SHARPS ISLAND LIGHT	MD	1882
226	SOLOMONS LUMP LIGHT	MD	1895
227	THOMAS POINT SHOAL LIGHT	MD	1875
228	TURKEY POINT LIGHT	MD	1833
229	BAKER ISLAND LIGHT	ME	1855
230	BASS HARBOR HEAD LIGHT	ME	1858
231	BEAR ISLAND LIGHT	ME	1889
232	BLUE HILL BAY LIGHTS	ME	1857
233	BOON ISLAND LIGHT	ME	1855
234	BROWNS HEAD LIGHT	ME	1857
235	BURNT COAT HARBOR LIGHT	ME	1872
236	BURNT ISLAND LIGHT	ME	1821
237	CAPE ELIZABETH LIGHTS	ME	1874
238	CAPE NEDDICK "THE NUBBLE" LIGHT	ME	1879
239	CUCKOLDS (THE) LIGHT	ME	1907
240	CURTIS ISLAND LIGHT	ME	1896
241	DEER ISLAND THOROFARE LIGHT	ME	1857
242	DICE HEAD LIGHT (OLD)	ME	1829
243	DOUBLING POINT (KENNEBEC RIVER) RANGE LIGHTS	ME	1898
244	DOUBLING POINT LIGHT	ME	1899
245	EAGLE ISLAND LIGHT	ME	1838
246	EGG ROCK LIGHT	ME	1875
247	FORT POINT LIGHT	ME	1857
248	FORT POPHAM LIGHT	ME	1898
249	FRANKLIN ISLAND LIGHT	ME	1855
250	GOAT ISLAND LIGHT	ME	1859

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
251	GOOSE ROCKS LIGHT	ME	1890
252	GREAT DUCK ISLAND LIGHT	ME	1890
253	GRINDLE POINT LIGHT	ME	1874
254	HALFWAY ROCK LIGHT	ME	1871
255	HENDRICKS HEAD LIGHT	ME	1875
256	HERON NECK LIGHT	ME	1854
257	INDIAN ISLAND LIGHT	ME	1874
258	ISLE AU HAUT (ROBINSON POINT) LIGHT	ME	1907
259	LIBBY ISLAND LIGHT	ME	1848
260	LITTLE RIVER LIGHT	ME	1876
261	LUBEC CHANNEL LIGHT	ME	1890
262	MARSHALL POINT LIGHT	ME	1857
263	MATINICUS ROCK LIGHT (TWIN TOWERS)	ME	1857
264	MONHEGAN ISLAND LIGHT	ME	1850
265	MOOSE PEAK LIGHT	ME	1851
266	MOUNT DESERT ROCK LIGHT	ME	1847
267	NARRAGUAGUS (POND ISLAND) LIGHT	ME	1853
268	NASH ISLAND LIGHT	ME	1874
269	OWLS HEAD LIGHT	ME	1852
270	PEMAQUID POINT LIGHT	ME	1835
271	PERKINS ISLAND LIGHT	ME	1898
272	PETIT MANAN LIGHT	ME	1855
273	POND ISLAND LIGHT	ME	1855
274	PORTLAND BREAKWATER LIGHT ("BUG LIGHT")	ME	1875
275	PORTLAND HEAD LIGHT	ME	1791
276	PROSPECT HARBOR POINT LIGHT	ME	1891
277	PUMPKIN ISLAND LIGHT	ME	1854
278	RAM ISLAND LEDGE LIGHT	ME	1905
279	RAM ISLAND LIGHT	ME	1883
280	ROCKLAND HARBOR BREAKWATER LIGHT	ME	1902
281	SADDLEBACK LEDGE LIGHT	ME	1839
282	SEGUIN ISLAND LIGHT	ME	1857
283	SPRING POINT LEDGE LIGHT	ME	1897
284	SQUIRREL POINT LIGHT	ME	1898
285	TENANTS HARBOR LIGHT	ME	1857
286	TWO BUSH ISLAND LIGHT	ME	1897
287	WEST QUODDY HEAD LIGHT	ME	1858
288	WHALEBACK LEDGE LIGHT	ME	1872
289	WHITEHEAD ISLAND LIGHT	ME	1852
290	WHITLOCKS MILL LIGHT	ME	1909
291	WINTER HARBOR LIGHT	ME	1856
292	WOOD ISLAND LIGHT	ME	1858
293	ALPENA LIGHT	MI	1914
294	AU SABLE LIGHT	MI	1874
295	BEAVER HEAD (BEAVER ISLAND) LIGHT	MI	1858
296	BIG BAY POINT LIGHT	MI	1896
297	BIG SABLE POINT (GRAND POINT AU SABLE) LIGHT	MI	1867
298	BOIS BLANC ISLAND LIGHT (OLD)	MI	1867
299	CHARITY ISLAND LIGHT	MI	1857
300	CHARLEVOIX SOUTH PIER LIGHT	MI	1948

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
301	CHEBOYGAN CRIB LIGHT	MI	1910
302	CHEBOYGAN RIVER RANGE FRONT LIGHT	MI	1880
303	COPPER HARBOR LIGHT	MI	1866
304	COPPER HARBOR RANGE LIGHTS	MI	1869
305	CRISP POINT LIGHT	MI	1904
306	DETOUR REEF LIGHT	MI	1931
307	DETROIT RIVER (BAR POINT SHOAL) LIGHT	MI	1885
308	EAGLE HARBOR LIGHT	MI	1871
309	EAGLE HARBOR REAR RANGE LIGHT	MI	1877
310	EAGLE RIVER LIGHT	MI	1874
311	ESCANABA LIGHT	MI	1938
312	FORT GRATIOT LIGHT	MI	1829
313	FORTY MILE POINT LIGHT	MI	1897
314	FOURTEEN FOOT SHOAL LIGHT	MI	1930
315	FRANKFORT NORTH BREAKWATER LIGHT	MI	1932
316	GRAND HAVEN SOUTH PIERHEAD LIGHTS	MI	1905/1922
317	GRAND ISLAND EAST CHANNEL LIGHT	MI	1870
318	GRAND ISLAND HARBOR RANGE REAR LIGHT	MI	1914
319	GRAND ISLAND NORTH (OLD NORTH) LIGHT	MI	1867
320	GRAND MARAIS HARBOR RANGE LIGHTS	MI	1895
321	GRAND TRAVERSE (CAT'S HEAD POINT) LIGHT	MI	1858
322	GRANITE ISLAND LIGHT	MI	1869
323	GRAVELLY SHOAL LIGHT	MI	1939
324	GRAYS REEF LIGHT	MI	1936
325	GROSSE ILE NORTH CHANNEL RANGE FRONT LIGHT	MI	1906
326	GULL ROCK LIGHT	MI	1867
327	HARBOR BEACH LIGHT	MI	1885
328	HOLLAND HARBOR (SOUTH PIERHEAD) LIGHT	MI	1936
329	HURON ISLAND LIGHT	MI	1877
330	ISLE ROYALE LIGHT	MI	1875
331	KEWEENAW WATERWAY LOWER ENTRANCE LIGHT	MI	1920
332	LANSING SHOAL LIGHT	MI	1928
333	LITTLE POINT SABLE LIGHT	MI	1874
334	LITTLE TRAVERSE (HARBOR POINT) LIGHT	MI	1884
335	LUDINGTON NORTH BREAKWATER LIGHT	MI	1924
336	MACKINAC POINT LIGHT (OLD)	MI	1892
337	MANISTEE (NORTH PIERHEAD) LIGHT	MI	1927
338	MANISTIQUE (EAST BREAKWATER) LIGHT	MI	1917
339	MANITOU ISLAND LIGHT	MI	1861
340	MARQUETTE BREAKWATER OUTER LIGHT	MI	1908
341	MARQUETTE HARBOR LIGHT	MI	1866
342	MARTIN REEF LIGHT	MI	1927
343	MCGULPINS POINT LIGHT	MI	1869
344	MENDOTA (BETE GRISE) LIGHT	MI	1895
345	MENOMINEE (NORTH PIER) LIGHT	MI	1927
346	MIDDLE ISLAND LIGHT	MI	1905
347	MINNEAPOLIS SHOAL LIGHT	MI	1935
348	MISSION POINT LIGHT (OLD)	MI	1870
349	MUNISING RANGE LIGHTS	MI	1908
350	MUSKEGON SOUTH BREAKWATER LIGHT	MI	1903

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
350	MUSKEGON SOUTH BREAKWATER LIGHT	MI	1903
351	NORTH MANITOU SHOAL LIGHT	MI	1935
352	ONTONAGON HARBOR WEST PIERHEAD LIGHT	MI	1900
353	ONTONAGON LIGHT	MI	1866
354	PASSAGE ISLAND LIGHT	MI	1882
355	PENINSULA POINT LIGHT	MI	1866
356	POE REEF LIGHT	MI	1929
357	POINT BETSIE LIGHT	MI	1858
358	POINT IROQUOIS LIGHT	MI	1871
359	POINTE AUX BARQUES LIGHT	MI	1857
360	PORT AUSTIN REEF LIGHT	MI	1878
361	PORT SANILAC LIGHT	MI	1886
362	PORTAGE RIVER (JACOBSVILLE) LIGHT	MI	1870
363	POVERTY ISLAND LIGHT	MI	1874
364	PRESQUE ISLE HARBOR BREAKWATER LIGHT	MI	1941
365	PRESQUE ISLE LIGHT (NEW)	MI	1871
366	PRESQUE ISLE LIGHT (OLD)	MI	1840
367	PRESQUE ISLE RANGE LIGHTS	MI	1870
368	ROCK HARBOR LIGHT	MI	1855
369	ROCK OF AGES LIGHT	MI	1908
370	ROUND ISLAND (ST. MARY'S RIVER) LIGHT	MI	1892
371	ROUND ISLAND LIGHT	MI	1895
372	ROUND ISLAND PASSAGE LIGHT	MI	1945
373	SAGINAW RIVER (RANGE REAR) LIGHT	MI	1876
374	SAND HILLS LIGHT	MI	1919
375	SAND POINT LIGHT (BARAGA)	MI	1878
376	SAND POINT LIGHT (ESCANABA)	MI	1867
377	SEUL CHOIX POINTE LIGHT	MI	1895
378	SKILLAGALEE (ILE AUX GALETS) LIGHT	MI	1888
379	SOUTH FOX ISLAND LIGHT	MI	1868
380	SOUTH HAVEN SOUTH PIERHEAD LIGHT	MI	1903
381	SOUTH MANITOU ISLAND LIGHT	MI	1872
382	SPECTACLE REEF LIGHT	MI	1874
383	SQUAW ISLAND LIGHT	MI	1892
384	ST. CLAIR FLATS S. CHANNEL RANGE LIGHTS (OLD)	MI	1859
385	ST. HELENA ISLAND LIGHT	MI	1873
386	ST. JAMES (BEAVER HARBOR) LIGHT	MI	1870
387	ST. JOSEPH NORTH PIER LIGHTS	MI	1906
388	ST. MARTIN ISLAND LIGHT	MI	1905
389	ST. MARYS UPPER RANGE REAR LIGHT	MI	1887
390	STANNARD ROCK LIGHT	MI	1882
391	STURGEON POINT LIGHT	MI	1869
392	TAWAS POINT (OTTAWA POINT) LIGHT	MI	1876
393	THUNDER BAY ISLAND LIGHT	MI	1832
394	WAUGOSHANCE LIGHT	MI	1870
395	WHITE RIVER LIGHT	MI	1875
396	WHITE SHOAL LIGHT	MI	1910
397	WHITEFISH POINT LIGHT	MI	1861
398	DULUTH HARBOR NORTH BREAKWATER LIGHT	MN	1910
399	DULUTH SOUTH BREAKWATER LIGHTS	MN	1901
400	GRAND MARAIS LIGHT	MN	1922

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
401	SPLIT ROCK LIGHT	MN	1910
402	TWO HARBORS LIGHT	MN	1892
403	BILOXI LIGHT	MS	1848
404	BALD HEAD "OLD BALDY" LIGHT	NC	1817
405	BODIE ISLAND LIGHT	NC	1872
406	CAPE HATTERAS LIGHT	NC	1870
407	CAPE LOOKOUT LIGHT	NC	1859
408	CURRITUCK BEACH LIGHT	NC	1875
409	DIAMOND SHOAL LIGHT	NC	1966
410	OAK ISLAND LIGHT	NC	1958
411	OCRACOKE ISLAND LIGHT	NC	1823
412	ROANOKE RIVER LIGHT	NC	1903
413	ISLE OF SHOALS (WHITE ISLAND) LIGHT	NH	1865
414	PORTSMOUTH HARBOR (NEWCASTLE) LIGHT	NH	1877
415	ABSECON LIGHT	NJ	1857
416	BARNEGAT LIGHT	NJ	1857
417	CAPE MAY POINT LIGHT	NJ	1859
418	CHAPEL HILL RANGE REAR LIGHT	NJ	1856
419	CONOVER BEACON (CHAPEL HILL FRONT RANGE)	NJ	1941
420	EAST POINT (MAURICE RIVER) LIGHT	NJ	1849
421	FINNS POINT RANGE REAR LIGHT	NJ	1877
422	HEREFORD INLET LIGHT (OLD)	NJ	1874
423	MIAH MAULL SHOAL LIGHT	NJ	1913
424	NAVESINK TWIN LIGHTS (NORTH TOWER)	NJ	1862
425	NAVESINK TWIN LIGHTS (SOUTH TOWER)	NJ	1862
426	SANDY HOOK LIGHT	NJ	1764
427	SEA GIRT LIGHT	NJ	1896
428	TINICUM ISLAND RANGE REAR LIGHT	NJ	1880
429	BARBER'S POINT LIGHT (OLD)	NY	1873
430	BARCELONA (PORTLAND HARBOR) LIGHT	NY	1829
431	BLUFF POINT (VALCOUR ISLAND) LIGHT	NY	1874
432	BRADDOCK POINT LIGHT	NY	1896
433	BREWERTON FRONT RANGE LIGHT	NY	1917
434	BUFFALO (MAIN) LIGHT	NY	1833
435	BUFFALO HARBOR SOUTH ENTRANCE LIGHT	NY	1903
436	CAPE VINCENT BREAKWATER LIGHT	NY	1900
437	CEDAR ISLAND LIGHT (OLD)	NY	1868
438	COLD SPRING HARBOR LIGH	NY	1890
439	CONEY ISLAND (NORTONS POINT) LIGHT	NY	1920
440	CROSSOVER ISLAND LIGHT	NY	1882
441	CROWN POINT LIGHT	NY	1912
442	CUMBERLAND HEAD LIGHT (OLD)	NY	1868
443	DUNKIRK (POINT GRATIOT) LIGHT	NY	1875
444	EAST CHARITY SHOALS LIGHT	NY	1935
445	EATONS NECK LIGHT	NY	1799
446	ELM TREE LIGHT	NY	1939
447	ESOPUS MEADOWS (MIDDLE HUDSON RIVER) LIGHT	NY	1872
448	EXECUTION ROCKS LIGHT	NY	1850
449	FIRE ISLAND LIGHT	NY	1858
450	FORT NIAGARA LIGHT	NY	1872

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
450	FORT NIAGARA LIGHT	NY	1872
451	FORT WADSWORTH LIGHT	NY	1903
452	GALLOO ISLAND LIGHT	NY	1867
453	GREAT BEDS LIGHT	NY	1880
454	HORTON POINT LIGHT	NY	1857
455	HUDSON-ATHENS (HUDSON CITY) LIGHT	NY	1874
456	HUNTINGTON HARBOR LIGHT (FORMERLY LLOYD HBR)	NY	1912
457	JEFFREY'S HOOK ("THE LITTLE RED") LIGHT	NY	1880
458	LATIMER REEF LIGHT	NY	1884
459	LITTLE GULL ISLAND LIGHT	NY	1869
460	MONTAUK POINT LIGHT	NY	1797
461	NEW DORP (SWASH CHANNEL RANGE REAR) LIGHT	NY	1856
462	NORTH DUMPLING LIGHT	NY	1871
463	OGDENSBURG HARBOR LIGHT	NY	1900
464	OLD FIELD POINT LIGHT	NY	1868
465	OLD ORCHARD SHOAL LIGHT	NY	1893
466	ORIENT POINT LIGHT	NY	1899
467	OSWEGO HARBOR WEST PIERHEAD LIGHT	NY	1934
468	PLATTSBURG BREAKWATER LIGHTS	NY	1920
469	PLUM ISLAND (PLUM GUT) LIGHT	NY	1870
470	POINT AUX ROCHES LIGHT	NY	1858
471	PORT OF GENESEE (CHARLOTTE-GENESSE) LIGHT	NY	1822
472	PRINCES BAY LIGHT (OLD)	NY	1864
473	RACE ROCK LIGHT	NY	1879
474	ROBBINS REEF LIGHT	NY	1883
475	ROCK ISLAND LIGHT	NY	1882
476	ROMER SHOAL LIGHT	NY	1898
477	RONDOUT CREEK II (KINGSTON) LIGHT	NY	1915
478	ROOSEVELT ISLAND (BLACKWELL ISLAND) LIGHT	NY	1872
479	SACKETTS HARBOR (HORSE ISLAND) LIGHT	NY	1870
480	SANDS POINT LIGHT (OLD)	NY	1809
481	SAUGERTIES LIGHT	NY	1864
482	SELKIRK (SALMON RIVER) LIGHT	NY	1838
483	SODUS POINT LIGHT	NY	1871
484	SOUTH BUFFALO NORTH SIDE LIGHT	NY	1903
485	SPLIT ROCK POINT LIGHT (OLD)	NY	1867
486	STATEN ISLAND (RANGE REAR) LIGHT	NY	1912
487	STATUE OF LIBERTY	NY	1886
488	STEPPING STONES LIGHT	NY	1877
489	STONY POINT (HENDERSON) LIGHT (OLD)	NY	1869
490	STONY POINT LIGHT	NY	1826
491	SUNKEN ROCK LIGHT	NY	1884
492	SWASH CHANNEL RANGE FRONT LIGHT	NY	1912
493	TARRYTOWN (KINGSLAND POINT) LIGHT	NY	1883
494	THIRTY MILE POINT LIGHT (OLD)	NY	1876
495	THREE SISTERS ISLAND LIGHT	NY	1870
496	TIBBETTS POINT LIGHT	NY	1854
497	WEST BANK (RANGE FRONT) LIGHT	NY	1901
498	ASHTABULA HARBOR LIGHT	OH	1905
499	CEDAR POINT REAR RANGE LIGHT	OH	1862
500	CLEVELAND HARBOR PIERHEAD LIGHTS	OH	1911

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
501	FAIRPORT HARBOR WEST BREAKWATER LIGHT	OH	1925
502	GRAND RIVER (FAIRPORT HARBOR) LIGHT	OH	1871
503	HURON HARBOR LIGHT	OH	1936
504	LORAIN LIGHT	OH	1917
505	MANHATTAN RANGE LIGHTS	OH	1918
506	MARBLEHEAD LIGHT (FORMERLY SANDUSKY LIGHT)	OH	1821
507	SANDUSKY HARBOR PIERHEAD LIGHT	OH	1926
508	SOUTH BASS ISLAND LIGHT	OH	1897
509	TOLEDO HARBOR LIGHT	OH	1904
510	WEST SISTER ISLAND LIGHT	OH	1848
511	CAPE ARAGO (CAPE GREGORY) LIGHT	OR	1934
512	CAPE BLANCO LIGHT	OR	1870
513	CAPE MEARES LIGHT	OR	1890
514	COQUILLE RIVER (BANDON) LIGHT	OR	1896
515	HECETA HEAD LIGHT	OR	1894
516	TILLAMOOK ROCK LIGHT	OR	1881
517	UMPQUA RIVER LIGHT	OR	1894
518	YAQUINA BAY LIGHT (OLD)	OR	1871
519	YAQUINA HEAD LIGHT	OR	1873
520	ERIE HARBOR NORTH PIER LIGHT	PA	1858
521	ERIE LAND (OLD PRESQUE ISLE) LIGHT	PA	1867
522	PRESQUE ISLE LIGHT	PA	1873
523	BEAVERTAIL LIGHT	RI	1856
524	BLOCK ISLAND (NORTH) LIGHT	RI	1867
525	BLOCK ISLAND (SOUTHEAST) LIGHT	RI	1875
526	BRISTOL FERRY LIGHT	RI	1855
527	BUTLER FLATS LIGHT	RI	1898
528	CASTLE HILL LIGHT	RI	1890
529	CONANICUT ISLAND LIGHT (OLD)	RI	1886
530	CONIMICUT SHOAL LIGHT	RI	1883
531	DUTCH ISLAND LIGHT	RI	1857
532	HOG ISLAND SHOAL LIGHT	RI	1901
533	IDA LEWIS ROCK LIGHT (FORMERLY LIME ROCK)	RI	1854
534	NAYATT POINT LIGHT	RI	1856
535	NEWPORT HARBOR (GOAT ISLAND) LIGHT	RI	1842
536	PLUM BEACH LIGHT	RI	1899
537	POINT JUDITH LIGHT	RI	1857
538	POMHAM ROCKS LIGHT (OLD)	RI	1871
539	POPLAR POINT LIGHT	RI	1831
540	PRUDENCE ISLAND (SANDY POINT) LIGHT	RI	1924
541	ROSE ISLAND LIGHT	RI	1870
542	SAKONNET LIGHT,	RI	1884
543	WARWICK LIGHT	RI	1932
544	WATCH HILL LIGHT	RI	1857
545	BLOODY POINT RANGE LIGHTS	SC	1883
546	CAPE ROMAIN LIGHT	SC	1858
547	CHARLESTON LIGHT (NEW)	SC	1962
548	GEORGETOWN LIGHT	SC	1812
549	HAIG POINT (RANGE REAR) LIGHT	SC	1872
550	HARBOUR TOWN (HILTON HEAD) LIGHT	SC	1970

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
551	HILTON HEAD RANGE REAR (LEAMINGTON) LIGHT	SC	1880
552	HUNTING ISLAND LIGHT	SC	1875
553	MORRIS ISLAND (OLD CHARLESTON) LIGHT	SC	1876
554	GALVESTON JETTY LIGHT	TX	1918
555	HALF MOON REEF LIGHT	TX	1858
556	LYDIA ANN LIGHT (FORMERLY ARANSAS PASS)	TX	1857
557	MATAGORDA ISLAND LIGHT	TX	1872
558	POINT BOLIVAR LIGHT	TX	1872
559	PORT ISABEL (POINT ISABEL) LIGHT	TX	1853
560	SABINE BANK LIGHT	TX	1906
561	ASSATEAGUE LIGHT	VA	1867
562	CAPE CHARLES LIGHT	VA	1895
563	CAPE HENRY LIGHT (FIRST)	VA	1792
564	CAPE HENRY LIGHT (SECOND)	VA	1881
565	CHESAPEAKE LIGHT	VA	1965
566	JONES POINT LIGHT	VA	1856
567	NEW POINT COMFORT LIGHT	VA	1806
568	NEWPORT NEWS MIDDLE GROUND LIGHT	VA	1891
569	OLD POINT COMFORT LIGHT	VA	1802
570	SMITH POINT LIGHT	VA	1897
571	THIMBLE SHOAL LIGHT	VA	1914
572	WOLF TRAP LIGHT	VA	1894
573	BRIDGEPORT BREAKWATER (TONGUE POINT) LIGHT	VI	1895
574	BUCK ISLAND REEF LIGHT	VI	1931
575	HAMS BLUFF LIGHT	VI	1915
576	BURLINGTON BREAKWATER LIGHTS	VT	1925
577	COLCHESTER REEF LIGHT	VT	1871
578	ISLE LA MOTTE LIGHT (OLD)	VT	1881
579	JUNIPER ISLAND LIGHT (OLD)	VT	1846
580	WINDMILL POINT LIGHT (OLD)	VT	1858
581	ADMIRALTY HEAD LIGHT	WA	1903
582	ALKI POINT LIGHT	WA	1913
583	BROWNS POINT LIGHT	WA	1933
584	BURROWS ISLAND LIGHT	WA	1906
585	CAPE DISAPPOINTMENT LIGHT	WA	1856
586	CAPE FLATTERY LIGHT	WA	1857
587	CATTLE POINT LIGHT	WA	1935
588	DESTRUCTION ISLAND LIGHT	WA	1891
589	DOFFLEMYER POINT LIGHT	WA	1934
590	GRAYS HARBOR (WESTPORT) LIGHT	WA	1898
591	LIME KILN LIGHT	WA	1919
592	MARROWSTONE POINT LIGHT	WA	1912
593	MUKILTEO LIGHT	WA	1906
594	NEW DUNGENESS LIGHT	WA	1857
595	NORTH HEAD LIGHT	WA	1898
596	PATOS ISLAND LIGHT	WA	1908
597	POINT NO POINT LIGHT	WA	1879
598	POINT ROBINSON LIGHT	WA	1915
599	POINT WILSON LIGHT	WA	1914
600	TURN POINT LIGHT	WA	1936

Lighthouse Reference List - Active and Inactive Lights

REF	LIGHT	STATE	FIRST LIT
601	WATERMAN POINT LIGHT	WA	1934
602	WEST POINT LIGHT	WA	1881
603	ALGOMA PIERHEAD LIGHT (FRONT)	WI	1932
604	ASHLAND HARBOR BREAKWATER LIGHT	WI	1915
605	BAILEYS HARBOR RANGE LIGHTS	WI	1869
606	CANA ISLAND LIGHT	WI	1869
607	CHAMBERS ISLAND LIGHT	WI	1868
608	DEVILS ISLAND LIGHT	WI	1898
609	EAGLE BLUFF LIGHT	WI	1868
610	GREEN BAY HARBOR ENTRANCE LIGHT	WI	1935
611	KENOSHA (SOUTHPORT) LIGHT	WI	1866
612	KENOSHA PIERHEAD LIGHT	WI	1906
613	KEWAUNEE PIERHEAD LIGHT	WI	1931
614	LA POINTE (LONG ISLAND) LIGHT	WI	1896
615	MANITOWOC BREAKWATER LIGHT	WI	1918
616	MICHIGAN ISLAND LIGHTS	WI	1857/1880
617	MILWAUKEE BREAKWATER LIGHT	WI	1926
618	MILWAUKEE PIERHEAD LIGHT	WI	1905
619	NORTH POINT (MILWAUKEE) LIGHT	WI	1888
620	OUTER ISLAND LIGHT	WI	1874
621	PESHTIGO REEF LIGHT	WI	1934
622	PILOT ISLAND LIGHT	WI	1873
623	PLUM ISLAND RANGE REAR LIGHT	WI	1897
624	PORT WASHINGTON BREAKWATER LIGHT	WI	1935
625	PORT WASHINGTON LIGHT (OLD)	WI	1860
626	POTTAWATOMIE (ROCK ISLAND) LIGHT	WI	1858
627	RACINE HARBOR LIGHT	WI	1866
628	RASPBERRY ISLAND LIGHT	WI	1863
629	RAWLEY POINT (TWIN RIVER POINT) LIGHT	WI	1894
630	SAND ISLAND LIGHT	WI	1881
631	SHEBOYGAN BREAKWATER LIGHT	WI	1915
632	SHERWOOD POINT LIGHT	WI	1883
633	STURGEON BAY CANAL LIGHT	WI	1903
634	STURGEON BAY SHIP CANAL NORTH PIERHEAD LIGHT	WI	1903
635	SUPERIOR HARBOR ENTRY SOUTH BREAKWATER LIGHT	WI	1913
636	WIND POINT LIGHT	WI	1880

Lighthouse Photographs

The following photographs are some of the most picturesque lights in the United States and Canada. Some of the lights are in various stages of disrepair and deterioration and some have succumbed to the effects of neglect such as the Mispillion Light in Delaware Bay. On May 2, 2002, Mispillion Light was struck by lightning which destroyed the light tower and charred the interior. The light has since been razed with no known plans for reconstruction. Some lights have became inactive, forgotten by time, recognized by a concerned group of individuals as significant to our maritime history and restored to their original condition. Some lights have been reactivated by the U.S. Coast Guard and some have been deactivated when determined to be no longer required for use as a navigational aid. Some lights have been moved several hundred feet from the shoreline to prevent them from falling into the water. And some lights have completely disappeared, such as Mispillion Light, due to neglect, acts of nature, wars and in some cases by man to provide space for new construction. Mispillion Light was destroyed by fire in May 2002.

Mispillion Light – Milford, Delaware (November 1998)

Lights that have been relocated include Cape Cod Light in Massachusetts, Block Island Southeast Light in Rhode Island and Cape Hatteras Light in North Carolina. The most significant achievement was the move of America's tallest lighthouse, Cape Hatteras, in 1999. When constructed in 1871, the tower was located about 1,600 feet from the high-tide shoreline. Later, in 1919, the ocean became within 300 feet of the tower. Since then, several engineering techniques were used to protect the tower from the ever-approaching shoreline. However, despite all these efforts, ferocious storms and constant erosion continued to plague the tall lighthouse. In 1999, a decision was made to relocate the tower 2,900 feet to the southwest which brought the tower to rest at 1,600 feet from the Atlantic Ocean as it was when originally constructed. The move of this 208 foot high, 6,250 ton brick tower was completed in a record 23 days.

Light from Keepers House window

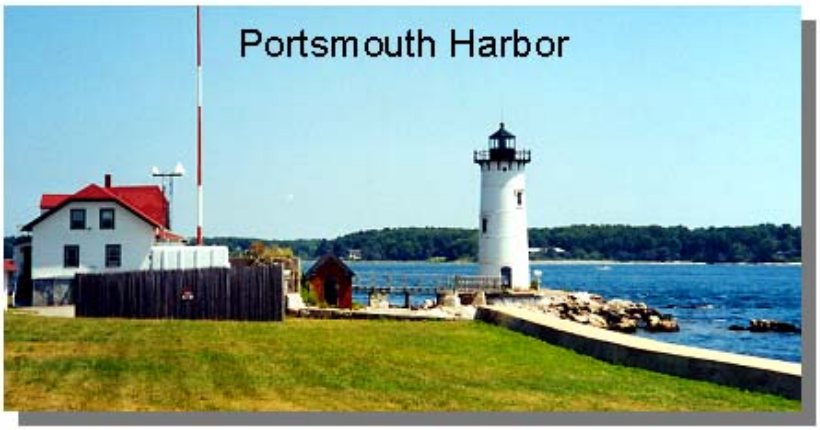
Cape Hatteras Light (New Location) – Buxton, North Carolina

The following photographs are intended to provide the viewer, at a glance, the typical types and shapes of lights located within various

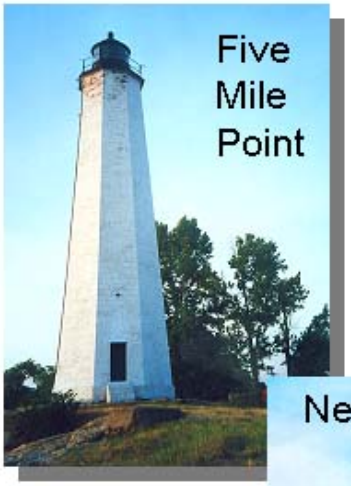
States/Provinces. The U.S. Lights (Blue Header) section contains lights recognized by the National Parks Service and U.S. Coast Guard as official current/previous aids to navigation. The Canadian (Red Header) section contains active/inactive aids to navigation. The Other Lights (Green Header) section contains several significant lights that have been constructed as a replica, museum, memorial or privately owned facility and have not been recognized by the U.S. or Canadian Coast Guards as official aids to navigation.

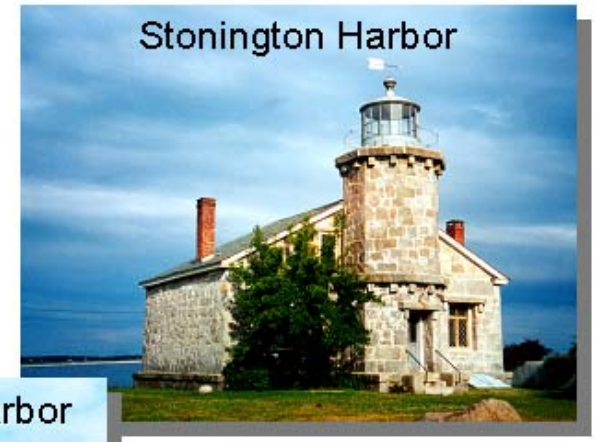

Maine Lights
Cape Elizabeth
Cape Neddick (Nubble)
Owls Head
Cuckolds
Pemaquid Point
DANGER
Dice Head
Fort Point
Prospect Harbor Point
Bass Harbor Head
Portland Head

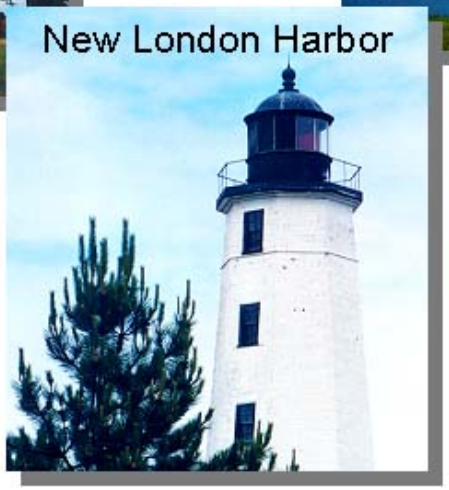
New Hampshire Lights

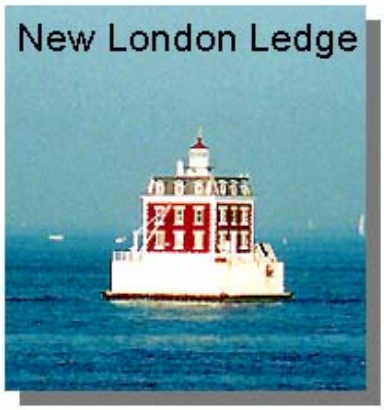


Connecticut Lights



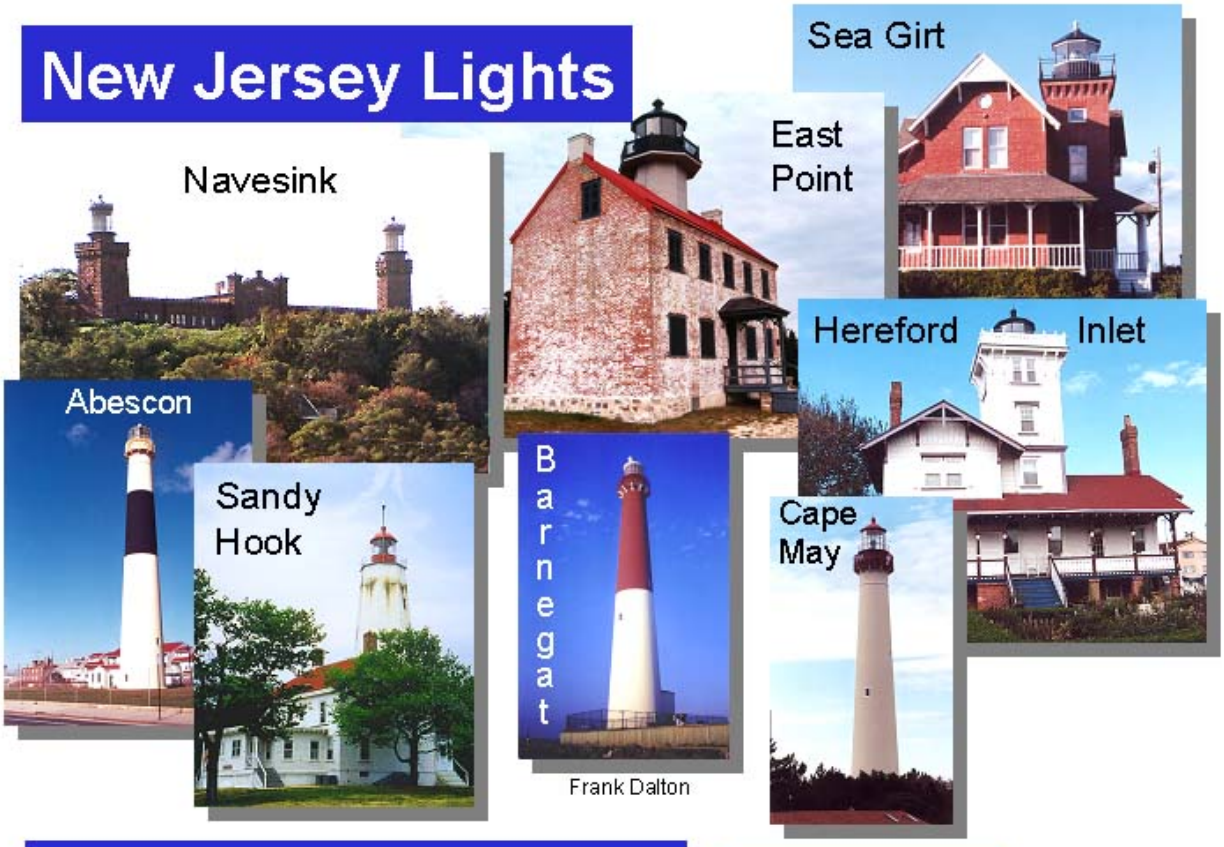






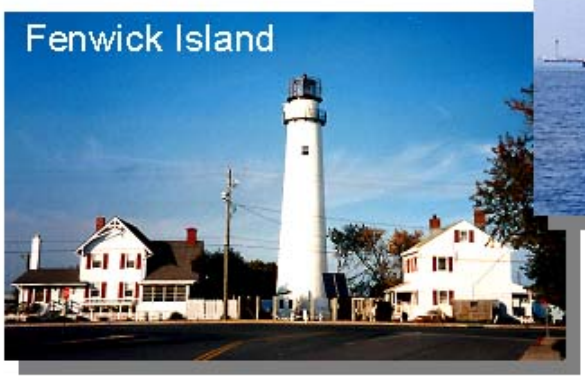

Massachusetts Lights
Scituate
Chatham
Cape Cod
Marblehead
Nobska Point
Brandt Point
Edgartown
Eastern Point
Boston Harbor
Ned's Point
Sankaty Head
Nauset
Annisquim
Hospital Point

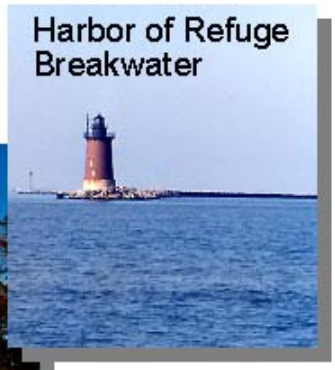

New York Lights
Montauk Point
Fire Island
Thirty Mike Point
Old Field Point
Fort Wadsworth
Horton Point
Tibbetts Point
Buffalo Main
Stoney Point
Sodus Point
Staten Island
Braddock Point
Roosevelt Island


New Jersey Lights
Sea Girt
East Point
Navesink
Hereford Inlet
Abescon
Sandy Hook
Barnegat
Cape May
Frank Dalton

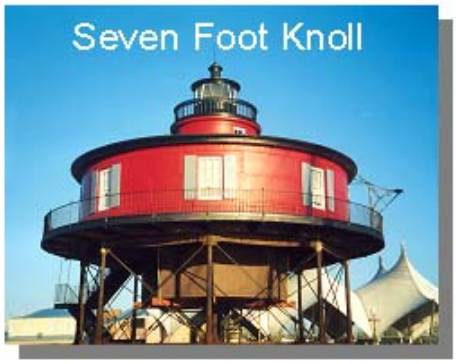

Rhode Island Lights
Beavertail
Watch Hill
Block Island Southeast
Block Island North
Ida Lewis Rock
IDA LEWIS YACHT CLUB
Point Judith
Castle Hill

Delaware Lights





Maryland Lights



Virginia Lights

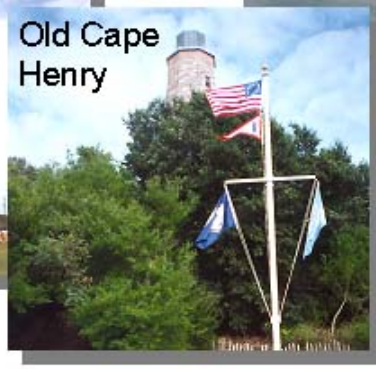
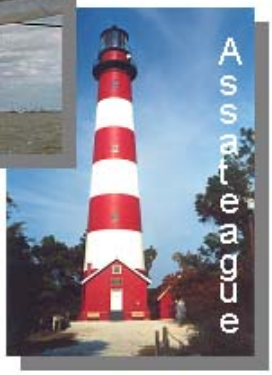
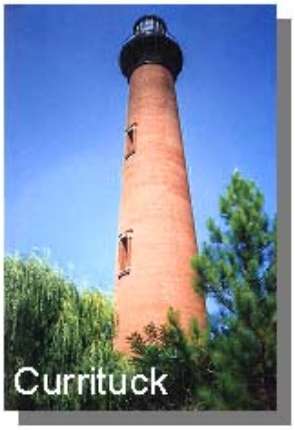
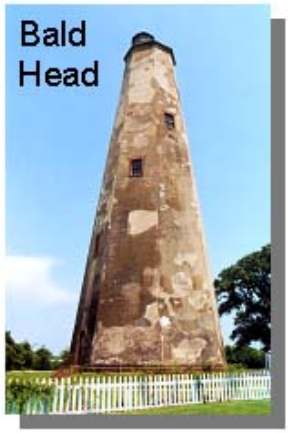


Photo by Calvin Cooper III

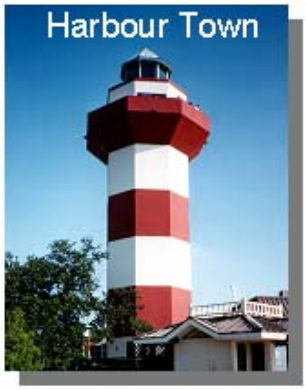


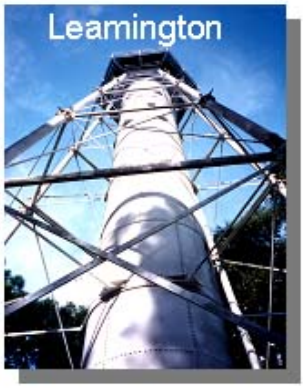
North Carolina Lights



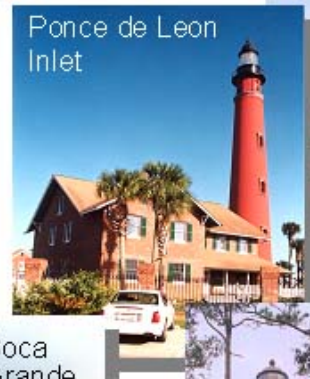


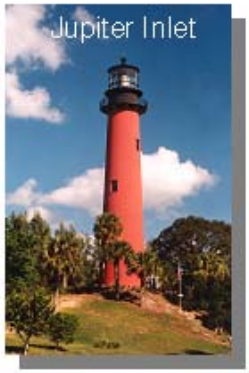
South Carolina Lights

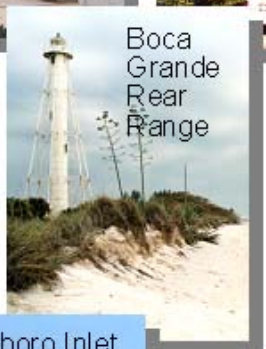


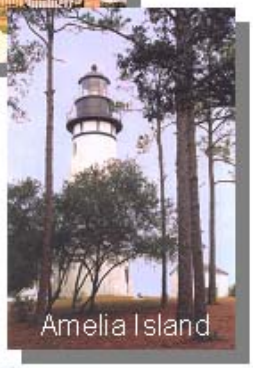


Florida Lights









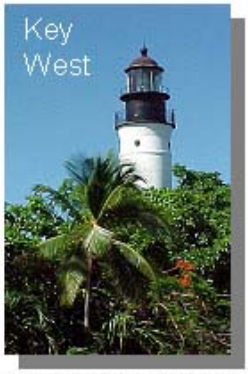


Photo by Calvin Cooper III

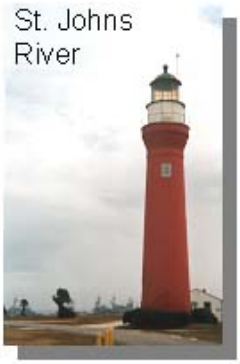
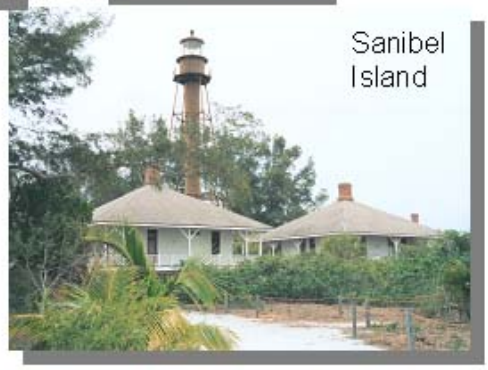
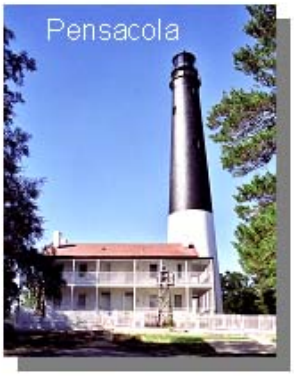
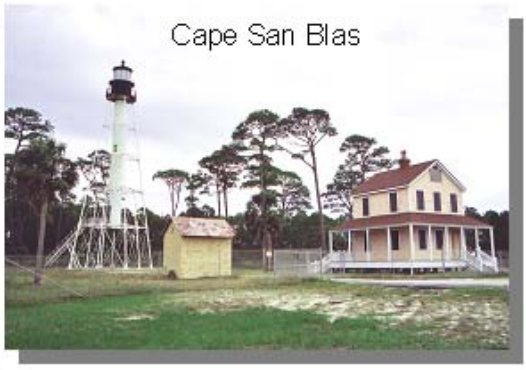


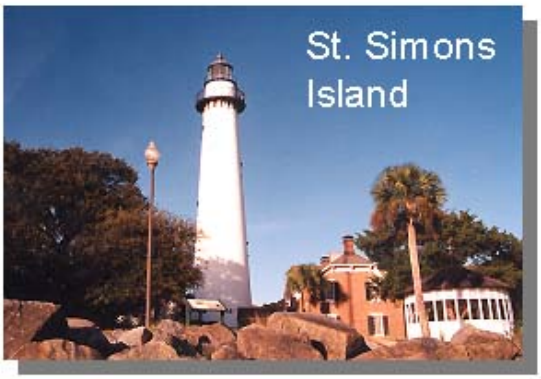
Photo by Gary Meissner





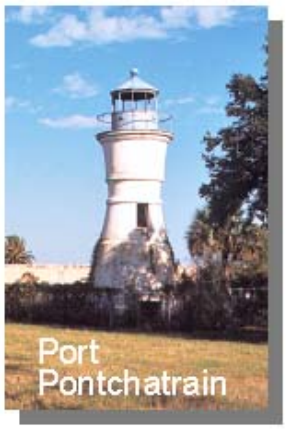


Georgia Lights

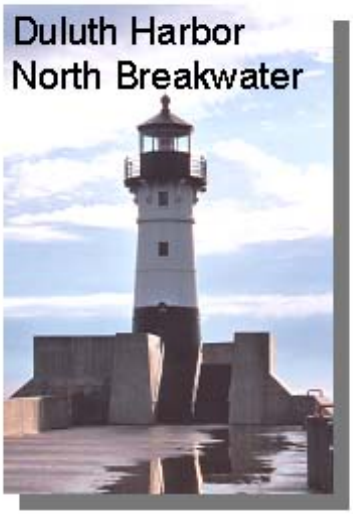


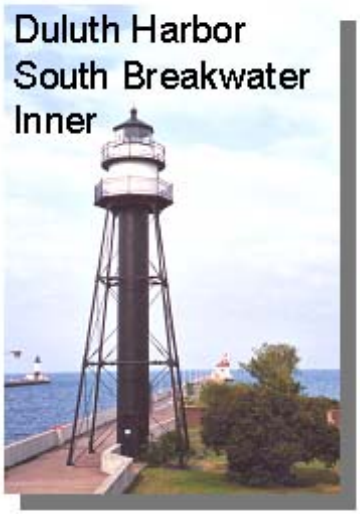
Mississippi Lights

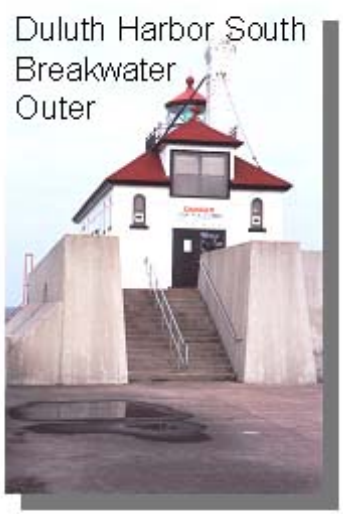
Louisiana Lights

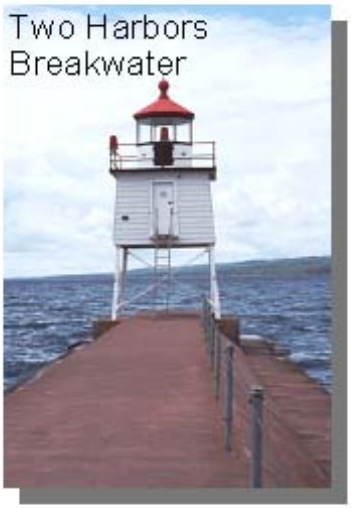


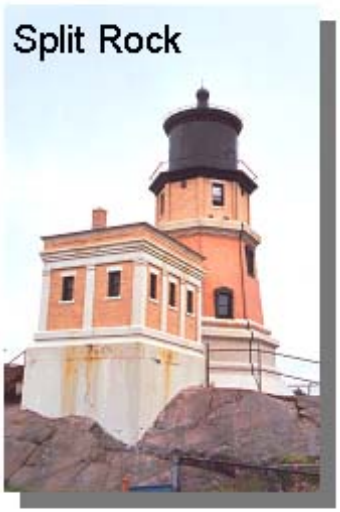
Minnesota Lights



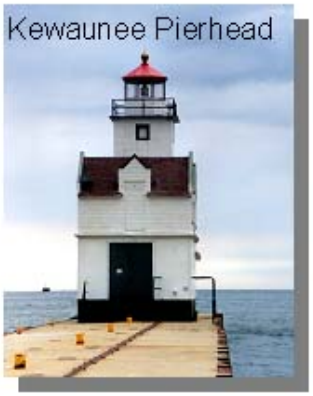


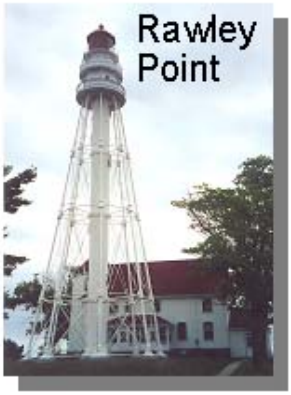




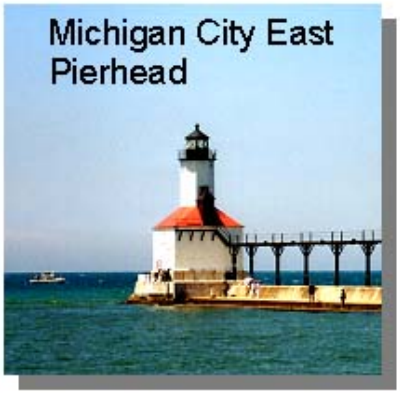


Wisconsin Lights





Indiana Lights



Alabama Lights

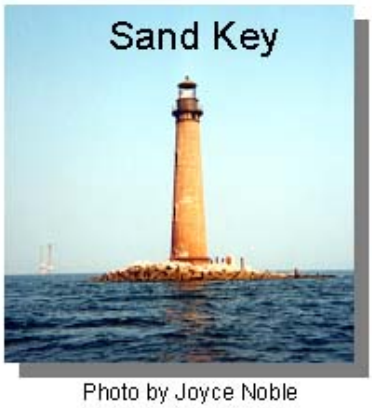
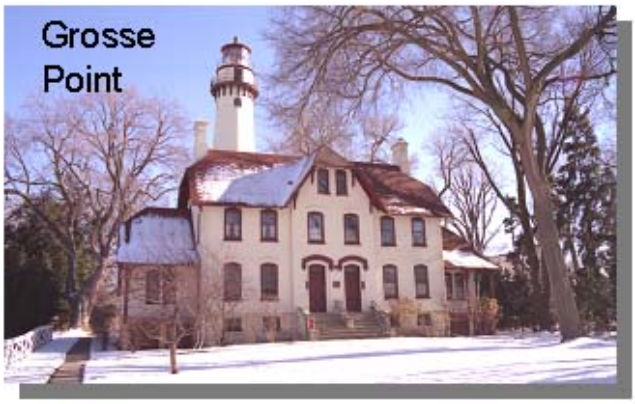


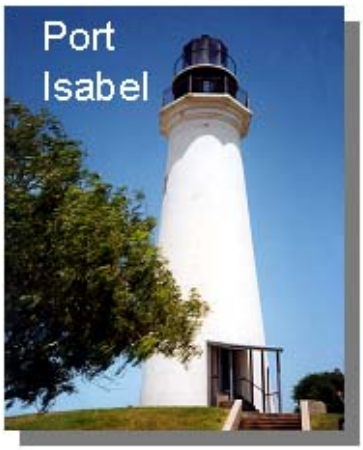
Photo by Joyce Noble


Michigan Lights
Little Point Sable
White River
Point Betsie
Old Mission Point
Old Presque Isle
Point Iroquois
Grand Traverse
Charlevoix
Fort Gratiot
New Presque Isle
Seul Choix Point
Mackinac Point
Round Island
Sand Point

Illinois Lights



Texas Lights



Ohio Lights

Photo by James O'Farrell

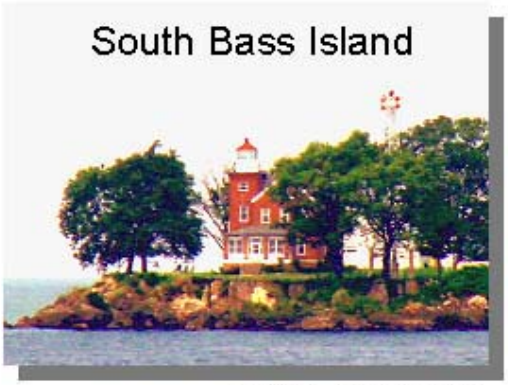
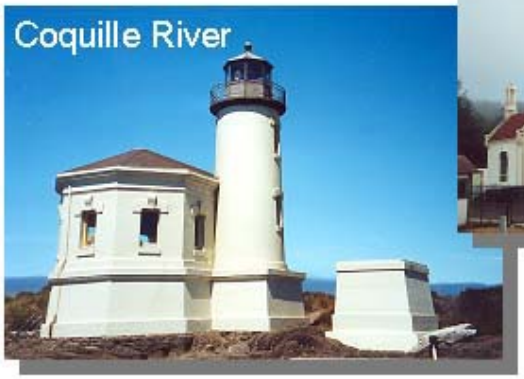
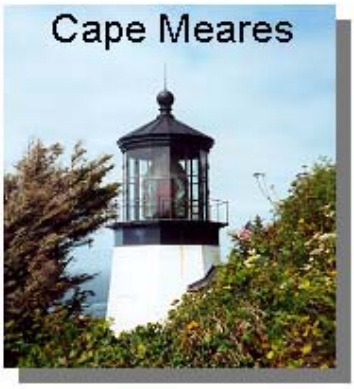


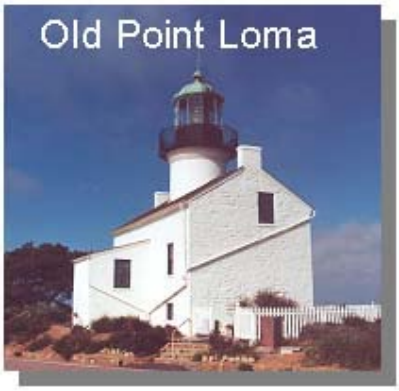
Photo by James O'Farrell

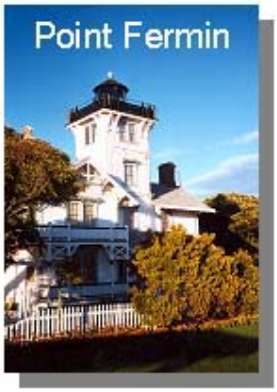
Oregon Lights

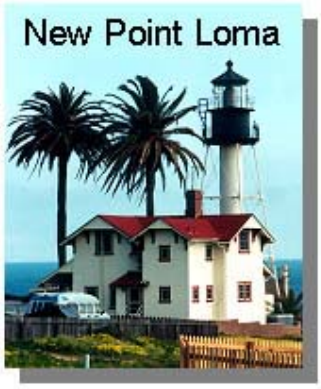


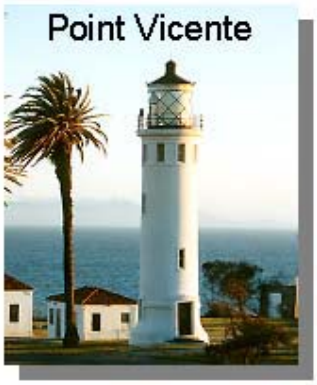


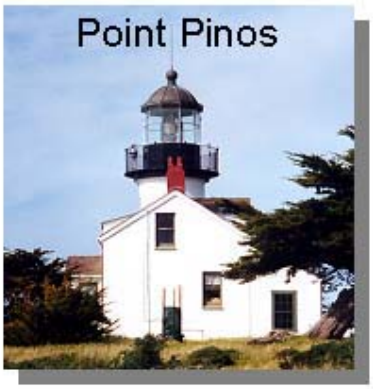
California Lights

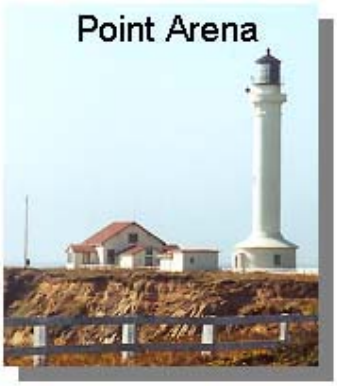


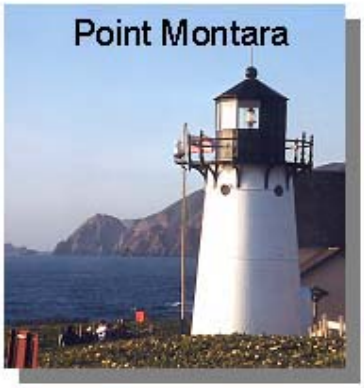


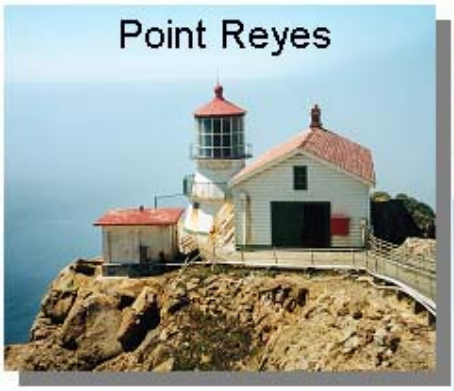


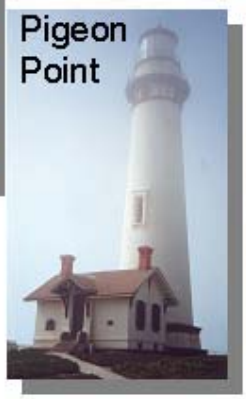


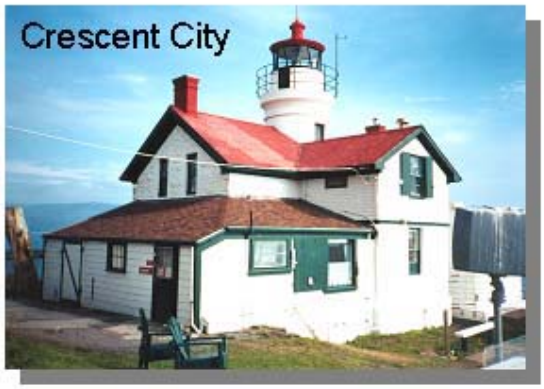




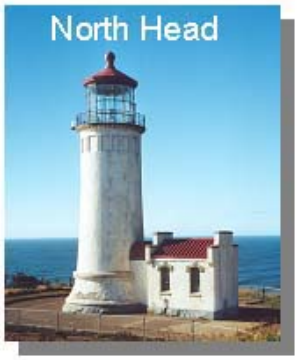


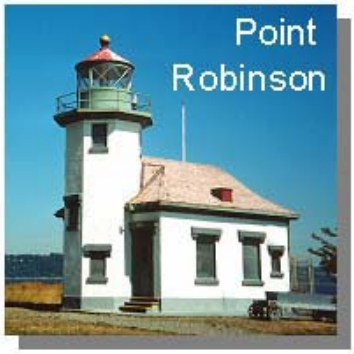


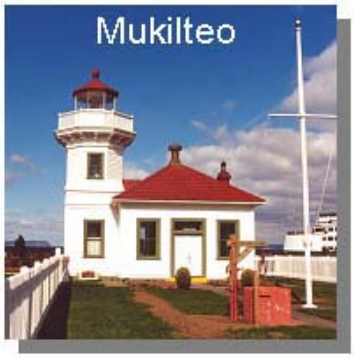


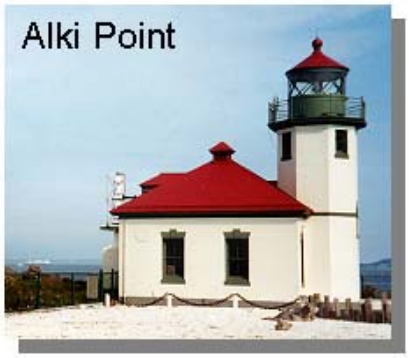


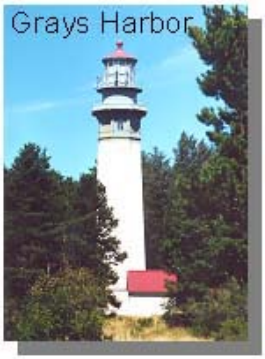
Washington Lights

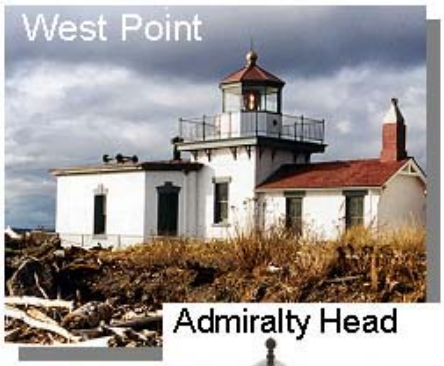


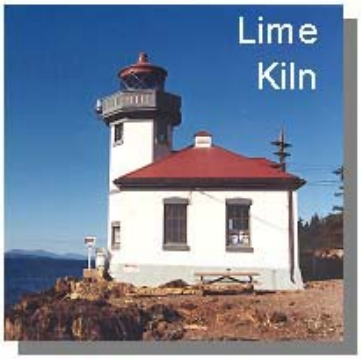




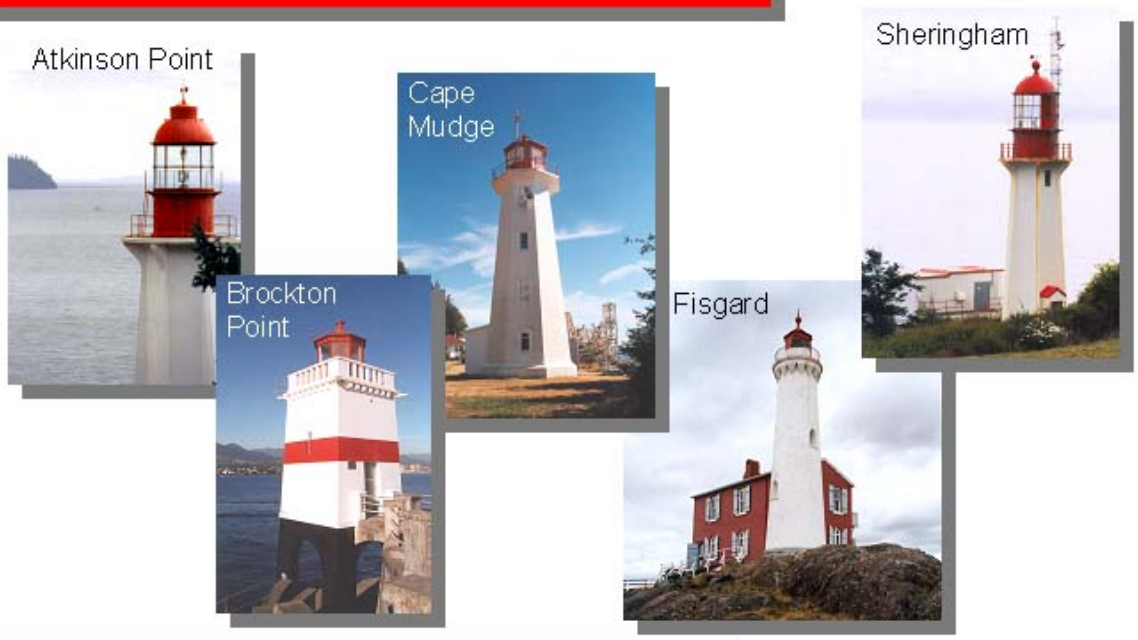






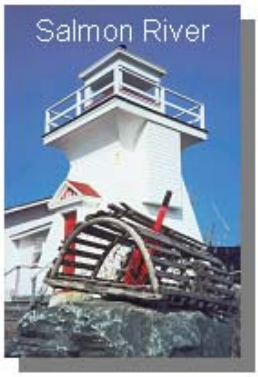


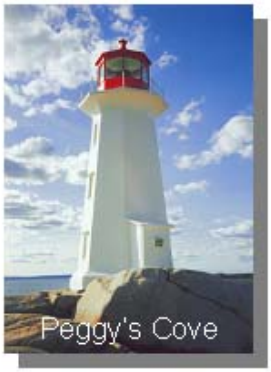
British Columbia Lights

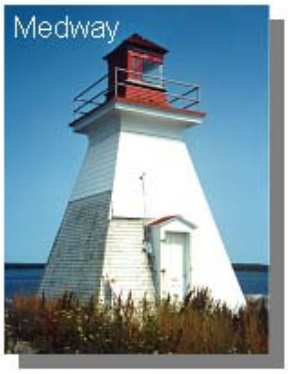


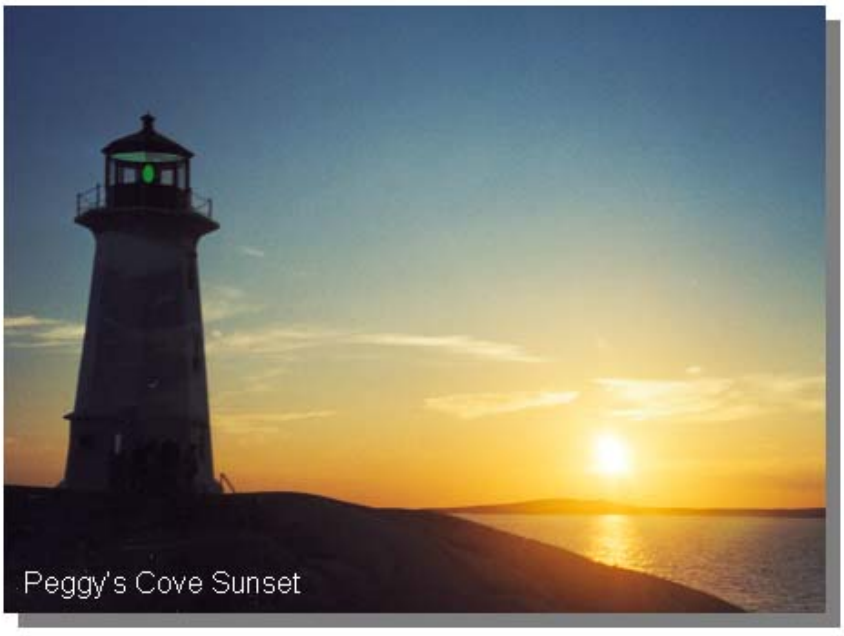
New Brunswick Lights

Nova Scotia Lights

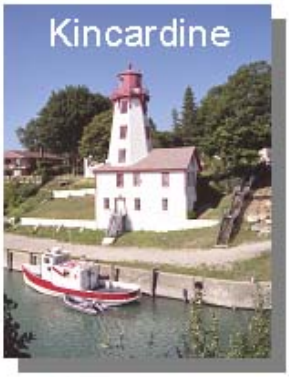


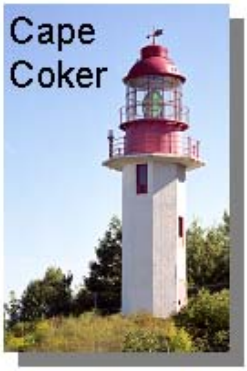






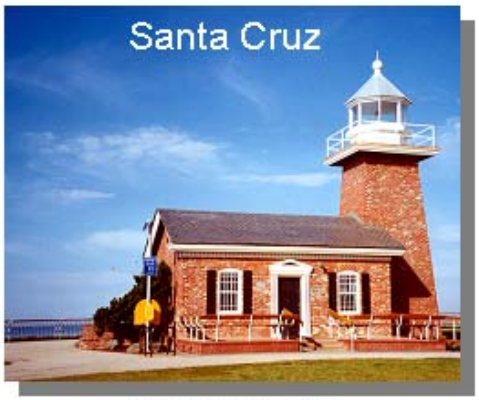
Ontario Lights



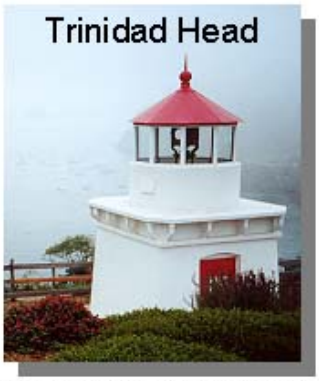


Other Lights

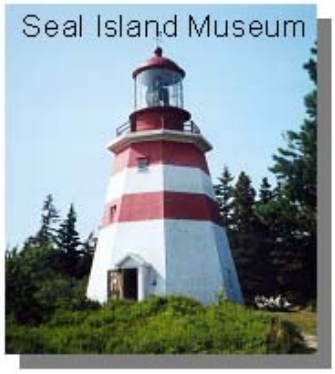
Replica of Brandt Point Light
Mystic, Connecticut



Surfing Museum
Santa Cruz, California

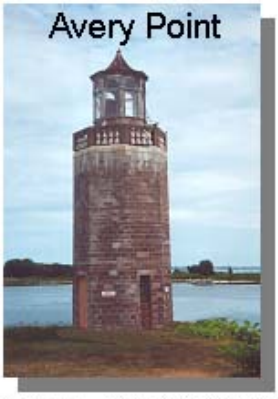


Replica of Trinidad Head Light
Trinidad, California

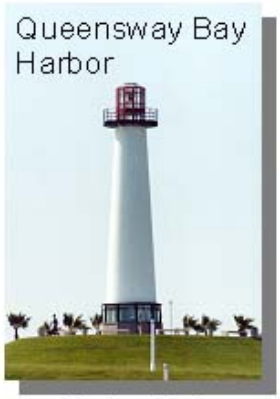


Replica of Seal Island Light
Nova Scotia

Memorial Light
Hannibal, Missourt



Memorial to Coast Guardsmen
Groton, Connecticut



Harbor Light
Long Beach, California

Private Dwelling/Marina Beacon
Port Townsend, Washington

Glossary of Lighthouse Terms

Aerobeacon. A modern-day airport type beacon used as a light source in lighthouses to produce a characteristic. Two of these beacons can be used in tandem to produce a double flash.
Aid to Navigation. A structure or device located external to a vessel intended to assist a navigator in determining position and safe course or to warn of dangers or obstructions to navigation.
Beacon. A radar/radio signal, light source or daymark used as a navigational aid to warn or guide ships.
Bell Tower. A tower, normally a wooden tapering square design, used to protect a bell-striking mechanism. The bell was located in an exposed area at the bottom of the tower and was struck by a hammer passing through a hole the adjacent tower wall.
Bivalve Lens. A double-convex, clam style Fresnel lens used in a lighthouse.
Bullseye. A convex lens used to concentrate (refract) light.
Characteristic. Flash patterns or light sequences that differentiate one lighthouse from another.
Daymark. Unique color scheme, and/or pattern that identifies a specific navigational aid during daylight hours.
Fixed Lens. A non-moving lens with a light source that is either steady or one that flashes within a given period of time.


Bullseye

Focal Plane. A plane that passes through and is perpendicular to the principal axis of the projected beam from the lighthouse lens.
Fog Sensor. A device that detects the presence of moisture in the air and automatically activates a fog signal.
Fog Signal. A device that produces an audible signal used to indicate the location of an aid to navigation when it cannot be seen due to conditions of reduced visibility.
Fresnel Lens. An optic consisting of a series of prisms at the top and bottom which refracts and reflects rays of light to produce a single, narrow beam of highly concentrated light.
Fuel. A material, such as, wood, lard, whale oil, or kerosene, that is burned to produce a light.
Gallery. A platform, walkway or balcony located outside the lighthouse watch room and/or lantern room.

Global Positioning System. A constellation of 24 orbiting satellites that provide extremely accurate, three dimensional location information (latitude, longitude and altitude), velocity and precise time to military and civilian users anywhere in the world.
Keeper. A person who is responsible for the care and maintenance of the lighthouse, grounds and ancillary structures and equipment.
Lamp. A light producing device within a lighthouse lens.
Lantern Room. A glassed-in housing at the top of a lighthouse tower containing the lamp and lens.
Lens. A curved and polished glass or other transparent material that forms an image by refracting and focusing light passing through it.
Light List. Series of Coast Guard publications describing lighted aids to navigation including unlighted buoys, daybeacons, fog signals, radio beacons, and Loran-C coverage in coastal and intercoastal waters.
Lighthouse. A structure strategically placed along navigable waterways and coastlines, often a tall round tower, with a powerful flashing light, designed to guide sailors or warn them of navigational hazards.


Lantern Room

Lighthouse Board. The first governing authority created by Congress for managing aids to navigation including lighthouses.
Lightning Rod. **A** metal rod attached to the highest point of a lighthouse or other structure to protect it from lightning by conducting the lightning to the ground.
Lightship. A distinctively marked vessel anchored at an assigned place that functions as a lighthouse where a permanent structure would not be practical.
Light Station. A complex containing the light tower, and all associated buildings including, dwellings, oil storage buildings, work shop, fog signal building, etc.
List of Lights. Series of bound publications containing detailed information on the location and characteristics of lighted navigational aids, fog signals, and radio beacons located in coastal areas.
Navigational Aid. *See Aid to Navigation.*
Orders. The size of a Fresnel lens which determines the brightness and distance the light will travel.
Parabolic Reflector. A silver plated, bowl-like metal device with a small oil lamp in the center.
Prism. A cut-glass transparent object that refracts or disperses light.
Range Light. Pairs of light towers positioned with respect to each other that when front and rear lights are aligned, a navigator is guided safely past shoals or obstructions or on a centerline of a channel.

Revolving Lens. A lens with flash panels that rotate around a steady light source at a given rate to produce flashes at certain intervals.
Signature. Distinguishing factors of lighthouses including characteristics, duration of the light cycle, and color, which allow mariners to identify the lights for the purpose of determining position and direction and locating navigational hazards.
Tower. A structure supporting the lighthouse lantern room.
Ventilator Ball. A ball mounted atop the lantern room roof that allows for the escape of gas, smoke, or steam.
Watch Room. A room located immediately below the lantern room or service room where fuel and other supplies were kept and where the keeper prepared lanterns for the night and stood watch.

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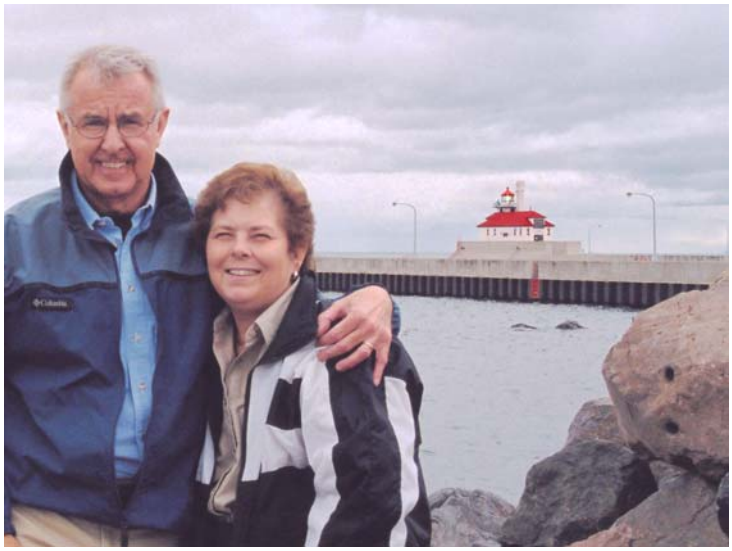
About the Author

Rudell (Rudy) Bess and his wife Beverly are natives of the town of Metropolis located in Southern Illinois on the Ohio river. They currently reside in Hazelwood, Missouri just north of St. Louis and the confluence of the Missouri and Mississippi rivers. Rudy has been employed by McDonnell Douglas Corporation/The Boeing Company for the past 36 years. Rudy and Beverly enjoy photography, researching lighthouse history and lore and exploring the seacoast, The Great Lakes and inter-coastal waterways. Over the past 12 years, they have visited over 350 lights in the U.S. and Canada. In 1998, they had a goal to visit 100 lights in one year and achieved the goal by year's end. Rudy has international recognition for his lighthouse photography as a result of publishing over 200 photographs in three Lighthouse Society of Great Britain (LSGB) CD projects. Rudy has received acknowledgement for his research and interest in lighthouses in the book titled *"North Atlantic Lighthouses"* authored by Jean Guichard, the famous French lighthouse Photographer, and Ken Trethewey, founder and chairman of the LSGB. Rudy and Beverly are Founders of the Hope Light Project that is dedicated to communicating cancer awareness information and saving lives. For more information on the Hope Light Project, see http://www.hopelightproject.com/.



The Author and his wife Beverly at Duluth Harbor in Minnesota