



GIRL SCOUTS OF NORTHERN CALIFORNIA

LIGHTHOUSE PATCH
A GS NORCAL COUNCIL'S OWN PATCH PROGRAM

BROWNIES, JUNIORS, CADETTES, SENIORS & AMBASSADORS

TO EDUCATE GIRLS ON THE ROLE OF LIGHTHOUSES IN CALIFORNIA HISTORY AND THE IMPORTANCE OF PRESERVING THEM FOR THE FUTURE.



PURPOSE

The purpose of *The Light That Guides the Way*; Lighthouse Patch Program provides the opportunity for girls to learn more about the role of Lighthouses in California's history, and the women who help make history. The program uses food, crafts, and music to illustrate key aspects of the lighthouse life.

REQUIREMENTS

To earn the Lighthouse Patch Program, you must complete the following:

Brownies complete 4 of the activities including the starred activities.

Juniors complete 6 of the activities including the starred activities.

Cadettes, Seniors, and Ambassadors complete 8 of the activities including the starred activities.

All members of Girl Scouts are eligible to earn the *The Light That Guides the Way*; Lighthouse Patch Program and should be worn on the back of the vest or sash.

ORDER INFORMATION

To order the *The Light That Guides the Way*; Lighthouse Patch Program please visit www.girlscoutsnorcal.org and purchase the items online. Please note that shipping and handling will be added to all online orders.

Members of Girl Scouts of Northern California will not be charged for shipping and handling if they use the GS NorCal Council's Own Order Form and have badges shipped to the closest GS NorCal store in their area for members to pick up.



Special thanks to Angela Pierce's Silver Award project and her mentor Diane Hall for designing The Light That Guides the Way, Lighthouse Patch Program, so that all girls can learn about the history of the lighthouses and the women who ran them.

ORDER PATCHES ONLINE AT WWW.GIRLSCOUTSNORCAL.ORG
FOR FURTHER INFORMATION ON PATCH PROGRAMS CONTACT PATCHES@GIRLSCOUTSNORCAL.ORG

LIGHTHOUSE PATCH FOR BROWNIE GIRL SCOUTS

REQUIREMENTS: Complete at least 4 of the following activities including the ones that are starred (*).

1. Read a book about a woman running a lighthouse and explain what she did to a person who hasn't read the book. Tell whether you would like to do that job when you are older or not. Explain why?

* 2. Visit a lighthouse and take a guided tour.

3. Talk to an adult about why lighthouses are important and why we have to maintain them.

4. Draw a picture of a lighthouse and share with a friend its special features.

5. Go to www.puzzlemaker.com and make a puzzle with facts and words having to do with lighthouses. Print it up and have a friend complete the puzzle.

6. As a troop create a poster on what you learned about lighthouses and why they are important and why we should preserve them. Then donate your poster to a library or school.

7. Using edible materials make an edible lighthouse using sugar cubes, pretzels, graham crackers, frosting, etc. Get creative and have fun!



ORDER PATCHES ONLINE AT WWW.GIRLSCOUTSNORCAL.ORG
FOR FURTHER INFORMATION ON PATCH PROGRAMS CONTACT PATCHES@GIRLSCOUTSNORCAL.ORG

LIGHTHOUSE PATCH FOR JUNIOR GIRL SCOUTS

REQUIREMENTS: Complete at least 6 of the following activities including the ones that are starred (*).

1. Read a book about a woman running a lighthouse and write a paragraph (5-6 sentences) summarizing what she did.
2. Make a list of questions you want to have answered about lighthouses and then go research it on the internet, in books and talking to people. Teachers are a good source of information. Also look at the fact sheet attached for some answers.
3. Go to www.puzzlemaker.com and make a puzzle with facts and words having to do with lighthouses. Print it up and have a friend complete the puzzle.
- * 4. Take a tour of a lighthouse. Find out what you would do as a job, if you worked there. Then share with your troop what job you would like to have and why.
5. Write a paragraph on why lighthouses are important and why they should be preserved.
6. Using edible materials make your own lighthouse (sugar cubes, pretzels, graham crackers, frosting, etc. are good things to use).
7. Read the list of facts provided in this packet and share with your troop the ones that interested you the most.
8. Start a collection of stamps, postcards, pins, patches, your own pictures or web site information having to do with lighthouses. You must have at least 10 items in one category to complete this requirement
9. On a map, as a troop or by yourself, locate 5 lighthouses within 100 miles of home. You can use markers, stickers, pins, etc. to mark your lighthouses
- * 10. Make a list of service projects you can do for a lighthouse and complete at least one service project. (i.e. mailing, distribution of lighthouse material or display in your local neighborhood library, create information binder or displays).



ORDER PATCHES ONLINE AT WWW.GIRLSCOUTSNORCAL.ORG
FOR FURTHER INFORMATION ON PATCH PROGRAMS CONTACT PATCHES@GIRLSCOUTSNORCAL.ORG

LIGHTHOUSE PATCH FOR CADETTES, SENIORS & AMBASSADORS

REQUIREMENTS: Complete at least 8 of the following activities including the ones that are starred (✳)

1. Learn about the role of the Coast Guard and their responsibility for lighthouses. What else is the Coast Guard responsible for? What are the requirements for joining the Coast Guard? If possible, interview a woman in the Coast Guard. Then present your troop with their answers.

2. Go to www.puzzlemaker.com and make a puzzle with facts and words having to do with lighthouses. Print it up and have a friend complete the puzzle.

✳ 3. As a troop make a list of service projects that would help preserve a lighthouse. Complete at least one service project. (i.e. lighthouse display at local libraries, schools, curriculum for children, clean up at the lighthouse).

4. Spend the night in a lighthouse or light house hostel. Then from that experience decide if you really would like to live like that for a year or even longer.

5. Make a list of character traits or specific achievements that would make you a better lighthouse keeper. This is to be done from an adult perspective high school, college, job training, etc.

6. As a troop, create a directory of websites on lighthouses (you can include pictures).

7. From the list provided, research one lighthouse and share with your troop the information:

- Date established, by whom, what kind of lens, who designed that kind of lens
OR
- Find out what kind of careers there are: Coast Guard, etc.
OR
- Find out about the role that the Light House Society plays in preserving a light house.

✳ 8. Tour 2-3 lighthouses. Compare and contrast their history, architecture, site/surrounding, land formation and flora and fauna.

9. Make a collection of things having to do with lighthouses like postcards, stamps, pins, patches, take your own pictures, collect website information, etc. You must have at least 13 items representing at least 5 lighthouses to complete this requirement.

10. On a map, as a troop or by yourself, locate 5 lighthouses within 100 miles of home. You can mark them with stickers, markers, pins, etc

11. Research and find some information on the Fresnel lens

- Who created it
- It's levels of intensity
- Where one or two can be seen

ORDER PATCHES ONLINE AT WWW.GIRLSCOUTSNORCAL.ORG
FOR FURTHER INFORMATION ON PATCH PROGRAMS CONTACT PATCHES@GIRLSCOUTSNORCAL.ORG



LIGHTHOUSE FACTS

- The first known lighthouse was the Pharos of Alexandria, Egypt. Ptolemy I and his son Ptolemy II constructed it between 300 and 280 B.C. It stood about 450 feet high. This lighthouse was one of the Seven Wonders of the Ancient World. It was destroyed in stages by invaders and earthquakes, being destroyed in the 1300's.
- The oldest existing lighthouse in the world is considered to be La Coruna in Spain that dates from ca. 20 B.C. A Roman lighthouse is located on the Cliffs of Dover in the UK that was constructed in 40 A.D.
- The first lighthouse in America was at Boston on Little Brewster Island (1716). The first keeper was George Worthylake who was drowned, along with his wife and daughter, when returning to the island in 1718. The original tower was destroyed by the British and eventually reconstructed in 1784.
- The oldest existing lighthouse in America is Sandy Hook, NJ (1764), which is still in operation.
- There were 12 lighthouses when we became a nation in 1776.
- The tallest lighthouse is Cape Hatteras, NC (196 ft. built in 1872).
- The most expensive lighthouse built in America is St. George Reef, off Crescent City, CA. It took ten years to construct (1882 - 1892) and cost \$715,000.00. The Coast Guard abandoned it in 1972.
- The Lighthouse Service was created in 1789 by the 9th Act of the first Congress. Over the years, lighthouses were placed under the direction of Department of Revenue (this department was disbanded in 1820), Treasury (until 1903), the Commerce and Transportation. The Lighthouse Board (of the U. S. Lighthouse Establishment) held sway from 1852 to July 1, 1910 when Commerce created the Bureau of Lighthouses. The Coast Guard took over on July 7, 1939.
- After 1852 the country was divided into Districts; originally eight, they eventually numbered 19. Today the Coast Guard only has ten districts. The USLHE had a District Inspector (Naval Officer) as operational control. He ran the district in tandem with an Army Corps of Engineer who was in charge of engineering projects. In 1910 civilians started replacing the military officers.
- There were never more than ca. 850 lighthouses in operation at once, although about 1,500 were constructed in this country over the years -- the hey-day being about 1910. There were 220 constructed on the U. S. shores of the Great Lakes. Michigan had the most with ca. 90 followed by Maine with ca. 80.
- Lightships were employed where the water was too deep to construct a lighthouse or it was impracticable. The first lightships were located in the lower Chesapeake Bay (1820) and the most stations were in 1915 when there were 72 lightships manning 55 stations. The extra ships were used for relief. Lightships displayed lights at the tops of their mast(s) and in foggy areas sounded a bell or other fog signal such as a whistle, siren or horn. In 1921, lightships began being equipped with radio beacons. The last lightship was removed from the Nantucket station in 1984.

- The first fog signal in this country was at the Boston Lighthouse and it was a cannon. Other fog signals have been whistles, sirens, reed trumpets, bells, diaphone (BEEEEoooooh) horns and diaphragm (brrrrrrrr) horns.

- Whale oil was used with solid wicks as the source of light until a parabolic reflector system was introduced around 1810. Although the Fresnel lens was invented in 1822, it wasn't used in this country until the 1850's. Colza oil (pressed from wild cabbages) replaced whale oil in the early 1850's, but our farmers' lack of interest in growing this caused the service to switch to lard oil in the mid 1850's. Kerosene started replacing lard oil in the 1870's and the service was finally totally converted by the late 1880's. Electricity started to replace kerosene around the turn of the century. All U. S. lighthouses had Fresnel lenses by 1860.

- Lighthouses are constructed of wood, granite, brick, sandstone, steel, cast iron, reinforced concrete and one has an outer skin of aluminum.

- The source of light is called the 'lamp' (be it electric or fueled by oil); the magnification of the light is caused by the 'lens' or 'optic'. They are located in the 'lantern room' of the tower and the glazings (windows) are called 'storm panes'.

- The reflector system and the Fresnel system had fixed (steady light) and revolving (flashing) optics. The type of signal is called the characteristic. Other characteristics are osculating, group flashing, quick flashing, and equal interval. Some lighthouses display a green or red light and some a white light with a green or red sector created by substituting a colored 'storm' for a clear one.

- One-to-five keepers manned the light stations.

- Uniforms were not introduced into the service until 1884.

- Keepers were paid a lower middle class wage. George Worthylake, our first, received 50£ (\$250) a year. By today's standards that would be the equivalent of \$16,000. During the 19th century, the Head Keepers pay ranged from \$250 to \$600, others were paid less. The exception to this was in the west, where keepers were paid \$1,000 during the Gold Rush. The service supplied certain foodstuff during most of their history.

- There were many female lighthouse keepers (Society has files on 80), but most obtained their position when their husband died or became incapacitated.

- The most powerful optic produces a light seen 25 miles at sea. Although aircraft have reported "picking up" a light at 40 or 50 miles.

- Towers are given special (painted) patterns -- diamond shapes, spirals, stripes, etc. -- or colors to distinguish them from each other.

- Some famous American lighthouses are:
 - ~ Buffalo, NY - Oldest on the Great Lakes
 - ~ Makapuu Point, Oahu, HI - Has the largest lens in this country
 - ~ Navesink, NJ - Site of first Fresnel experiments in this country
 - ~ Point Pinos, CA - Oldest existing on the west coast in continuous operation
with original 3rd order lens
 - ~ St. George Reef, CA - Most expensive
 - ~ Thomas Point Shoal, MD - Last screw-pile on Chesapeake Bay
 - ~ Tillamook Rock, OR and Minots Ledge, MA - Exemplary engineering feats

OPEN LIGHTHOUSES IN CALIFORNIA
NORTH TO SOUTH

Crescent City:

Open: April through September, 10 AM – 4 PM
Wednesday through Sunday
Access only at low tide
Phone: (707) 464-3089
Address: 577 H. Street, Crescent City, CA 95531

Point Cabrillo:

Open: March through October, 11 AM – 4 PM,
Friday through Monday. Guided walks, May
through September, 11 AM, Sunday. Handicapped
Parking at lightstation residences.
Phone: (707) 937-0816
Address: Between Point Arena and Cape Mendocino

Point Arena:

Open: Daily, 10 AM – 4:30 PM
Phone: (707) 882-2777
Address: 30 minutes south of Mendocino off Hwy 1

Point Reyes:

Open: Thursday through Monday, 10 AM – 4:30 PM
Phone: (415) 669-1534
Address: Point Reyes National Seashore,
Point Reyes, CA 94956

Point Bonita:

Open: Daily, 9:30 AM – 4:30 PM
Phone: (415) 331-1540
Address: Marin Headlands Visitors' Center
Sausalito, CA 94965

East Brother Lightstation:

Bed, Breakfast and Dinner operated by a local non-profit group
Phone: (510) 812-1207
Address: Off Point San Pablo, San Francisco Bay

Point Montara:

Hostel operated by American Youth Hostels
Phone: (650) 728-7177
Address: American Youth Hostel
16th Street, Cabrillo Highway
Montara, CA 94037

Pigeon Point:

Hostel operated by American Youth Hostels
Lighthouse closed to public due to damage
Grounds open daily 10:30 AM – 4:00 PM
Keeper's Store is also open
Guided historic tours of the grounds on
Friday, Saturday and Sunday
Phone: (650) 879-2120
Address: 210 Pigeon Point Road at Highway 1
Pescadero, CA 94060-9713

Santa Cruz:

Mark Abbott Memorial Lighthouse
Surfing Museum
Open: Weekends, 11:00 AM – 4:00 PM

Point Pinos:

Open: Thursday through Monday,
1:00 PM – 4:00 PM
Phone: (831) 648-5716
Address: Off Asilomar Ave. between
Ocean View Blvd. and Lighthouse Ave.
Pacific Grove, CA 93950

Point Sur:

Open: Year round (three hour) tours:
Saturday 10:00 AM and 2:00 PM
Sunday 10:00 AM
April through October additional tours:
Wednesday 10:00 AM and 2:00 PM
Evening Moonlight tours when the moon
is full. July through August additional tour:
Thursday 10:00 AM
Phone: (831) 625-4419

Point Vicente:

Not usually open to the public
Phone: (310) 547-0817

Old Point Loma:

Part of Cabrillo National Monument
Open: Daily, 9:00 AM – 5:15 PM
Phone: (619) 557-5450
Address: Cabrillo National Monument
San Diego, CA 92106



THE FRESNEL LENS

The lenticular system of lenses invented by Augustine Fresnel in 1822 initially consisted of six orders (or sizes) of lenses and two types. Before Fresnel's "system" many parabolic reflectors were hung in tiers around a framework in the lantern room. Some lighthouses had as many as 36 reflectors, each with its own lamp to tend and wick to trim. Fresnel's system employed but a single light source, one lamp placed in the center (at the focal plane) of the lens. Fresnel lenses are like giant beehives of glass prisms set in brass frames. The prisms are mathematically arranged to capture 65 to 70% of the light emitting from the central light source or lamp. The light rays are bent by the prisms into one horizontal sheet of light that, in a 1st Order lens, can be seen up to 22 miles at sea (versus 8-10 miles for the best of the old reflector systems).

Fresnel lenses are of two types: *Fixed* – which shows a steady light all around the horizon and *Revolving* – which produces a flash or a characteristic. The number of flashes per minute depends on the number of flash panels and the speed that the optic revolves.

A fixed optic has a central drum of convex glass around the waist of the lens. Directly above and below this "drum" of glass are dioptric prisms that refract the light rays emitted from the lamp into a horizontal sheet light. Above and below the dioptric prisms are catadioptric prisms. The light rays reaching these prisms are first refracted within the prism where they are bent to the horizontal.

A revolving or rotating optic employs a series of convex bullseye lenses around the waist of the optic. Directly over and under each bullseye are curved dioptric prisms and above these, curved catadioptric prisms. Each of these segments (consisting of a bullseye and dioptric and catadioptric prisms) are termed "flashed panels". Flash panels bend the light rays that strike them into the horizontal like the prisms of the fixed lens, but the bullseyes and curved prisms also funnel the light rays into vertical segments or beams. This arrangement produces a flash when seen by the mariner at sea. If you were directly above the lantern-room looking down, the light rays would appear like spokes of a wheel.

Many variations of the revolving lens were employed over the years. The lens with the fewest flash panels, two, is called a "clam shell" or "bivalve". Some had as many as 24 panels. Other variations included placing a red panel of glass over every other flash panel to produce an alternating red and white characteristic. Sometimes certain storm panes (or windows) of the lantern room had red glass installed. Thus, when a mariner observed a white light when transiting the area he knew he was in safe water. However, if the light suddenly showed red he knew he was sailing into danger. The problem with colored lenses is that they (green or red) drastically cut the candlepower of the optic to 40% of that produced by clear glass.

A variation of the revolving lens was the fix-flashing optic. This lens was a combination of the fixed or barrel waisted optic broken by an occasional flash panel (bullseye). Although the whole lens rotated, the mariner observed a steady light until a bullseye passed his eye creating a flash. Another variation was to raise and lower a metal tube over the lamp that produced an occultating characteristic. The tube or shade was operated by a mechanical clock similar to the clockworks that operated the rotating lens.

Fixed lenses, providing a steady light, were only adequate if there were few other lights in the vicinity. As buildings were constructed around the lighthouse it became difficult to discern which light was the lighthouse. In this case, the lens was changed to a flashing optic or, occasionally, a clockworks operated metal screen was placed in the lens. As the screen rotated it obscured the lamp and produced a period of darkness or a characteristic.

Three types of apparatus are employed to rotate a lens: 1) a series of small brass wheels (termed chariot wheels), 2) ball bearings and 3) mercury floats. The mercury float method was essential to the operation of the giant Hyper-Radical as the glass and brass portion of the optic weighed 8 tons! This arrangement consists of an annular cast iron bath or trough of such dimensions that a similar but slightly smaller annular float immersed in the bath and surrounded by mercury displaces a volume of the liquid metal whose weight is equal to that of the apparatus supported. Thus a comparatively insignificant quantity of mercury say 200 lbs., can support a mass over 3 tons.

Initially rotating lens were powered by a clockworks mechanism driven by a descending weight. Usually the weight only descended five or 6 feet. Although technology could have allowed the lens apparatus to operate all night, it was designed so the Keeper had to wind it at least once during the night. Thus ensuring the Keeper on watch visited the lantern room during the night.

FRESNEL LENSES

Invented in 1822 by Augustine Fresnel, the lens was available in six orders. In the mid 1800's, a 3 ½ order was added and in the 1880's the Meso-Radial and Hyper-Radial were devised. Lenses are available as fixed, rotating, or fixed varied by flashes.

Before 1846, the lenses were manufactured by the firms of Henry Lepaute, Francois Soeil and M. Tabouret, all in Paris, France. In the later years, the Paris firms of L. Sautter, Barbier and Fenestre, and the English Chance Brothers manufactured the lenses. After 1903, a few American firms manufactured the smaller order lenses, most being 500mm and 375mm used in minor aids and on lightships.

Type of Lens	Height	Diameter	Range	General Use
Hyper-radial	22'	2660mm (8' 10")	30M	Major Landfall
Meso-radial		(7' 6")	26M	Major Landfall
1st Order	2590mm (8' 5 1/4")	1840mm (6' 1/2")	22M	Major Landfall
2nd Order	2069mm (6' 11")	1400mm (4' 8")	20M	Coastal Navigation
3rd Order	1576mm (5' 3")	1000mm (3' 4")	18M	Coastal Navigation
3 1/2 Order		750mm (2' 6")	16M	Coastal Navigation
4th Order	722mm (2' 5")	500mm (1' 8")	14M	Coastal Navigation
5th Order	541mm (1' 9 1/2")	372mm (1' 3")	12M	Harbor Entrance
6th Order	433mm (1' 5 1/3")	300mm (1')	10M	Harbor Entrance

Height – A 1st Order is listed as a minimum of 8 ½ feet (and as high as 10 feet) without the pedestal. Typically the entire height of a 1st Order is around 19 feet, 2nd Order 17 feet, etc.

Weight – The weight of a lens varies within the Orders. It is dependent on the number of flash panels (in a rotating optic), materials used for the frame, type of clock works (for a rotating optic), and a particular manufacturer's design. A 1st Order lens weighs between 6000 and 9000 pounds (three to four and a half tons). The Hyper-Radial weighs ten tons and is 22 feet tall.

Range – The range or distance the light can be seen from a particular order of lens varies due to the type of lamp installed, transmissibility (general atmosphere) of the area, characteristic and elevation of the focal plane of the lens above sea level.

Lamps – Range from single to five wick oil lamps, i.o.v. kerosene lamps and various light bulbs, the latter being the more powerful.

Transmissibility – Is basically the cleanliness of the air. Hawaii generally has excellent transmissibility while New York City's would often be poor.

Characteristics – A slow characteristic can be seen farther than a quick flashing characteristic as the eye has more time to get the signal with a slow flash, as it looms slightly before flashing. Also, red or green lenses cut the strength of the light by 75%.

Elevation – Is more important due to the curvature of the earth. A combination of height of the light and height of the eye of an observer can be combined to provide a given range.

General Use – Above we have shown a general use for the various orders. Obviously a 1st Order wasn't used just as a landfall light, it could also be used for coastal navigation. An optic listed as a coastal navigating light could also be placed to mark a danger and/or show the entrance to the harbor.

Lighthouse USA—Year Round Events (YRE) - Walking

State	City/Walk	YRE #	Lighthouse	Sponsoring Club	Contact
Alabama	Fort Morgan, AL - 10km	Y0495		Pensacola Volksmarchers	Mary Aberg
California	San Francisco, CA - 10km	Y1479	Alcatraz Island	Bay City Bandits Volksmarch Club	James Yakas
California	Monterey, CA - 10km	Y1751	Point Pinos	Monterey Peninsula Walking Club	Ellen Korlann
Delaware	Lewes, DE - 10km	Y1425	Harbor of Refuge Lighthouse (effective 01/05)	First State Webfooters	Hazel Meegan
Florida	Fernandina Beach, FL - 10km	Y1755	Amelia Island	First Coast Trail Forgers	Ed Catledge
Florida	Pensacola, FL - 10km	Y0274	Pensacola	Pensacola Volksmarch	
Florida	Ponce Inlet, FL - 10km	Y0725	Ponce de Leon Inlet Lighthouse	Happy Wanderers	Marvin Stokes
Florida	Sanibel, FL - 10km	Y0521	Sanibel	Ft. Myers Meandering Manatees	Bev MacNeill
Florida	St. Augustine, FL - 10km	Y1128	St. Augustine	Happy Wanderers	Jane Garazo
Florida	Tarpon Springs, FL - 10km	Y0031	Anclote Key	Suncoast Sandpipers	Sharon Booth
Hawaii	Honolulu, HI - 10km	Y0988	Diamond Head	Menehune Marchers	Marsha Okada
Hawaii	Honolulu, HI - 12km	Y0523	Diamond Head	Menehune Marchers	Marsha Okada
Illinois	Chicago (Lake Front), IL - 11km	Y0783	Chicago Harbor Lighthouse	Illinois Volkssport Association	Therese Glatzhofer
Illinois	Chicago (Gold Coast), IL - 11km	Y1596	Chicago Harbor Lighthouse	Illinois Volkssport Association	Therese Glatzhofer
Maine	South Portland, ME - 11km	Y0864	Portland Head Lighthouse, Ram Island Ledge Light, Spring Point Ledge Lighthouse, Bug Light	Southern Maine Volkssprt	Dave / Penny Cole
Maryland	Baltimore, MD - 10km	Y0362	Seven Foot Knoll	Baltimore Walking Club	John Nolan
Maryland	Baltimore, MD - 10km	Y1453	Seven Foot Knoll	Baltimore Walking Club	John Nolan
Maryland	Havre de Grace, MD - 10km	Y0131	Concord Point	Baltimore Walking Club	F. or M. Kupres
Massachusetts	Beverley, MA - 10km	Y1656	Hospital Point Light	Two Town Walking Club	Mary Saratora

Massachusetts	Fall River, MA - 10km	Y0267	Borden Flats	Walk 'N Mass Volkssport Club	Bob Letendre
Massachusetts	Newbury Port, MA - 10km	Y1655		Two Town Walking Club	Benedict Andreozzi
Massachusetts	Salem, MA - 10km	Y0809	Derby Wharf Lighthouse	Two Town Walking Club	Karen Campbell
Michigan	Ludington, MI - 10km	Y1060	North Breakwater	Historic Pathwalkers	Louise Blystra
Michigan	Ludington, MI - 10km	Y1066	Big Sable	Historic Pathwalkers	Louise Blystra
Michigan	Manistee, MI - 10km	Y1067		Historic Pathwalkers	Louise Blystra
Michigan	Marquette, MI - 10km	Y1289		Menominee River Volkssport	Gilbert Engel
Michigan	St. Joseph, MI - 10km	Y0168		Historic Pathwalkers	Louise Blystra
Michigan	South Haven, MI - 11km	Y0561	South Haven, South Pierhead	Historic Pathwalkers	Louise Blystra
Minnesota	Minneapolis\Nicollet Island, MN - 10km	Y0416	Boom Island Lighthouse	Twin Cities Volkssport	Bonita Johnson
Mississippi	Biloxi, MS - 10km	Y0126	Biloxi	Magnolia State Volkssport	John Welch
New Jersey	Atlantic City, NJ - 10km	Y1643	Absecon Lighthouse	Princeton Area Walkers	Donna Coulson
New Jersey	Cape May, NJ - 10km	Y1107	Cape May	Monmouth Shore Walkers	
New York	Buffalo, NY - 10km	Y0719	Buffalo Main Lighthouse, Buffalo North Breakwater Light,	Niagara Escarpment	Terry McFarland
New York	New York City, NY - 11km	Y0315	Statue of Liberty	Seneca Valley Sugarloafers	Ed Brangest
North Carolina	Buxton, NC - 11km	Y0602	Cape Hatteras Lighthouse	Winston Wanderers	Loren Little
North Carolina	Corolla, NC - 11km	Y1139	Currituck Lighthouse	Winston Wanderers	Loren Little
North Carolina	Southport, NC - 10km	Y1375	Bald Head Lighthouse, Oak Island Lighthouse	Rowan Roamers	R. Goodnight
Ohio	Cleveland, OH - 10km	Y1082	Pierhead Lighthouse	President Valley Vagabonds	Deva Simon
Ohio	Conneaut, OH - 10km	Y1080	West Breakwater Lighthouse	President Valley Vagabonds	Deva Simon
Oregon	Astoria, OR - 10/15km	Y0475		Turnaround Trekkers	Sam Korff
Oregon	Bandon, OR - 11km	Y1562		Umpqua Valley	

Massachusetts	Fall River, MA - 10km	Y0267	Borden Flats	Walk 'N Mass Volkssport Club	Bob Letendre
Massachusetts	Newbury Port, MA - 10km	Y1655		Two Town Walking Club	Benedict Andreozzi
Massachusetts	Salem, MA - 10km	Y0809	Derby Wharf Lighthouse	Two Town Walking Club	Karen Campbell
Michigan	Ludington, MI - 10km	Y1060	North Breakwater	Historic Pathwalkers	Louise Blystra
Michigan	Ludington, MI - 10km	Y1066	Big Sable	Historic Pathwalkers	Louise Blystra
Michigan	Manistee, MI - 10km	Y1067		Historic Pathwalkers	Louise Blystra
Michigan	Marquette, MI - 10km	Y1289		Menominee River Volkssport	Gilbert Engel
Michigan	St. Joseph, MI - 10km	Y0168		Historic Pathwalkers	Louise Blystra
Michigan	South Haven, MI - 11km	Y0561	South Haven, South Pierhead	Historic Pathwalkers	Louise Blystra
Minnesota	Minneapolis\Nicollet Island, MN - 10km	Y0416	Boom Island Lighthouse	Twin Cities Volkssport	Bonita Johnson
Mississippi	Biloxi, MS - 10km	Y0126	Biloxi	Magnolia State Volkssport	John Welch
New Jersey	Atlantic City, NJ - 10km	Y1643	Absecon Lighthouse	Princeton Area Walkers	Donna Coulson
New Jersey	Cape May, NJ - 10km	Y1107	Cape May	Monmouth Shore Walkers	
New York	Buffalo, NY - 10km	Y0719	Buffalo Main Lighthouse, Buffalo North Breakwater Light,	Niagara Escarpment	Terry McFarland
New York	New York City, NY - 11km	Y0315	Statue of Liberty	Seneca Valley Sugarloafers	Ed Brangest
North Carolina	Buxton, NC - 11km	Y0602	Cape Hatteras Lighthouse	Winston Wanderers	Loren Little
North Carolina	Corolla, NC - 11km	Y1139	Currituck Lighthouse	Winston Wanderers	Loren Little
North Carolina	Southport, NC - 10km	Y1375	Bald Head Lighthouse, Oak Island Lighthouse	Rowan Roamers	R. Goodnight
Ohio	Cleveland, OH - 10km	Y1082	Pierhead Lighthouse	President Valley Vagabonds	Deva Simon
Ohio	Conneaut, OH - 10km	Y1080	West Breakwater Lighthouse	President Valley Vagabonds	Deva Simon
Oregon	Astoria, OR - 10/15km	Y0475		Turnaround Trekkers	Sam Korff
Oregon	Bandon, OR - 11km	Y1562		Umpqua Valley	



YOUNG PEOPLE'S BOOK LIST

ABBIE BURGESS, LIGHTHOUSE HEROINE: Ruth S. Sargent, Illustrated by Dorothy H Jones, 1969. Down East Book, PO Box 679, Camden ME 04843. Classic young people's version of the true story of a lighthouse keeper's daughter, Abbie and her struggles to keep the lamp lit during a fierce storm around Manticus Rock.

Grades 4 through 6.

BEACONS OF LIGHT— LIGHTHOUSES: **Gail Gibbons, 1990. A first "read to themselves" book for children who want to learn more about lighthouse. 34 pages, hard cover, clear and simple illustrations.

Primary through elementary.

EXPLORING THE LIGHTHOUSES OF NORTH CAROLINA: Cindy Corey, 1982. The Provincial Press, Box 2311, Chapel Hill, NC 27514. A General guide to the lighthouses of North Carolina, filled with historical information, statistics— watercolor illustrations, maps. 10 pages, softcover, half-size, simple reader.

Grades 4 through 6.

GREAT AMERICAN LIGHTHOUSES: F. Ross Holland, Jr., 1989. Preservation Press. Nat'l Trust for Historic Preservation, 1785 Massachusetts Ave NW, Washington DC 20036. A survey of selected lighthouses of all the U.S. Coastal and inland water regions. 346 profusely illustrated with black and white pictures, historical notes, a fine index, references to preservation groups, and extensive bibliography.

Middle School through adult.

LIGHTHOUSE IN MY LIFE: **Philip Wass, 1987. Story of a boy growing up on Libby Island, ME. Philip relates the adventures and perspectives of an island-bound family from early years, and home-tutors, to boarding out for high school—all aspects of which were deeply impacted by the tasks and seasons of lighthouse life.

Grade 6 to Adult.

LIGHTHOUSES: Arthur Smith, 1971. Houghton Mifflin Co., Boston. Contains material on lighthouses and how they work, lighthouses of antiquity, Winstanley's lighthouses in England, and information about US coastal areas. 146 pages, hard cover, with sketches illustrating each chapter.

Late elementary thru middle school.

LIVING IN A LIGHTHOUSE: Luanne G. Kozma, (Ed.), 1987. Great Lakes Light Keepers Association, PO Box 580 Allen Park, MI 48101. A compendium of oral histories from ten Great Lakes Lighthouse Keepers and their families. 104 pages, soft cover, some photos.

Grade 4 through middle School.

**YOUNG PEOPLE'S BOOK LIST CON'T**

ROBERT'S TALL FRIEND—A STORY OF THE FIRE ISLAND LIGHTHOUSE: Vivian Farrell, Illustrated by Christy Edwards, 1987. Island-Metro Publications, Inc., Plainview, Long Islands, NY 11803. This book explains about lighthouses, and the particular story of the restoration of the Fire Island Light, using a young boy's involvement with it as the vehicle. 58 pages, soft cover, Illustrated with bright water color pictures at the beginning of each chapter.

Primary through elementary school.

SIGNPOSTS OF THE SEA: Althea Braithwaite, 1972. Colourmaster Int'l. St. Ives, Huntingdon, England. A young person's survey of British lighthouses, with drawn illustrations and photographs; compiled with advice from Trinity House, the lighthouse-governing body of Great Britain. 34 pages, soft cover.

Grade 4 through middle school.

THE LIGHTHOUSE KEEPER'S DAUGHTER: **Arielle North Olson, 1987. Little, Brown & Co. A heroic incident forms the basis of the story of Miranda, who keeps the lighthouse burning while her father is kept away by a violent storm. Beautifully (and accurately) illustrated with dramatic watercolors by Elaine Wentworth. 32 pages, hard cover.

Primary through elementary school.

THE LIGHTHOUSE KEEPER'S LUNCH: Andre Deutsch. A charming nonsense story about a keeper's lunch (transported from his swelling on shore via clothesline to the lighthouse) and how he and his wife deal with the crafty seagulls who snatch it. 28 pages, hard cover.

Primary through elementary school.

THE LITTLE RED LIGHTHOUSE AND THE GREAT GREY BRIDGE: **H. Swift, L. Ward, Harcourt, Brace & World, 1942. This primary grades classic has the distinction of actually sparking a campaign which resulted in the community purchase of Jeffrey's Hook Lighthouse, NY— the model for the lighthouse. 53 pages, with three-color illustrations, hardbound.

Primary through elementary school.

THREE BEANS OF LIGHT: Norma Engel, 1986. Tecolote Publications, Box 70205, San Diego, CA 92107. This true story of one family's life, living at three coastal lighthouses in California is as evocative of its time and place as are the "Little House on the Prairie Series" about the Midwest. 276 pages, soft cover with photographs, plus appendix.

Grade 4 through middle school.

RESOURCES

BOOKS

Clifford, Mary Louise, J.
Holland, Francis Ross Jr.
Fleming, Candace
Gibbs, Jim
Nelson, Sharlene and Ted

Roop, Peter and Connie
Sargent, Ruth S.
Wass, Philip

Women Who Kept the Lights: An Illustrated History
of Female Lighthouse Keepers
America's Lighthouses: An Illustrated History
Women of the Lights
Sentinels of Solitude: West Coast Lighthouses
Umbrella Guide to California Lighthouses
Umbrella Guide to Oregon Lighthouses
Umbrella Guide to Washington Lighthouses
Keep the Light Burning, Annie
Abbie Burgess Lighthouse Heroine
Lighthouse in My Life

WEBSITES

National Park Service
National Park Service Cultural Resources
Lighthouse Getaway
Lighthouses of British Columbia
Lighthouse Friends
Lighthouse Point Sur

www.nps.gov
www.nps.gov/history
www.lighthousegetaway.com
www.fogwhistle.ca/bclights
www.lighthousefriends.com
www.lighthouse-pointsur-ca.org