

What Did I Find?

Sea Glass and Our History

Congratulations!

You went to the beach at low tide.

You found a cool piece of sea glass.

Now, you want to know more about it.



Presented by the Half Moon Bay
History Association and Jo Fry (C)
2025

I am out on the beach as often as I can, most days a week. (I am very lucky to work across the street from the Pacific Ocean) and have learned to classify my sea glass finds, based on knowledge of glass bottle manufacturing in California history, pre-Gold Rush through now. I want to share with you so you can learn about the pieces that you find too and be a good “beach ambassador” for our passion.

Key identifiers/aspects of sea glass:

- Thickness
- Color
- Shape
- Lettering/markings
- Location where it was found



Thickness

Older glass bottles, even early machine-made ones, were much thicker than the glass in our modern jars and bottles. This is due to the manufacturing techniques used to make the bottles that your sea glass came from. It is a general rule of thumb that if your piece of sea glass is thicker, it is older.

Originally bottles were free-blown, much like you may see glass blowers do it today. The molten glass was shaped into a bottle as it was formed. Depending on the skill of the maker, the bottles could end up being uneven in thickness and shape. By the mid-1850s, this technique was already pretty much obsolete in the United States, as production was much faster (and more consistent) when the glass was blown into pre-shaped molds. Also, the skill level of the bottle blower did not need to be as good using this technique. This is one factor in early California glass history: who wants to be stuck making bottles when there was gold to be found?

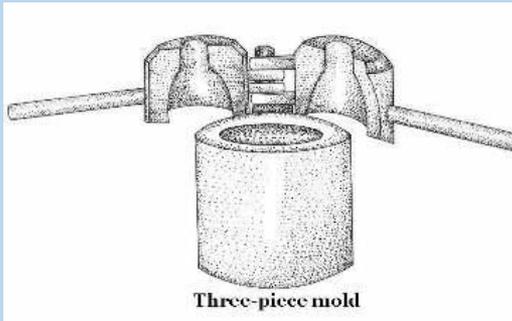


Free-blown punt/kick-up, partially sea frosted. Notice it is off-center, like the Leaning Tower of Pisa. The glass is thicker in some places than others (and it has lots of bubbles!)
Found February 2023

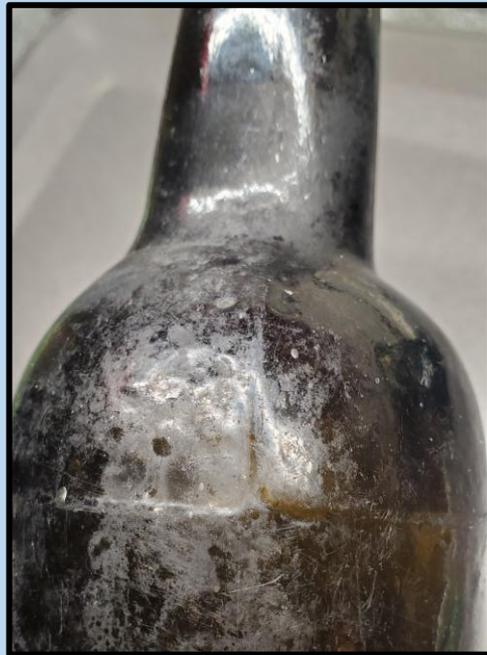
Thickness

There were several types of glass molds that were used: dip, three-part, hinge, turn, post, cup. Dip molds were the first evolution, with some of them crudely set on workshop floors, resulting in bottles with bases that are flat, thick and often uneven. With all molds, molten glass was blown into the mold. Typically, the lips of the bottles were then hand-finished (called a “tooled top”). Bottles made in molds have seams that are thick and uneven, unlike in machine made bottles. Frosted pieces of these bottles still can show this.

Thick tooled or blob-top bottle top
Found May 2023



Prominent mold seams from
a 3-piece mold-made bottle



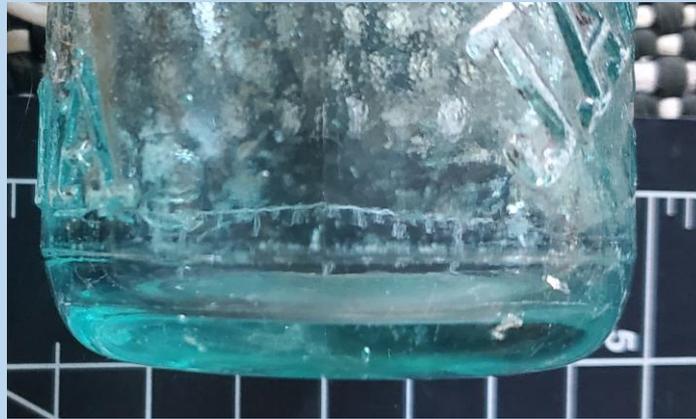
Thickness

The main type of bottle mold used in the latter part of the 19th century was the cup mold. Bottles made using cup molds have very thick bases, up to 1" thick. They can survive intact after over a century of tumbling in the ocean!



This frosted cup-mold bottle base is almost 1" thick. Found May 2023

19th century bottle made using a cup mold.
Found December 2021



Left: Stack of 19th century cup mold-made frosted bottle bases
Found over the past 3 years



Thickness

By 1905 most bottles were machine-made. While earlier machined bottles are thicker than modern, they are generally not like the old blown bottles. If you find a piece of sea glass that seems unusually thick, it may have originally come from a 19th century glass container.

Another hint that your glass is older is if it contains bubbles; they can be visible even through the frostiness. Bubbles were caused by the glass being blown. What I find amazing is that when you are looking at the bubbles, you are seeing the breath of someone who is long gone. It is truly a connection with the past.



There are a crazy number of bubbles in this shard from a Japanese glass float!
Found March 2023

What color is your Sea Glass?

Color is one of the reasons that we all love sea glass; the pop of emerald green or vibrant cobalt blue on the beach sets the heart racing. Some colors can indicate the age or even type of bottle that your glass originated from.

White Sea Glass White sea glass started its life clear. Clear or colorless glass was always highly desirable in the history of glassmaking, as glass naturally has a slightly greenish cast due to iron impurities found in sand. To produce true colorless glass requires the use of high-quality materials or a decolorizing agent. True colorless glass was relatively uncommon until the 1870s but is very common after the advent of machine-made bottles. Your white sea glass likely started life as a utilitarian or food container and was probably machine-made. White tends to be the dominant color found. According to the owner of the Sea Glass Museum in Fort Bragg, 40% of their sea glass is white; my home beach averages 26%.

Natural glass, or “bottle green glass” Glass in these bottles was made from sand that has a low iron content and has not had de-colorizers added. These bottles tend to date prior to the 1870s.

This shard owes its color from the minerals found in the sand from which it was made. Found 2019



What color is your Sea Glass?

Lavender/Purple Sea Glass that shows a slight lavender tint started off its life as clear. In the 15th century the Venetians discovered that manganese could be added to glass to produce clear bottles. With exposure to light, bottles with added manganese start to “solarize” and begin to demonstrate a purplish tint. A bottle that is showing this color was likely made between the 1870s and World War I. During the first world war, manganese was needed to produce hardened steel, and was no longer used in glass production.

Pink glass can also be sun-turned, often dating from the Depression.

I love finding soft lavender sea glass. This one was from 2020



“Straw” colored Glass makers during WWI needed to use a new clarifying agent other than manganese to make bottle glass clear, and so turned to selenium. Selenium gives white glass a hint of a straw color. Glass with this tint will date no earlier than World War I and could have been made as late as the mid 20th century. Bottles with this color were machine-made.

What color is your Sea Glass?

Aqua Soft aqua colored bottles can be a natural result of a chemical reaction between iron in the sand and oxygen content during the glass making process. Medicine and bitters bottles, soda/mineral water bottles, ink bottles, and fruit jars are among the most common types of bottles seen in aqua glass. Aqua bottles became less common after the 1920s, when clear glass was preferred to show the bottle contents.



Greens Sea Glass is found in a wide variety of green shades, from the classic patented “Coke” bottle aqua/green to olive, to the deep forest green of wine bottles. Green bottles have been used for a variety of products over a long period of time and this color is not a good indicator of age alone, although soft greens are usually older and bright lime or “7 UP” green is a 20th century invention. Green glass typically uses iron oxide to color it.

What color is your Sea Glass?



Patented Coke green bottles
Found 2020, left, and 2022, right. The one without the
enameled lettering is older (enameled lettering was
invented in 1936) but the color is consistent.

Amber/Honey – Carbon (wood, charcoal) and sulfur were added to glass to make this color. It was, and still is, a widely used for beer and alcohol containers, although there are subtle variations in color that can indicate age. A color known by collectors as “old amber” is a medium yellowish amber with an olive tint and is very uncommon in bottles made after 1890. Likewise, yellow amber is an uncommon color after 1910, when most bottles were machine-made. Red Amber can be found in machine-made beer bottles from the 1940s.

A 1947 beer bottle shows of its red/amber hue, with
corresponding sea glass likely from bottles of this same age.
Bottle found in Calistoga, CA 2021. Sea Glass from my collection



What color is your Sea Glass?

Root-beer Brown Used widely in machine-made bottles, it is a common modern color with a general uniform look.

Reds, Amethysts Rarer to find, red sea glass could have come from a bottle made between the 1840s to 1880s, from decorative ware, or from old auto taillights. However, the Schlitz company produced red bottles in the 1940s – 1960s (often known after the bottle maker and called Anchor Hocking Ruby). To achieve these colors manganese dioxide, copper, nickel, selenium in various quantity is added to glass.

Cobalt, “True Blue” A favorite of so many collectors! Cobalt oxide was added to glass to achieve this stunning blue color. This glass was frequently used for soda and mineral water bottles from the 1840s into the early 1900s and for medicine, cosmetic or poison bottles until the 1960s. The lighter, or cornflower blues, tend to be earlier bottle colors, while the intensely dark cobalt color, as seen in Milk of Magnesia or Vick’s bottles tends to be a more modern variation of the color. The manufacturer Maryland Glass was renown for this color.

Deep Cobalt blue Maryland
Glass bottle from the
1940s - 1950s.
Found 2020



What color is your Sea Glass?

Milk Glass, or White Glass Traditionally bone ash, rich in phosphates, was added to glass to produce a glass in an opaque milky white color. Used for cosmetic and cream jars/bottles from the late 1800s through the middle of the 20th century.

Milk glass colored green (jadeite) or blue (Azur-ite, made by Anchor Hocking) was from tableware popular in the 1930s and 1940s. Often the green will fluoresce under a black light.



Black Glass AKA “Pirate Glass” Produced as early as the late 17th century to protect bottle contents from light exposure and spoilage. The early production time period gives this glass its catchy name, and it is a collector’s favorite. Traditionally coal was added to glass to give it a black color. When you hold a black glass bottle up light you will find that it is not true black but a dark green or amber color. This technique was typically used prior to the 1880s.



“Black” Glass bottle backlit by the sun

What color is your Sea Glass?

Uranium or Vaseline Glass Trace amounts of Uranium was used to color glass as far back as the 1830s up until World War II, then afterwards until the 1950s. It gives glass a soft greenish-yellow glow when exposed to natural light but fluoresces under black light. It was used for decorative pieces, and not in commercial glass production. It is beloved by collectors.



Uranium Glass Juicer, circa 1930s. Left, viewed under natural light. Right, viewed under black light. Below is a UV sea glass piece viewed under black light.



Teal Sea Glass in this color came either from old 19thc bottles or glass insulators.



Orange Generally this color came from decorative ware, but I have a piece that looks like it was a bottle base.

Grey Pieces of this glass generally date from 1915 – the 1930s and was an unintentional color, resulting from the sand the glass was made from. The sand contained too much iron or copper. Glass from old TVs is also grey in color.

Shape

Some shards will just scream out where they come from; the best example of this are frosty shards of Coke Bottles. However, many other beverages from the 1920s-1950 had distinctively shaped bottles too, and their thicker make enables them to survive in the sea for decades.



Things go better when you find shards like these at the beach!



Beverage bottles with unique shapes make interesting sea glass. These date from the 1930s-1950s. I have finds with the same swirl as the Grapette bottle on the left.



These cobalt sea glass pieces come from mid-century Milk-of-Magnesia bottles made by Maryland Glass. I have heard them mis-identified as coming from 19th Century poison bottles; the darker blue and thinner glass points them to these later origins.

Lettering/Markings

Sometimes a piece of sea glass still shows the faint outline of letters and marks; if you can gather enough information from what is still showing, you may be able to determine the bottle manufacturer, plant where it was made, and maybe even a year. It is good to be familiar with the glass manufacturers that may have supplied bottles locally, as I find they pop up time and time again. These are common finds for California sea glass:

Owens Illinois

The Owens-Illinois Glass Company was incorporated in 1929 with the merger of two of the industry's largest producers, the Illinois Glass Co. and the Owens Glass Co. They became the largest bottle manufacturer in the world and are still in operation. This company pioneered the use of automated bottle production machines and made many different types of bottles for many different types of product through the years.

Throughout their history they used a few logos, and the embossing on the bottom of the bottles can tell you date and the plant where your bottle was made.

- “I” in an Oval-in-a-Diamond – Company logo since 1929. Date code can usually be found to the right of the logo. Plant code to the left. (OK, looks like Yoda!)
- Single digit date codes were used in the 1930s but became problematic in 1940 (does the “0” stand for 1930 or 1940?) so the company adopted first the date followed by a period, and then by 1947, two-digit codes.

Lettering/Markings

Owens Illinois



IDENTIFY THIS...

Owens Illinois Logo from 1929 – 1956.

Where Made: Left of logo is plant 3. This was Fairmont, WV, which was in operation from 1930 – 1980. Typically, I find plant code 20 (Oakland) or 23 (Los Angeles)

When Made: Right of Logo. Number 2 with a dot signifies 1942. No dot would be 1932. Later in the 1940s two-digit date codes were used.

Duraglas designation at the bottom is typical of bottles made in the 1940s – 1950s. The glass was thicker (more durable). It makes lovely sea glass gems!

The bottle's base is knurled, but lacks "stippling", like a modern bottle has. Stippling was invented around 1940, to prevent bottles from breaking during the manufacturing process.

- “Duraglas” – This logo signifies a bottle-making process and was used from 1940 through the 1950s. “The surface of the hot, just-produced bottles, were sprayed on the body, shoulder, and neck (but not the base or the top of the finish) with a stannic chloride (Tin chloride) vapor that allowed the tin to bond to the outer surface, providing scratch resistance and durability to the bottles.”
- “1” in an Oval – Their logo since the mid-1950s.



Lettering/Markings – commonly found:

A in a Circle = Armstrong Cork Company Many 1940s brown bottles sport this logo

Anchor = Anchor Hocking 1905 - still existing as Anchor Hocking Holdings

B in a Circle = Brockway Glass 1907 - 1988

Capital H with a smaller A underneath = Hazel Atlas Glass 1902 – 1964



L Latchford Glass 1925 – 1989, based in Southern California

M in a Circle = Maryland Glass Makers of the beloved cobalt blue bottles

MTH = Thatcher Glass Manufacturing 1904 - 1985



Lettering/Markings

There are many, many more glass manufacturers than these, but these are the ones that I most commonly find, and these are all American. A great resource for accessing information on manufacturers is

[GLASS BOTTLE MARKS~ Vintage Glass information Site](#)

This site has listings alphabetically and is a go-to resource for me. I have found pieces from Irish and Italian makers, and these I was able to look up online also.



This is my oldest sea glass find that has a maker's mark. The mark is hand-drawn. The bottle shard is a natural color, made in a dip mold with two thick mold scars on the sides. The base is flat, and uneven. The glass has a lot of bubbles.

According to the web site above, the maker is unknown, and was likely located in San Francisco. The age estimate is 1870s or earlier.

Found 2022

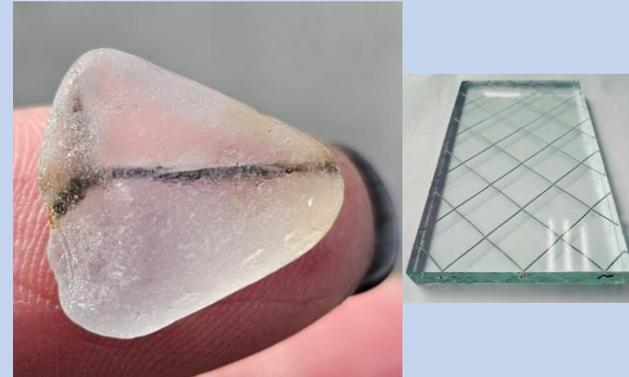
Other Glass You May Find

Bonfire Glass - Glass that had been burnt, and then tumbled. Often cities would burn their trash (hello, Fort Bragg), but I have found old home sites along the coast that had fire pits with obvious burned pieces of glass. This glass can contain multiple colors, as it melted together. It also often contains dirt and sometimes metal. It is twisted out of shape, so may no longer look like a bottle. Personally, I love finding bonfire glass as it is just plain cool.



Left: Note the dirt inside this hunk of emerald green glass. This, plus the odd shape, like a base of a bottle that was torqued, signifies that it is bonfire glass. Found October 2023.

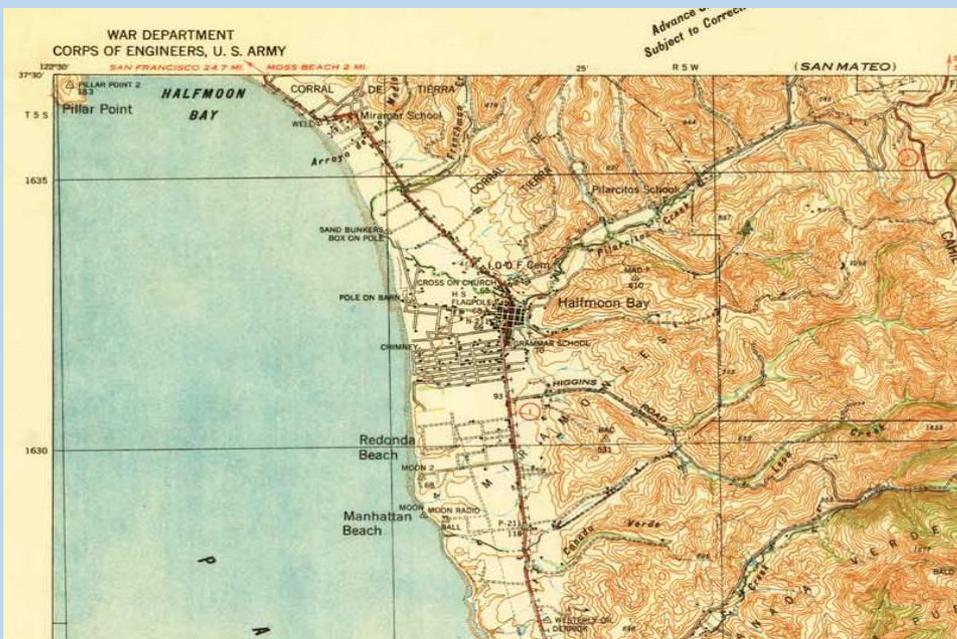
Right: Safety glass modern, and as a piece of sea glass. I often find safety glass near the location of a WWII base that stood along the coast.



Safety Glass – Have you ever found a piece of glass with what looks like barbed wire inside of it? You have found a piece of safety glass! This glass started its life as a window or on a door designed to help prevent break-ins and strengthen the glass. This is so much fun to find, as the glass is worm so that each piece exposes the metal in different ways. The glass is often white but can be pale blue or even brown.

Location Location Location

Like in real estate, location is a key to help you identify your glass and finds. Seek out old maps of your favorite beaches, to see what the area was used for in the past. Often, you may be able to locate them online, no antique store hunting needed! One of my best spots used to be home to a saloon, a restaurant, and then much later, a WWII Army base. From the saloon-era I have bits of ginger beer and mineral water bottles. From the restaurant I have my best piece of cutlery, a curved and bent fork. The Army base era has yielded a military button, lots of frosted Coke bottle pieces, and a wine bottle date coded 1943, the exact year the base existed.



L: 1940 Corp of Engineers Map of my coastline, found online

R: WWII Army officer's button, found 2018



Location

Old timers are also a great resource.

Talking to people in their 70's and 80's, I found the location of a coastal dump site that many played in as children. Knowing that the tide at that location pulls south (State Park personnel provided me this intel), I have found lots of mid-century sea glass on the shore and whole bottles in the cliffs.

I heard some fun stories to boot.



Mid-century Coke bottle found at an old dump site,
Found April 2023