An aerial photograph of Chatham, Massachusetts, showing the town, harbor, and surrounding waters. The town is visible in the upper left, with a large harbor area in the center. The water is a deep blue, and the shoreline is a mix of green land and sandy areas. The title "CHATHAM WATERS and SHORELINES" is overlaid in white, serif font.

CHATHAM WATERS and SHORELINES

THEN and NOW
1712- 2012

FRIENDS OF CHATHAM WATERWAYS

FOREWORD

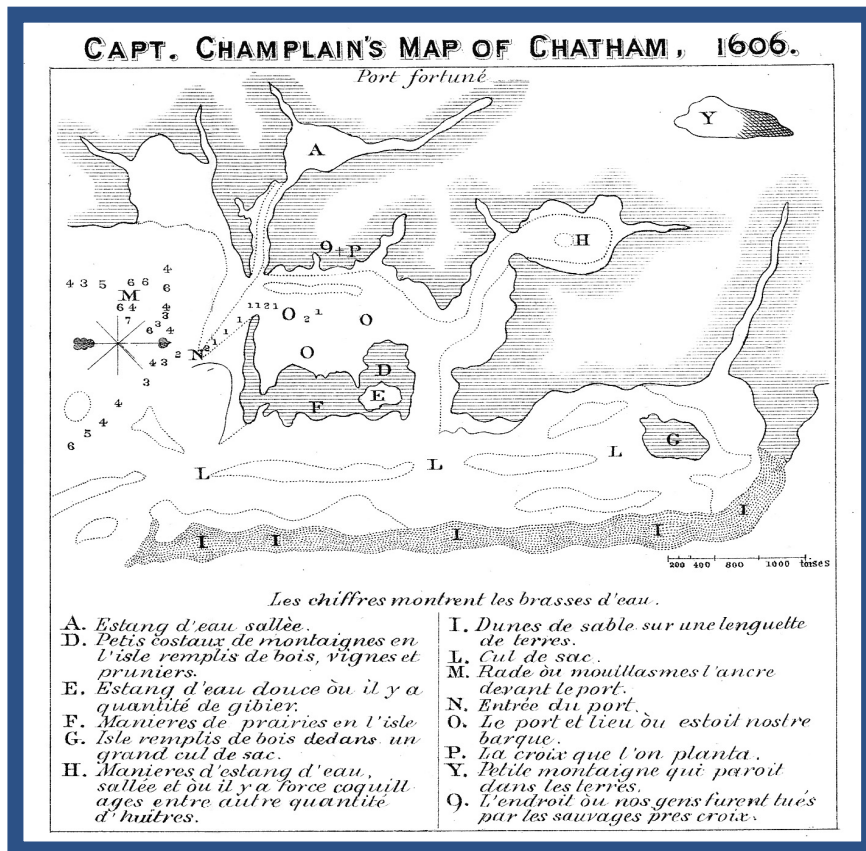
Friends of Chatham Waterways joins in celebration of Chatham's Tercentennial by publishing this collection of sketches, maps, charts and photographs depicting a story about Chatham waters and shorelines from Chatham's beginning to the present. This pictorial account of the Town's waters and shorelines, going back over 400 years, reinforces our present-day experience of shifting sands, shoaling, of new and closed inlets. Readers will see patterns and repetitions that may guide us in suitable actions. This booklet is being distributed to all Chatham households because it is not only the shore side residents who have interest in and impact on our waterways; it is all of us who live in Chatham.

Founded in 1983, Friends of Chatham Waterways is a non-profit organization of individuals committed to the protection, wise use and enjoyment of Chatham's fresh and salt waterways and adjoining lands. With 66 miles of shoreline, we believe our bays, harbors, estuaries, ponds, lakes and rivers are fundamental to the town's heritage, providing commercial and recreational opportunities while adding to its environmental and economic health.

If you are not already a member of Friends of Chatham Waterways, please join us in our commitment to improve our community environment. A membership form is included for all who are concerned about our harbors, estuaries, lakes, ponds and rivers. Additional copies of *CHATHAM WATERS and SHORELINES* are available by request to the logo address above. Our website (www.chathamwaterways.org) contains the electronic version.

Friends of Chatham Waterways, Inc. was certified in August, 1989 as a charitable organization under IRS code 501(c)(3)

Historians have written that Bartholomew Gosnold from England sailed our shores in May, 1602. On his voyage he dubbed our peninsula "Cape Cod," and noted two inlets through our outer beach and a spit of land to the south which he named "Gilbert's Point" (perhaps what we now call Minister's Point.)



1606, Capt. Champlain's Map of Chatham

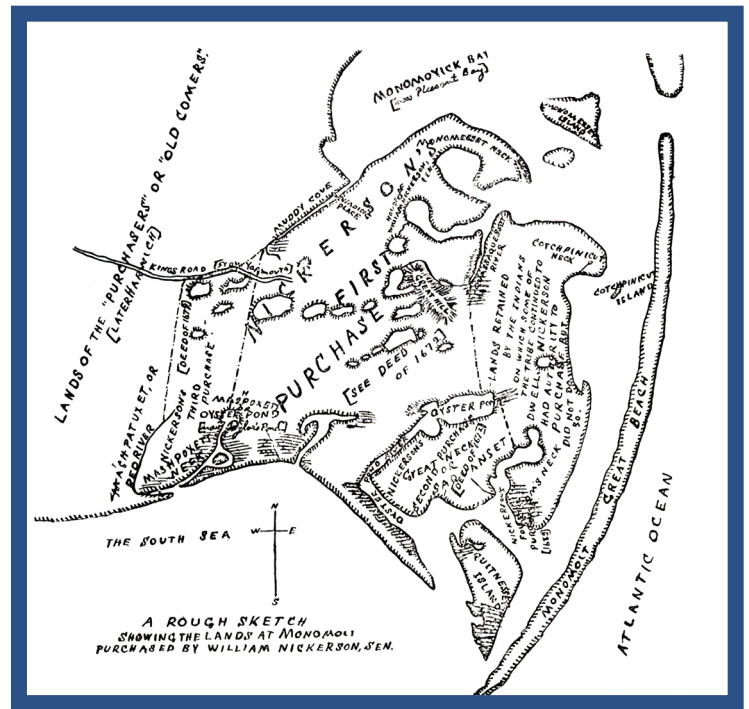
Courtesy, Maps of Antiquity

The first European visitors to land on our shores were a group of explorers including cartographer Samuel de Champlain on October 4, 1606. They anchored their pinnacle in what we now call Stage Harbor to fix the rudder, broken on Pollock Rip. Champlain drew this map with north oriented to the right (instead of our current map and chart orientation with north at the top). He named the area Port Fortune. The area he labeled "L" is now Chatham Harbor and Pleasant Bay. The sand dune labeled "I" is Nauset Beach. In his legend he noted that waters labeled "H" provided scallops and oysters, and the water labeled "O" was the spot where he anchored.

1672 – 1682, Nickerson purchases at Monomoyt, A Rough Sketch

Courtesy, *The Chatham (MA) Historical Society*

William Nickerson purchased land in Monomoyt from the Monomoyick natives in 1656 without permission of the Colonial Court at Plymouth. At the same time eight other Europeans purchased lands here with such permission. A dispute arose and was settled when Nickerson paid 90 pounds to the others for conveyance of rights to him. Between 1672 and 1682 Nickerson acquired about 4000 acres by multiple purchases depicted at right. In the sketch Monomesset Island is now known as Strong Island and Quitneset Island is now Morris Island. The breakthrough of the barrier beach is east of our Strong Island, like our 2007 inlet but 320 years before. Cortchpinicut Island rises between Minister's Point and Nauset Beach. There is a cut between mainland and now Morris Island, and that passage recurred in the 1830s. Our several south coastal estuaries (Sulphur Springs, Bucks Creek, Cockle Cove, Mill Creek, Red River) are shown as they were many years ago.



1795, A Map of Chatham Town

Courtesy, *Maps of Antiquity*

Since Monomoyt had been incorporated as the Town of Chatham on June 11, 1712, a Committee comprised of Joseph Howes, Benjamin Godfrey and Richard Sears, was chosen to “compleat” a map of Chatham. Their 1795 sketch shows roads, freshwater ponds and salt-water estuaries. Monomoy is shown as “Monomoy Sanday Point.” Note the many name changes:

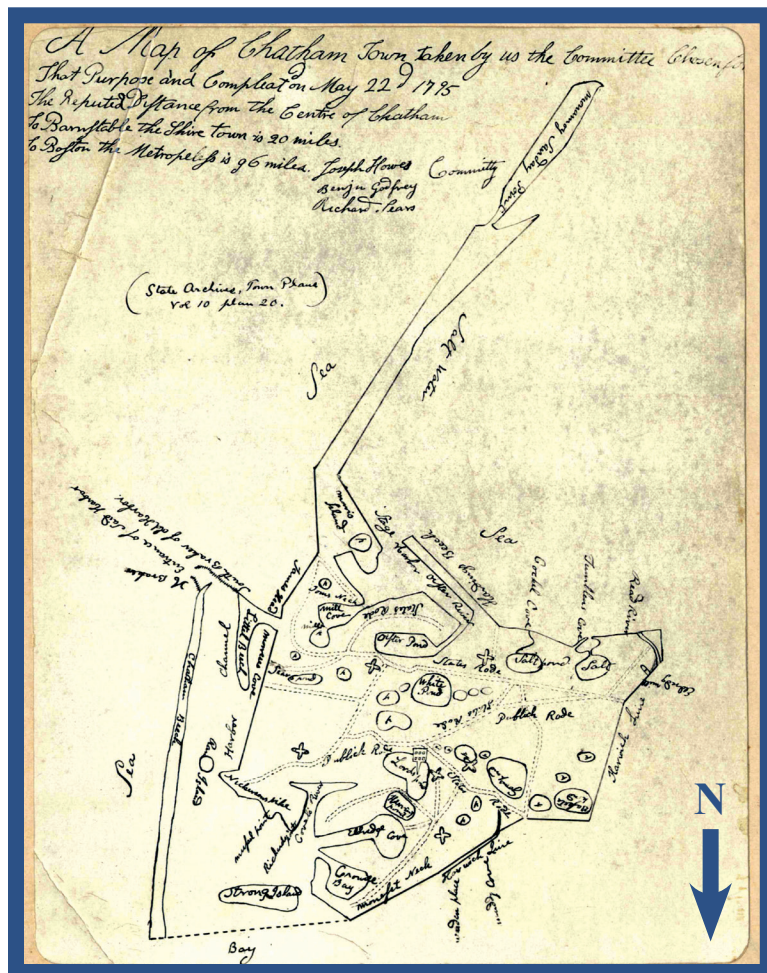
1795

2012

Monomoyick Bay	Pleasant Bay
Eldredge Cove	Ryders Cove
Crowell Bay	Crows Pond
Lords Pond	Lovers Lake
Herring Pond	Stillwater Pond
Crowells River	Frost Fish Creek
Mill Cove	Mill Pond
Tumblers Cove	Mill Creek

(Their map shows no compass rose; north is at the bottom. The viewer needs to invert the map to relate it to today's maps and charts.)

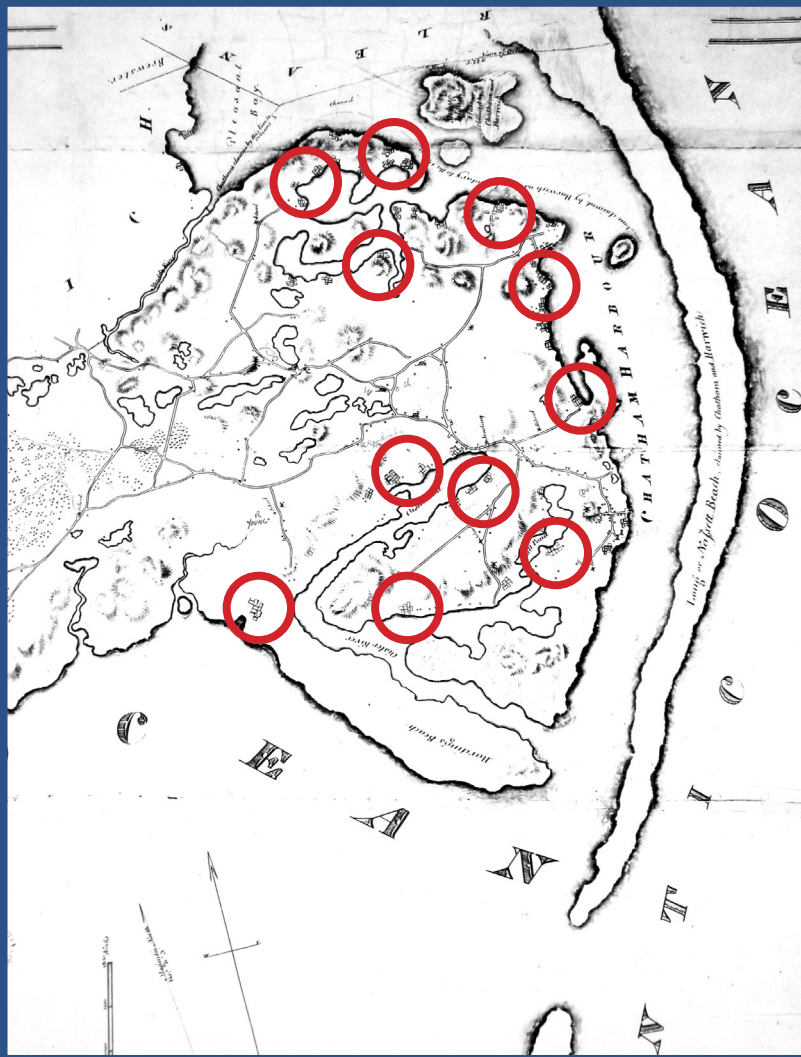
During Chatham's early years, the economy was based on agriculture (rye, corn, flax, sheep, hogs, cattle). There were several grist windmills. Later, cod and mackerel fishing and some whaling and shipbuilding created a maritime segment of the economy.



1831, John Hales Survey emphasizing salt works

Courtesy, Maps of Antiquity

John Hales' survey in 1831 (note north a bit left of top per indicator at lower left corner) shows Chatham (population then over 1300), when there were many wind-powered saltwater pumps in town due to lack of water power from rivers and streams. The collection of salt from seawater by solar evaporation made Chatham a major salt producer, and Hales' survey shows 39 salt farms with their windmills depicted by his symbol of rectangles grouped together (note red circles highlighting some of them). Upper left, note the buoy in now Pleasant Bay marking the town lines of Chatham, Harwich and Orleans. That buoy continues to represent the intersection of those town lines in 2012. Note also the Brewster town lines which show Brewster's small footage of shoreline on Pleasant Bay.



1855, Chart showing the 1846 breach of Nauset Beach

Courtesy, Maps of Antiquity

This 1855 chart represents an early effort to provide information for navigation (water depth, bottom character, currents and breakers, obstructions, aids to navigation such as Chatham South Light, one of the Twin Lights). Note well north of Chatham South Light and east of Minister's Point and Cotchpinicut Island the 1846 break through Nauset Beach (note arrow). The location of that natural event is remarkably close to the 2007 breach through Nauset Beach, a barrier beach with a long history of movement southerly and westerly with periodic breakthroughs. Dr. Graham Giese, in reports of 1978 and 2009, documents that history which describes a Chatham barrier beach cycle of changes recurring approximately every 160 years (www.pleasantbay.org Graham S. Giese et al, Provincetown Center for Coastal Studies, 2009 *A Geomorphological Analysis of Nauset Beach/Pleasant Bay/Chatham Harbor for the Purpose of Estimating Future Configurations and Conditions for The Pleasant Bay Resource Management Alliance*).



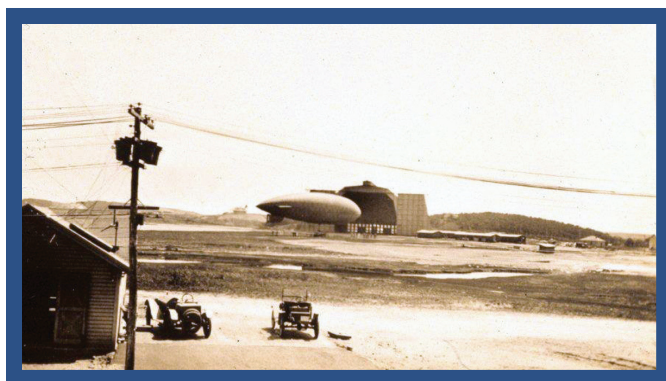
1880s photograph, Nickerson's Farm

(now Eastward Point, Chathamport)

Courtesy, The Chatham (MA) Historical Society

Looking in a southeasterly direction in the 1880s, the camera shows Nickerson's Farm on land now called Eastward Point, Chathamport. Fox Hill appears on the upper left shoreline and then a view across Bassing Harbor to the North Chatham shoreline. Much of the area has been denuded of trees for heating, cooking, house and boatbuilding, as well as agriculture.

Chatham's economy was based on farming and fishing. After the 1846 breakthrough, navigation was limited by shoaling, and many fishermen turned to shellfishing (90,000 lobsters landed in the year 1865). Chatham's Old Harbor area became the major location for the fishing and shipping fleet. In the 1800s the packet ship and freight business around the northeast had grown so that more freight passed through Chatham than any other Barnstable County town. The packet ship *Emulator* sailed regularly from Stage Harbor to New Bedford, 1878-1896. The arrival of the railroad line in Chatham in 1887 began a gradual displacement of local packet shipping. The railroad ignited the development of Chatham as a summer resort, with several hotels constructed before the close of the 19th century.



1919, Chatham Naval Air Station

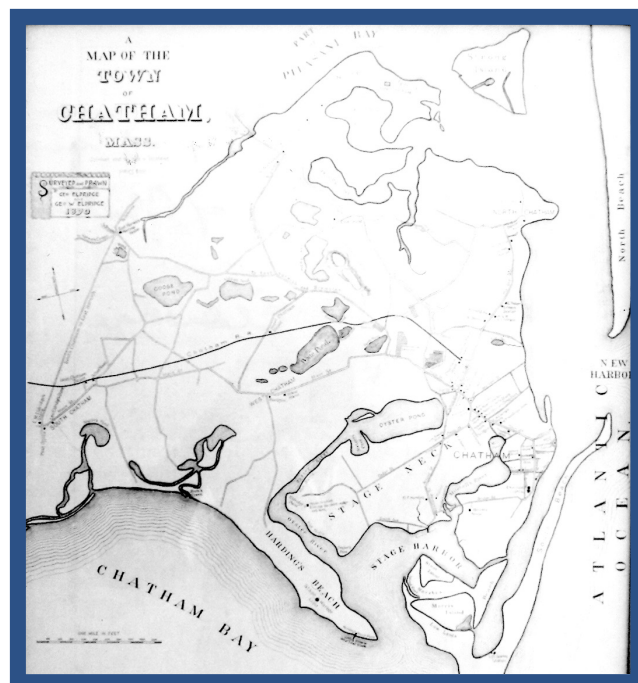
Courtesy, Charles Bartlett

Nickerson's Farm shown above became Chatham Naval Air Station for blimps and amphibious aircraft patrolling the coast and looking for U-boats and enemy ships during World War I. One of the hangars shown could house two Class B blimps side by side. Following the closing of that base in 1922, Eastward Point was developed for residential use, nearby summer camps and the Eastward Ho! golf course (established 1922).

1890, Map of Town of Chatham, Eldredge

Courtesy, Deborah Ecker

When this 1890 map was drawn (original scale: 1 inch = 150 rods), the Chatham population was less than 1500, concentrated in Chatham Village and along the many waterways. Note the new railroad. Over 200 fishing boats were registered in Chatham, guided home by the Twin Lights (compare with 1855 chart, page 4, to see how barrier beaches changed in 35 years, e.g. breach further south and no more Cortchpinicut Island).





Late 1800s, U. S. Geological Survey, Chatham Harbor

Courtesy, Maps of Antiquity

This late 1800s chart was one of the early U. S. Government presentations of Chatham.

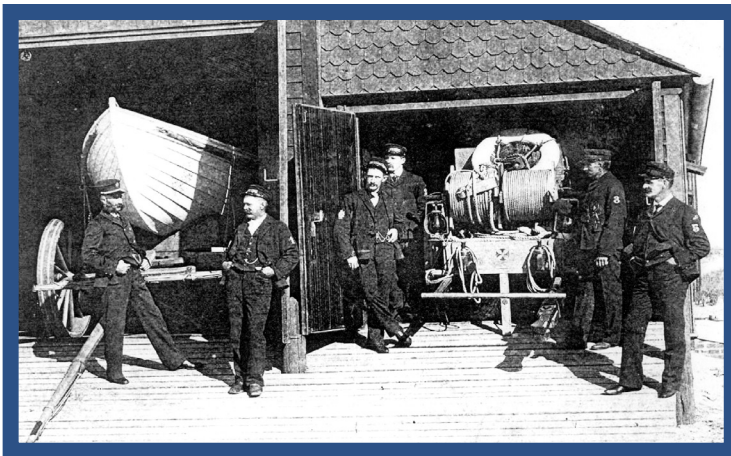
Clearly the fishing fleet had best ocean access from Old Harbor between the U. S. Life Saving Station on Nauset Beach and the Twin Lights close to town.

1916, Chatham, Nauset Beach, Monomoy Island

Courtesy, Tiffany A. Doggett

This chart shows Nauset Beach protecting Chatham Old Harbor.

Some shoals and beaches continue almost all the way south to Monomoy Island. Monomoy was one, long island with almost 30 families living in Whitewash Village at the Powder Hole (20 pupils in the school). Nearby was the Monomoy Point Coast Guard Lighthouse, then manned by a rowing surfboat crew.



1910, Lifesaving Station

Courtesy, Chatham (MA) Historical Society

In 1925 there were 785 resident-owned houses compared to 406 non-resident houses. By 1937, the increasing use of automobiles forced The Chatham Railroad Company out of business. The modern bridges over Cape Cod Canal were built in the early 1930s, followed 20 years later by the Mid-Cape Highway.



1948, The Town of Chatham, Cape Cod, Massachusetts

Courtesy, Maps of Antiquity

The Chamber of Commerce published this depiction which shows most of the 1948 population in the Village and nearby shorelines. The end of World War II was the beginning of the boom in Chatham development for newcomers and summer residents, and it continues to this day. By 2010 approximately 60% of Chatham real estate taxes were provided by non-resident taxpayers – mostly summer homeowners. Chatham's fishing fleet had migrated from Old Harbor to Aunt Lydia's Cove. Construction joined fishing and tourism as major contributors to the Chatham economy.

In 1944 the Monomoy National Wildlife Refuge was established, and since that time, the U.S. Fish & Wildlife Service has administered what is now North Monomoy and South Monomoy Islands plus some acreage on the edge of Morris Island. The refuge has protected many square miles from development. The public can visit the Wildlife Refuge with proper respect for Wildlife Refuge regulations



1954, Chatham Shorelines Chart

Courtesy, Tiffany A. Doggett

By the mid 1950s, Nauset Beach provided a barrier as far south as Morris Island, which was then connected to Monomoy Island. From Stage Harbor there was a narrow cut between mainland Chatham and Morris Island (refer to 1948 map above). Small craft could transit from Stage Harbor to Chatham Harbor and Pleasant Bay. Chatham Yacht Club on Pleasant Bay and Stage Harbor Yacht Club could race in each other's waters without using trailers. Also, Art Gould's small oyster barge could ferry "woodie" beach buggies (station wagons) to cross Stage Harbor cut then offload the woodies on Morris Island (\$15) so they could be driven all the way down to Monomoy Point for fishing, hunting, beachgoing and camping.



1940s, ALTAMAHA, a Woodie on Monomoy

Courtesy, Mary Z. Olmsted



CHATHAM SAILING PROGRAMS

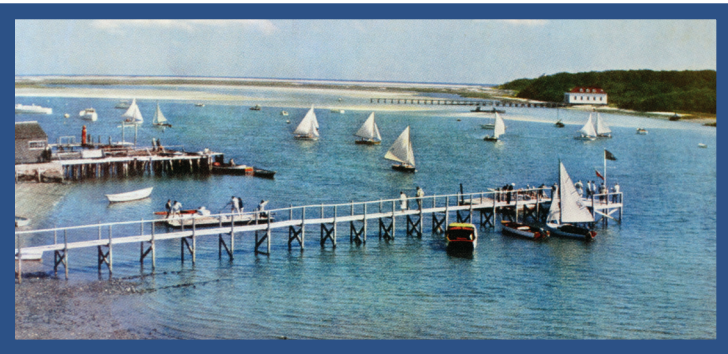
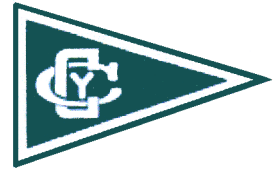
In the early 1900s, two clubs were formed: Chatham Yacht Club on Oyster River and Pleasant Bay Yacht Club on the Bay. Both foundered before long. Today's Chatham and Stage Harbor Yacht Clubs have taught thousands of children to sail, and many of them have returned to Chatham as parents and grandparents of today's young sailors. Monomoy Yacht Club includes larger sail and power boat owners who enjoy cruising. Pleasant Bay Community Boating welcomes all ages to their training programs on the Bay.



Chatham Yacht Club (established 1921)

Courtesy, Mary Z. Olmsted

Whistlers (shown), Baybirds and Beetle Cats were popular in the 50s.



Stage Harbor Yacht Club (established 1932)

Courtesy, Stage Harbor Yacht Club

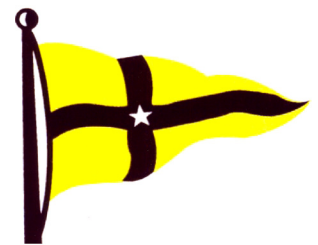
This photo of a Catabout race in the '50s also shows much shoaling on the east edge of Stage Harbor, which led to building of a dike in 1959 to block sand from entering the harbor as well as provide easy automobile access to Morris Island. Soon after, inner Stage Harbor was dredged to restore that waterway. The dredged sand was added to the dike.



Monomoy Yacht Club (established 1937)

Courtesy, Frank Messina

Keel boats ready to cruise.

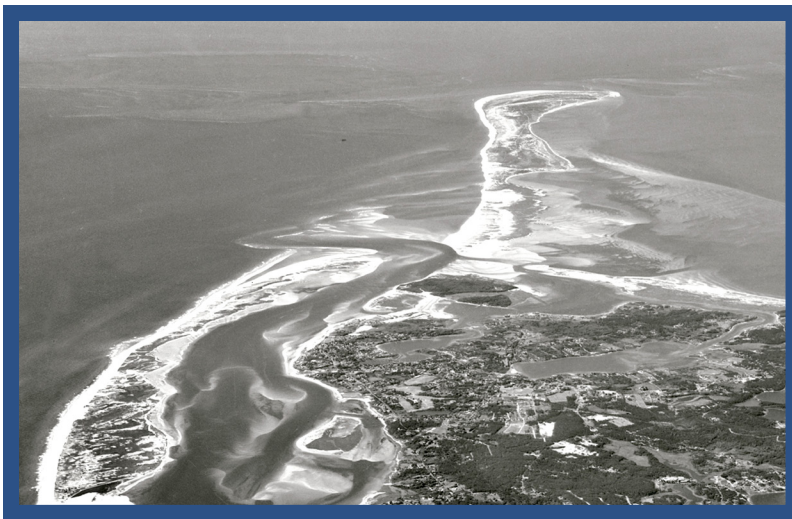


Pleasant Bay Community Boating (established 2003)

Courtesy, John T. Dickson

This photo shows instructors and children sailing Flying Scots. Children and adults from Chatham and surrounding towns can sail with the Community Boating program for a few days, or a month, or the whole season.





1961, Chatham Barrier Beaches looking South

Courtesy Kelsey-Kennard Photographers

The bottom of this aerial shows Nauset Beach and Tern Island. The center shows the new dike connecting the Lighthouse area to Morris Island. Beyond Morris Island is the Morris Island Cut for boats heading from Stage Harbor around Morris Island through Outermost Harbor to the ocean. At the top you see Monomoy Island running all the way from that cut to Monomoy Point.



1981, Southeast Chatham Chart

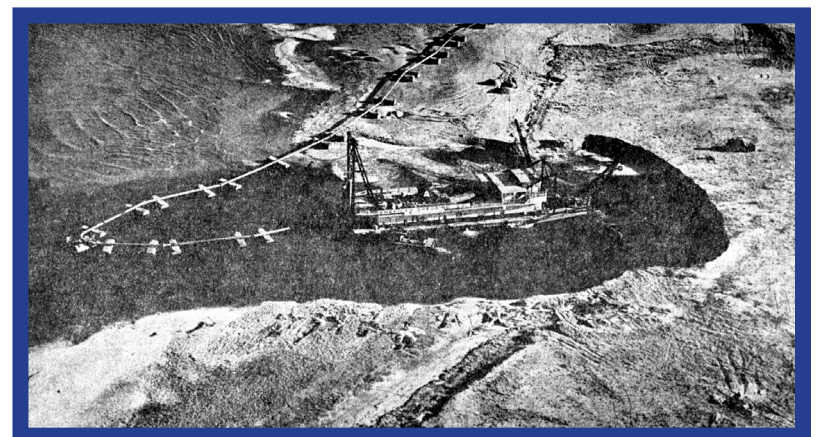
Courtesy, Tiffany A. Doggett

The “Blizzard of 1978” breached Monomoy Island at Hammond’s Bend. Then there were two islands, North Monomoy and South Monomoy (see arrows). Note also the Stage Harbor inlet and the adjacent Crescent Beach at the former Harding Beach Point.

On August 7, 1961 the Cape Cod National Seashore was established as part of the National Park Service, U.S. Department of the Interior. The Park Service had planned to manage all of Chatham’s outer beaches plus the undeveloped Stage and Morris Islands. Eager local developers won the battle to keep the two islands out of the National Seashore. Although North Beach, North Beach Island and South Beach are within Chatham, the first two are managed by the Cape Cod National Seashore while South Beach is managed by Chatham. Since the 1960s, Morris and Stage Islands have been heavily developed for residential use.

1962, Dredging Stage Harbor Inlet *Courtesy, Deborah Ecker*

By the mid-20th century, the outlet from Stage Harbor to Chatham Harbor and the Atlantic just south of Morris Island was filling with sand faster than the Town could keep it open. In 1962, a new inlet to Stage Harbor was dredged to allow larger fishing boats and keel boats an easier entry into that large anchorage and mooring area. This newspaper photograph shows the dredge chewing its way out of Stage Harbor toward Nantucket Sound. The dredged materials were pumped and piped east to form Crescent Beach nearby.





1989, Chatham barrier beaches looking north

Courtesy, Kelsey-Kennard Photographers

On January 2, 1987, a 50-mph Nor'easter combined with a syzygy celestial tidal surge of more than two feet above normal caused the Atlantic to wash over and break through North Beach across Chatham Harbor from Chatham Light. Within a few months the 1987 inlet was established and was being navigated by the fishing fleet from Aunt Lydia's Cove.

In this 1989 photo, note that the two-year-old break between North Beach and South Beach is wide enough to allow major wave action from the ocean, bringing sand drifting southward from Outer Cape shores into Chatham Harbor. A firm spit is building to connect Lighthouse Beach to South Beach Island.



1988, Galanti home erosion

Courtesy, Steve Heaslip

A year after the 1987 breach, shoreline erosion north of Lighthouse Beach led to the loss of this home near the end of Andrew Harding's Lane. After the Halloween Storm of 1991, nearby homeowners started a flurry of appeals to build revetments for their coastal banks near that shoreline. By 1995, nine homes were lost on Andrew Harding's Lane and Holway Street.

2000, Chatham shores, looking south

Courtesy, Ted Keon

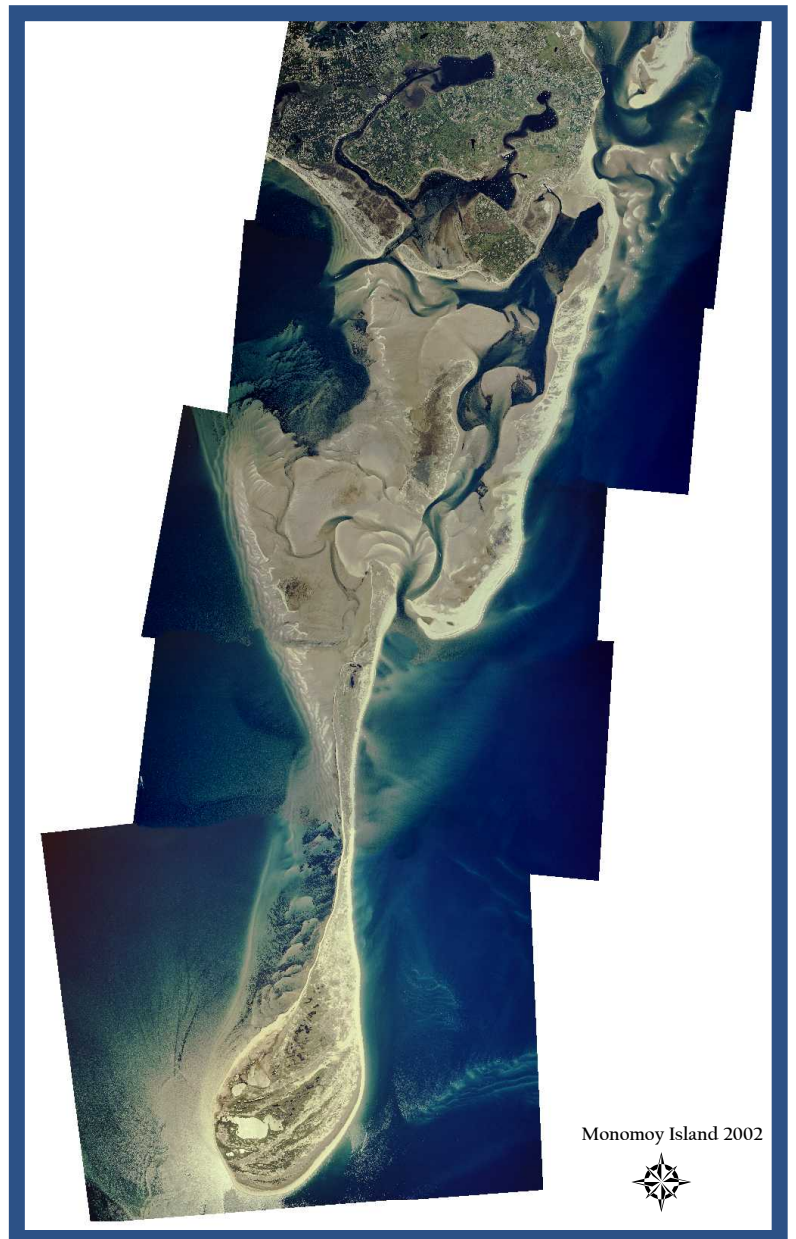
Looking south it is clear that the 1987 Linlet is dominant, South Beach is connected by a firm spit from Lighthouse Beach and South Beach is rolling westward toward South Monomoy Island, leaving The Southway, a narrow channel for boaters heading from Stage Harbor and Outermost Harbor to the Atlantic.



2002, Monomoy Islands, Shoaling from North and West

Courtesy, Ted Keon

By 2002 the natural accretion of sand around Monomoy came from two directions. The littoral drift along the Outer Cape shores is north to south, so our neighbors to the north contribute sand to Chatham shorelines. The littoral drift along the Nantucket Sound shores is west to east, so our neighbors to the west contribute sand to Chatham shorelines. This photomontage of Monomoy Islands shows narrowing of The Southway as sand builds along the ocean shores of South Beach and South Monomoy Island. Sand drifting from the west is building large shoals west of North and South Monomoy Islands. We have to wonder “will North and South Monomoy Islands again become one, long Monomoy Island?”



Monomoy Island 2002





2007, Closure of the Southway

Courtesy, Kelsey-Kennard Photographers

2006 took away an important outlet to the Atlantic from Stage Harbor and Outermost Harbor as South Beach sand rolled far enough west to join South Monomoy Island. On November 23, 2006, a Thanksgiving-Day blow moved enough sand to seal the outlet and prevent any passage of boats. Traditional navigation routes “around Monomoy” for shellfishermen and fishermen were lost.

2007, New Inlet

*Courtesy,
Kelsey-Kennard
Photographers*

Five months later, April, 2007, a Patriots-Day Nor’easter washed over North Beach across from Minister’s Point (a.k.a. Allen Point, right center of photo). This photo, May 4, 2007, shows how quickly the 2007 inlet was formed by surging and falling tides (lower left of photo).



Historically, that breakthrough was a repeat of the break through Nauset Beach in the days of William Nickerson (late 1600s, page 3), then again in 1846 (page 4). The 2007 recurrence supports the theory of an approximate 160-year “cycle” of Chatham barrier beach evolution. The photo shows the 1987 inlet to Chatham Harbor (upper left) as well as the two-week-old 2007 inlet to Chatham Harbor and Pleasant Bay.

Between the 1987 inlet and the 2007 inlet is the newly formed North Beach Island. Further deterioration of North Beach Island will endanger camps remaining from the times when Nauset Beach was longer and vehicles could access those camps from Orleans.

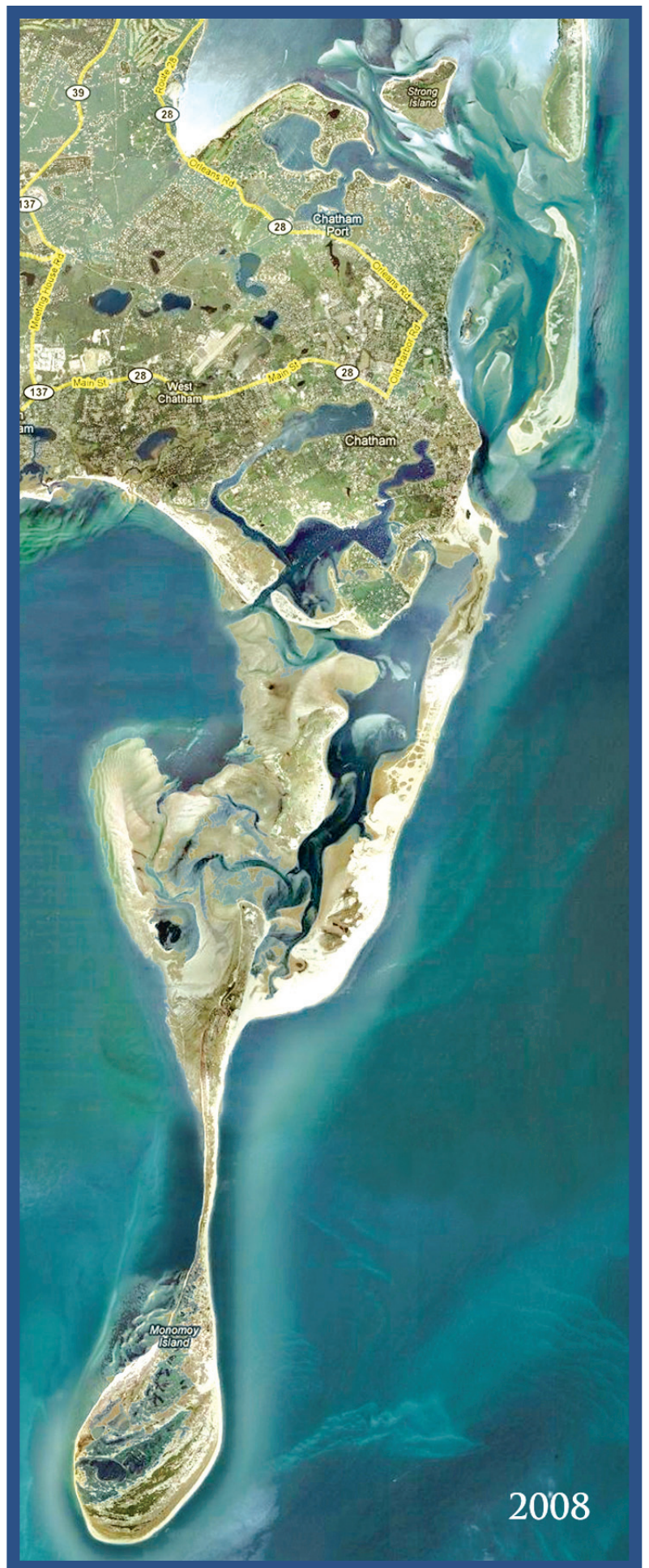
2008, Satellite View

Courtesy, Tiffany A. Doggett

This view shows almost all of the Town of Chatham. Across the top (l. to r.) is Pleasant Bay, Eastward Point, Strong Island, the 2007 Inlet and Nauset Beach to the north. Moving the eyes down, you'll see Chatham Harbor bracketed by the 2007 Inlet and the 1987 Inlet. Shoals are apparent all the way from Pleasant Bay to the Atlantic Ocean. Since the development of the 2007 inlet, the tidal range in Pleasant Bay (low tide to high tide) has increased 7/10 of a foot and the volume of water exchanging between Pleasant Bay and the Atlantic Ocean increased 11%, reported in a recent Fuss and O'Neill study commissioned by the Pleasant Bay Resource Management Alliance.

Inland, note the many saltwater estuaries and numerous freshwater lakes and ponds. The south coastal estuaries leading into Nantucket Sound are evident: Sulphur Springs, Bucks Creek, Cockle Cove, Taylors' Pond and Mill Creek

The bottom half of this aerial shows current barrier beaches from the Chatham Lighthouse all the way to Monomoy Point. Shoaling is evident.





© Kelsey-Kennard Airview
www.capecodphotos.com

2010, Both Inlets, shoaling

Courtesy, Kelsey-Kennard Photographers

This aerial photo, looking south, shows much of Chatham from the Orleans border to the tip of Monomoy. At bottom left is Nauset Beach ending at the 2007 inlet. Bottom right shows an edge of Strong Island. At center is much of Chatham's residential area with Oyster Pond and Stage Harbor and the Mill Ponds. Across from Chatham Light is the 1987 inlet at the southern end of North Beach Island. The two standpipes for drinking water storage are on Great Hill, the highest elevation in town.



Shoaling is significant between Chatham Harbor and the ocean and Pleasant Bay and the ocean. Will Cotchpicut Island rise again?

2012, Shoals, Chatham Harbor

Courtesy, George Olmsted

Looking toward the ocean from the Chatham shore south of Aunt Lydia's Cove, note the shoals laid bare at low tides. The mooring field for our fishing fleet is reduced, while the hauling out territory for seals and the shellfishery for soft shell clams are enlarged.

EPILOGUE

All of us in Chatham will continue to witness the changes in our waters and the changes in our shorelines as nature continues its destiny. Looking forward, we are working to regain healthy water quality in our freshwater ponds and lakes, saltwater bays, harbors and estuaries by collection and modern treatment of our wastewater. We strive to maintain public access to our waters as well as good navigability for all types of boaters, commercial and recreational. Our waterways and shorelines have been fundamental to Chatham's heritage. May that continue through 2112.

RESOURCES

Chatham Historical Society, 347 Stage Harbor Road, Chatham 02633 508 945 2493
Eldredge Public Library, 549 Main Street, Chatham 02633 508 945 5170
Eldredge Surveying, 1038 Main Street, Chatham 02633 508 945 3965
Kelsey-Kennard Photographers, 465 Main Street, P.O. Box 736, Chatham 02633 508 945 1931
Maps of Antiquity, 1409 Main Street, Chatham 02633 508 945 1660
Pleasant Bay Resource Management Alliance, P.O. Box 1584, Harwich 02645 508 430 2563
Steve Heaslip, Cape Cod Times 508 775 1200
Ted Keon, Director of Coastal Resources, Town of Chatham 508 945 5176
The Cape Cod Chronicle, 60C Munson Meeting Way, Chatham 02633 508 945 2220
Tiffany A. Doggett, 14 Windmill Lane, Chatham 02633 508 945 0539

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CHATHAM WATERS and SHORELINES Friends of Chatham Waterways Task Force:
George Olmsted, Principal Author; Editors: Ron Bergstrom, George Cooper, Betsy Mosser

Reviewers: Charles Bartlett, Deborah Ecker

Advisors: Mary Ann Gray, Chatham Historical Society, Spencer Kennard, Kelsey-Kennard Photographers, Ted Keon, Director of Coastal Resources, Town of Chatham, Robert Zaremba, Maps of Antiquity

Graphic design and Set-up: Marie Williams, Watermark, watermark.chatham@verizon.net

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