Estimated Course of the Ship *Castel del Rey* on 19 December 1705

Rory Van Tuyl

4/27/2009

The *Castel del Rey*, a Private Ship of War, 130 Tons, 18 guns, Otto Van Tuyl Captain, sailed from Gravesend Bay on 19 December 1705 headed south to Sandy Hook in "…an easy gale of wind." At some point along her route she "…struck upon the East bank and stuck there." Before help could arrive, a "…hard Gale of Wind Sprung up between W. & N.W. and Froze very hard, the Ship began to fill with water…". By the time the gale subsided so rescuers could board her, most of the *Castel del Rey's* crew had perished: 132 men in all, including the captain.

I documented this incident in 1996 [*A Van Tuyl Chronicle,* Ch. 7], but have continued to be interested in the event, which was a staggering catastrophe in its time. Far more people perished in proportion to the City's population on Dec. 19th, 1705 than did so on Sept. 11, 2001.

New York City sailor and author Prof. William Kornblum learned of the *Castel del Rey* incident and mentioned it in his book *At Sea in the City* [2002]. I contacted Bill Kornblum in 2008, and we hatched a plan to sail the route of the *Castel del Rey* in the summer of 2009. In preparation for that voyage, I have studied the route in detail, using 19th century charts of New York Bay, and have here attempted to re-create the route on modern navigational charts.

The ideal 2009 voyage would re-create the following elements of the original 1705 sailing:

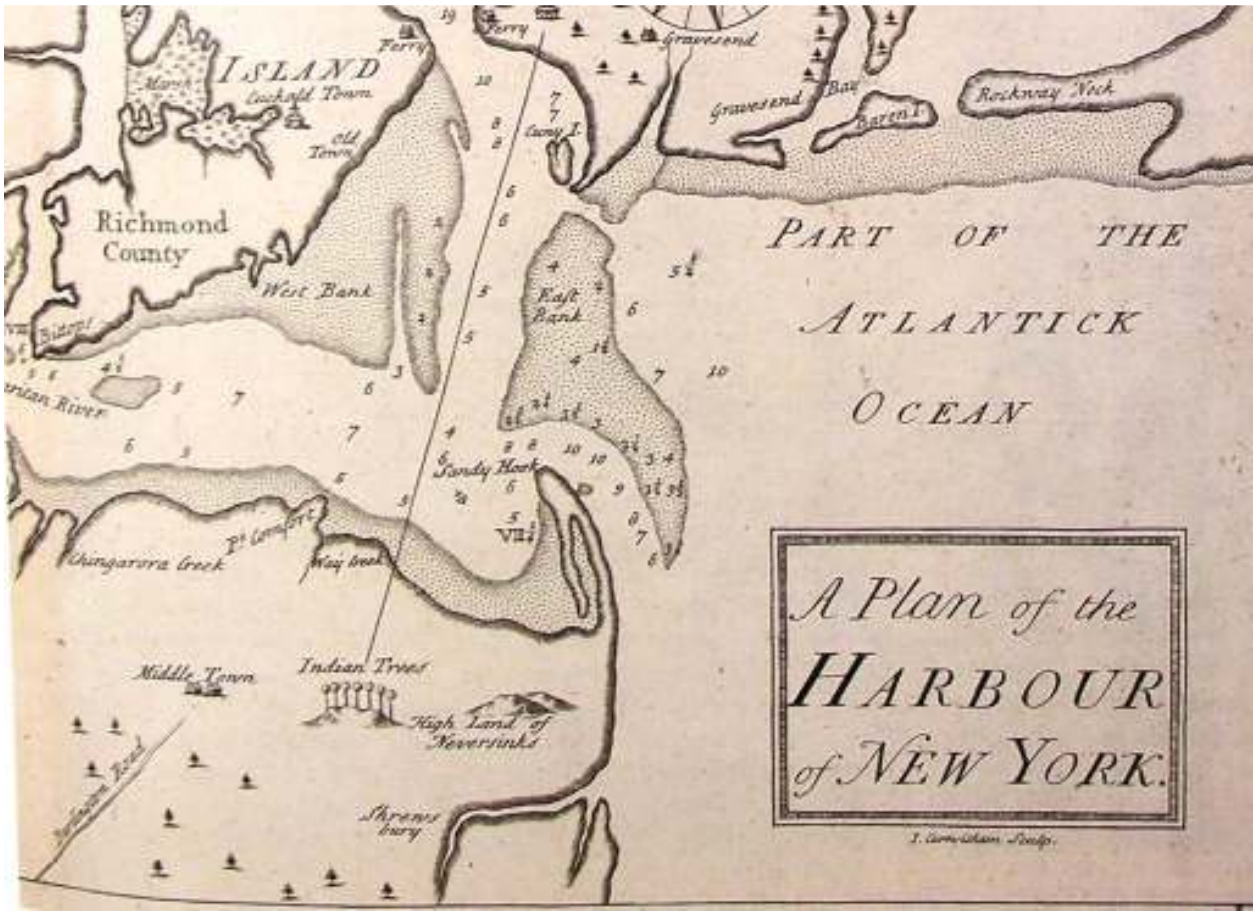
- Departure from Gravesend Bay
- Outgoing tide
- Wind from a northerly direction
- Daylight hours
- Under sail only on outbound leg
- Terminate near *Flynn's Knoll* north of Sandy Hook
- Return safely to Long Island

Not all of these specifications may be possible or practical, but for planning purposes, why not try to re-create the original as closely as possible?

18th Century Navigation of Lower New York Bay

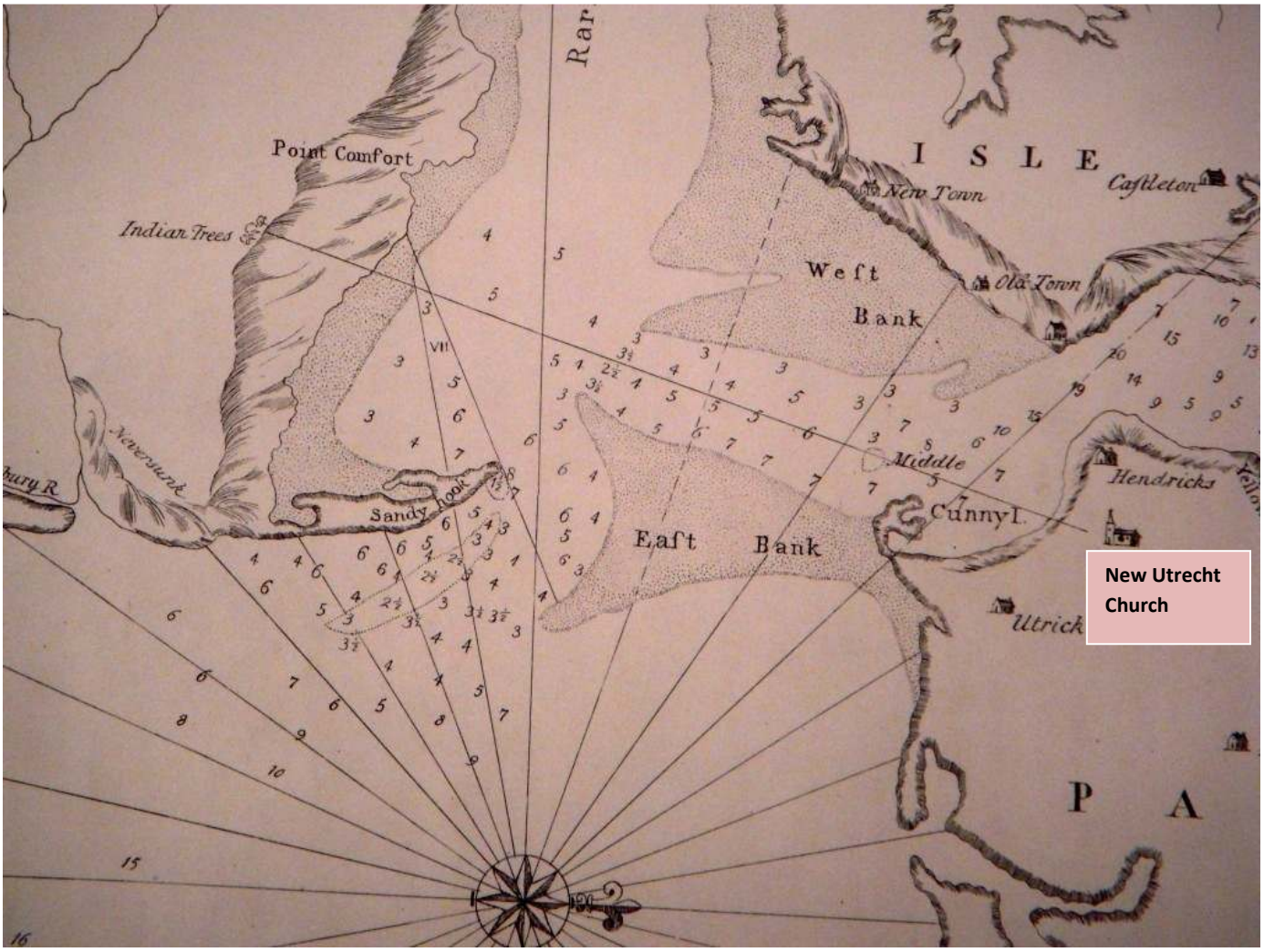
Our knowledge of Lower New York Bay navigation in the 18th century is based on several nautical charts from the 1730s – 1760s. Images of these charts are shown below, with notes concerning information they provide.

Cartwitham Chart Representing Lower NY Bay in 1730 [Augustyn and Cohen, pg. 59]



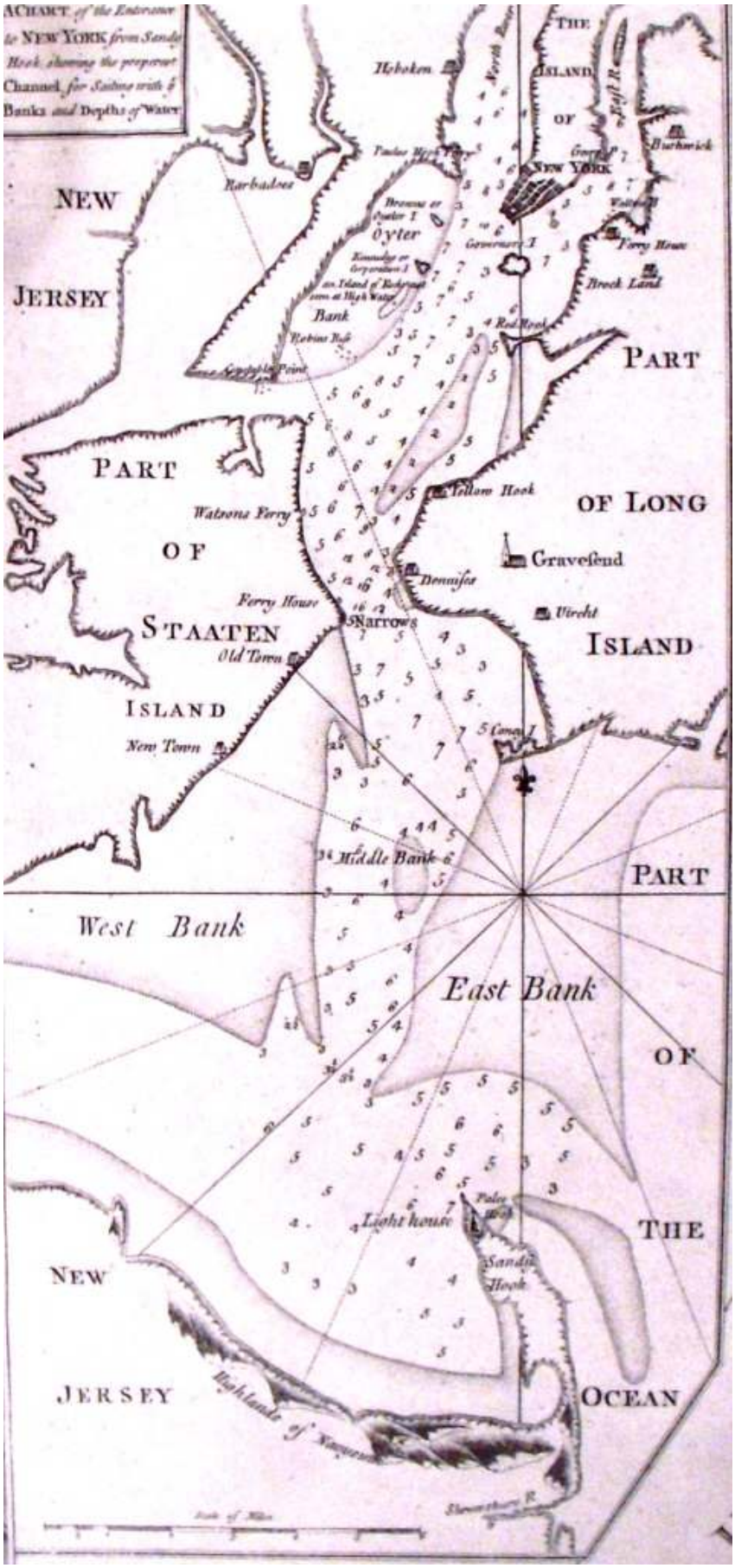
This chart, along with the 1730 Tiddeman Chart (see below) indicates an apparently standard SSW course along a sight line from the steeple of the New Utrecht Church to a feature in the Navesink Highlands called "Indian Trees." In the Cartwitham Chart, the main shoals appear to be the "East Bank" and "West Bank" where soundings are less than 2-3 fathoms, posing clear hazards to navigation.

Section of "The Tiddeman Chart 1730" [Library of Congress 311879]



The shallowest sounding on the standard course, per the Tiddeman Chart is 2.5 fathoms (15 feet). But there is an ominous feature called "Middle" here, and it lies right on the standard course!

A later chart, the 1766 Montressor Plan's chart insert (see below) also shows a "Middle Bank" along the standard course, though the positioning is a bit different than in the 1730 Tiddeman Chart. The scale factors on these charts, and the boundaries of the shoals should be taken as general indications, not exact measurements.



The Montressor Plan Inset, 1766 [Library of Congress N.Y.C. 1766 G3804 N4 1766 M6]

This chart clearly identifies the "Middle Bank" but does not show the standard course or the "Indian Trees". Also, the towns of [New] Utrecht and Gravesend are labeled incorrectly, as they were in the Tiddeman chart. Note that by this time, there was a Light House on Sandy Hook. This Chart was drafted for the benefit of the British Navy, which wanted accurate navigational information for New York Harbor in anticipation of the need to put down an insurrection. Ten years later, in 1776, British ships anchored in Gravesend Bay and landed infantry for the Battle of Long Island.

"A NEW MAP of the HARBOUR of NEW YORK by a late Survey", 1734. [NYPL]
[Stokes vol. I, pg. 263 says map first published for sale by Wm. Bradford and is "unique"]

This map clearly identifies present-day Gravesend Bay by the name "Jaques Bay", the place where Castel del Rey weighed anchor at the start of its 1705 voyage. Also, the standard SSW course is shown and the location of the "Indian Trees" fairly accurately rendered. This grove of trees still stands, on a slightly elevated feature know today as "Garrett's Hill."

Locating the Castel del Rey's course on Modern Maps

Knowing the end points of the standard course to be the New Utrecht Church and the "Indian Trees," I located these features accurately on Google Maps.

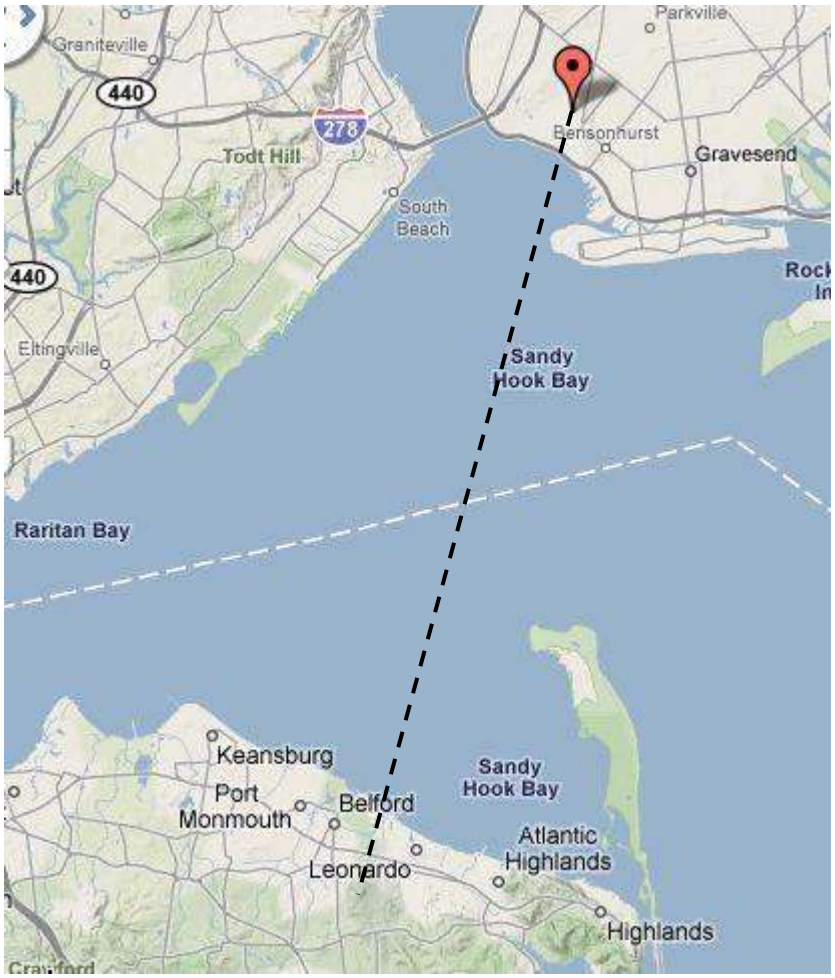
The original New Utrecht Church was at 84th Ave. and 16th St., Brooklyn, a spot whose GPS coordinates are: Latitude: 40.61106
Longitude: -074.00600

Garrett's Hill, the presumed site of the "Indian Trees" is near Belford, NJ. Its GPS coordinates are:

Latitude: 40.40758
Longitude: -074.07802

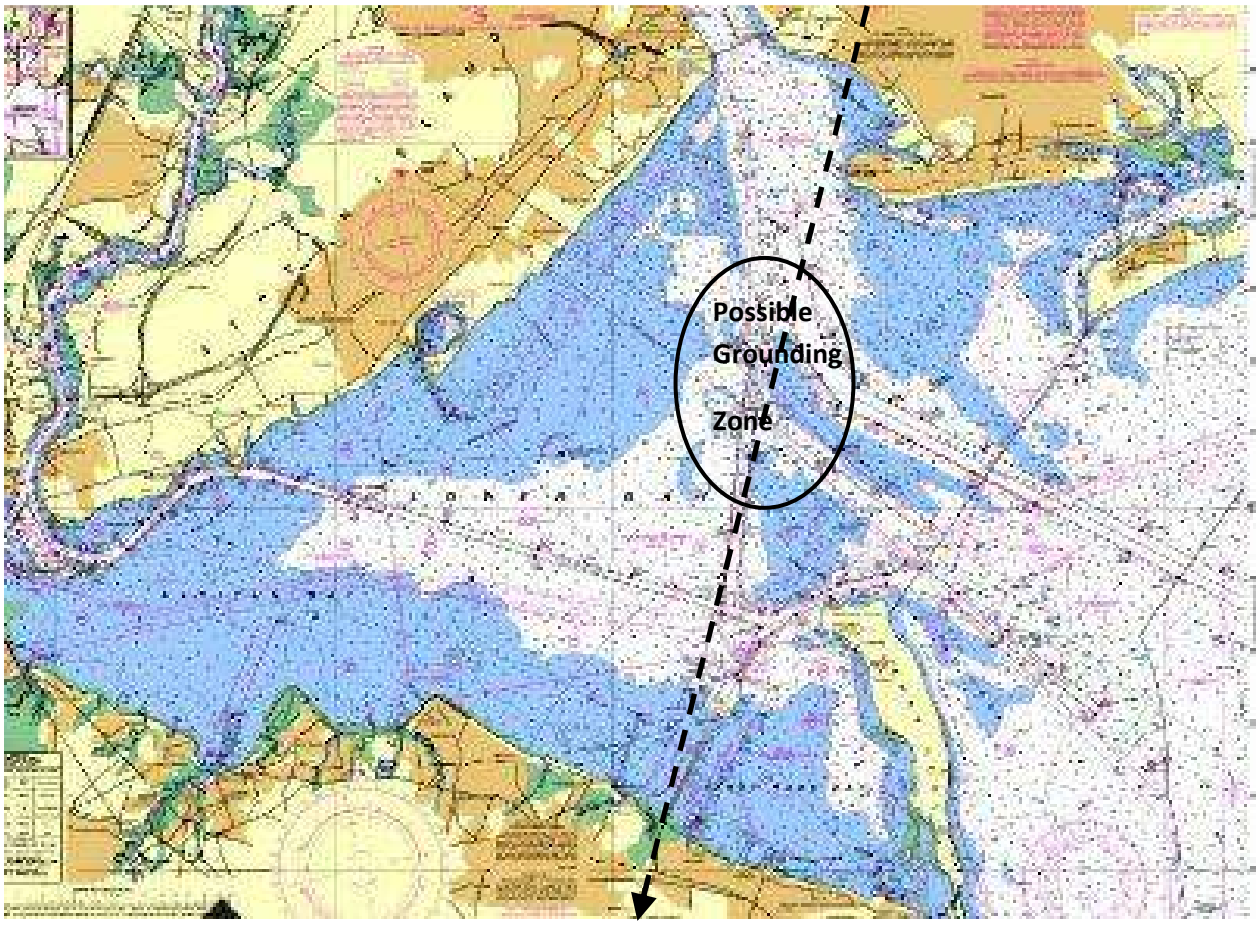
From these coordinates, we calculate a true bearing for the course of 200°.

The Route of the *Castel del Rey* maps onto Google Earth as shown below:



When the route was overlaid on a modern NOAA Nautical Chart, the areas of most likely grounding became clear:

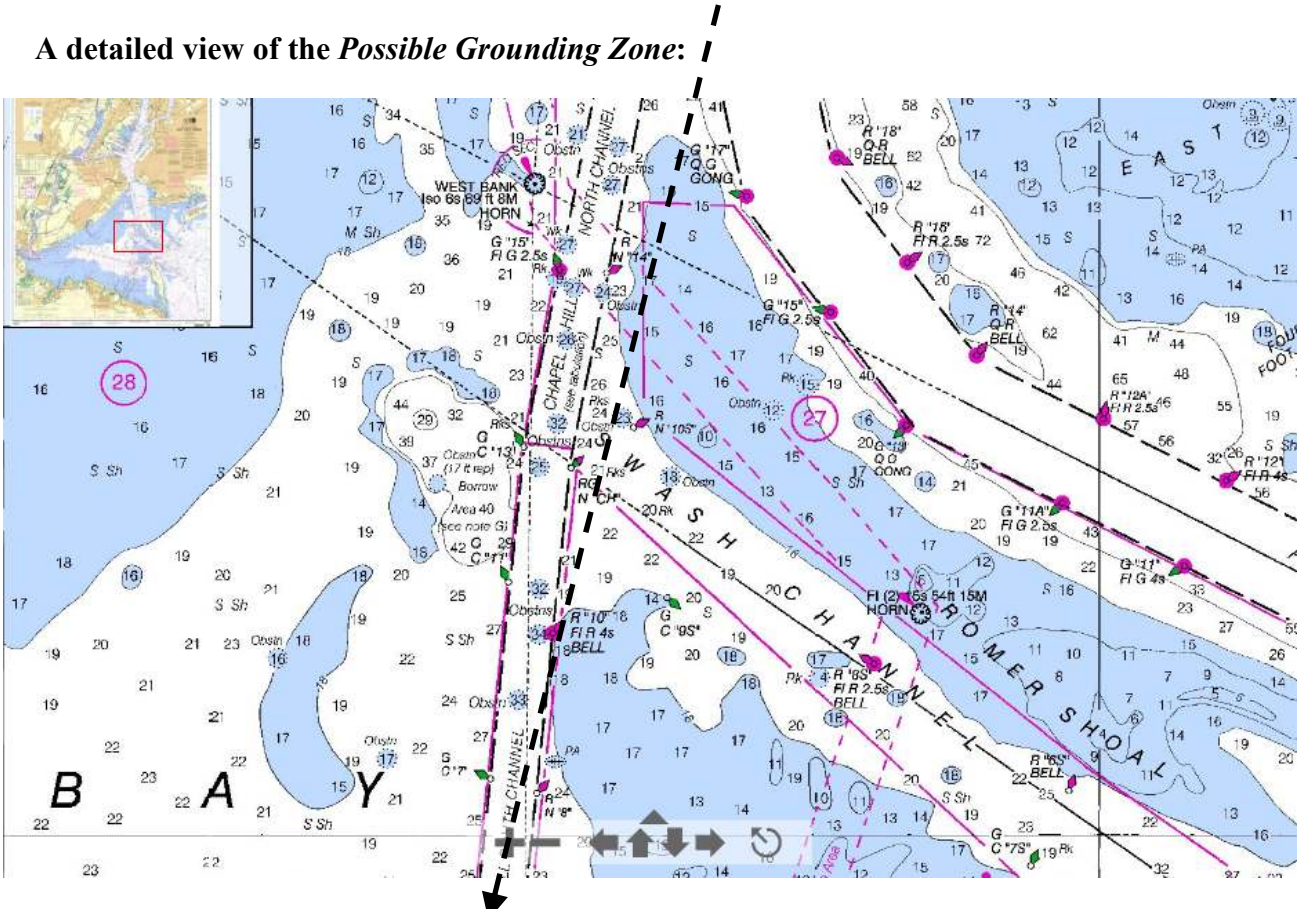
Modern NOAA NY Lower Harbor Nautical Chart
[http://www.charts.noaa.gov/OnLineViewer/12327.shtml]



Heading = 200°

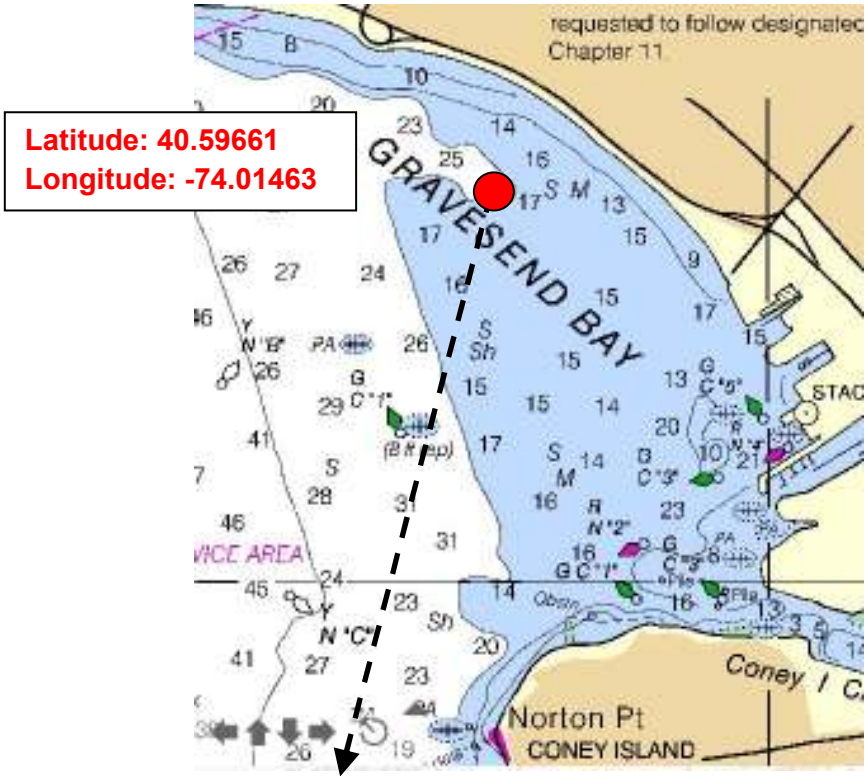
The shoals of concern are south of today's *Ambrose Channel* just east of the *Chapel Hill South Channel*. The northernmost shoal is called *Romer Shoal* and the southernmost shoal is called *Flynn's Knoll.*

A detailed view of the *Possible Grounding Zone*:



Heading = 200°

A detailed view of the *Probable Point of Departure*:



Heading = 200°

Table of GPS coordinates for proposed *Castel del Rey* Voyage: (~6 miles one-way)

Latitude	Longitude		
40.61106	-74.006		
40.609025	-74.00672		
40.60699	-74.00744		
40.604956	-74.008161		
40.602921	-74.008881		
40.600886	-74.009601		
40.598851	-74.010321		
40.596816	-74.011041	**Point of Departure**	
40.594782	-74.011762		
40.592747	-74.012482		
40.590712	-74.013202		
40.588677	-74.013922		
40.586642	-74.014642		
40.584608	-74.015363		
40.582573	-74.016083		
40.580538	-74.016803		
40.578503	-74.017523		
40.576468	-74.018243	**Abeam Norton Pt.**	**[Coney Island]**
40.574434	-74.018964		
40.572399	-74.019684		
40.570364	-74.020404		
40.568329	-74.021124		
40.566294	-74.021844		
40.56426	-74.022565		
40.562225	-74.023285		
40.56019	-74.024005		
40.558155	-74.024725		
40.55612	-74.025445		
40.554086	-74.026166		
40.552051	-74.026886		
40.550016	-74.027606		
40.547981	-74.028326		
40.545946	-74.029046		
40.543912	-74.029767		
40.541877	-74.030487	**Romer Shoal North End**	
40.539842	-74.031207		
40.537807	-74.031927		
40.535772	-74.032647		
40.533738	-74.033368		
40.531703	-74.034088		
40.529668	-74.034808		
40.527633	-74.035528		
40.525598	-74.036248		
40.523564	-74.036969		
40.521529	-74.037689		
40.519494	-74.038409	**Flynn's Shoal North**	
40.517459	-74.039129		
40.515424	-74.039849		
40.51339	-74.04057		
40.511355	-74.04129		
40.50932	-74.04201		
40.507285	-74.04273		

The Projected Course of *Castel del Rey* as viewed on Google Earth in 2009

Retracing the Course of *Castel del Rey* on 11 July 2009

Rory Van Tuyl

7/21/2009

With the estimated course of the *Castel del Rey* in hand, and with plans for our voyage to retrace at least part of the *Castel del Rey's* 1705 course firmed up, I traveled to Brooklyn, NY on July 11, 2009 to meet Captain Bill Kornblum of the research vessel *Victor* and his crew. *Victor,* Bill's pride-and-joy sailboat, is not normally a research vessel, but for this day she was serving as one. Bill restored the 1914 vintage Catboat over five or so years, as his budget would allow, and now sails around New York Bay, Long Island and points as far south as the Chesapeake. Bill was ably assisted by his best friend, Phil Oberlander, and his friend and CUNY colleague, John Mollenkopf. John bicycled down from his Brooklyn home to join us as helmsman for the day. He sailed in California in the 1970s and has clearly never lost the lust for sail he acquired so long ago. He still has that gleam in the eye you see in men who want a boat. Someday I hope he can become his own captain. Phil Oberlander must indeed be Bill's best friend. He joined us just two days after undergoing abdominal surgery, climbed all over the deck to help set the sail, then retreated below for a well-deserved nap once we were well underway.

Bill Kornblum is an interesting guy. He was one of the first Peace Corp volunteers back in the early 1960s. After graduating from Cornell, he taught Physics *en Francais* in the Cote d'Ivoire for a couple of years. But Bill has a very different personality from any of the many physicists I have known through the years. Bill is all about *you* not about *him.* This refreshing personal characteristic led him away from vector bosons and the like, and toward sociology, a field in which he has enjoyed a long and successful career. He still advises students at the CUNY Graduate Center. And Captain Bill, I am quite sure, brings to the captain's position a completely different way of doing things than did Otto Van Tuyl, for example. Bill truly cared about the experience that I and the other guys were having. His crew management technique was one of suggesting what to do, rather than demanding obedience. Nevertheless, he was firmly in control, and clearly was enjoying the beautiful day on Lower New York Bay.

Captain Bill (left) and landlubber Rory aboard *Victor*. Bill appears to be thinking "Do I really want to do this?"

The Catboat *Victor* in the slip at Gateway Marina

With the wind picking up to about 10 knots and predicted to freshen to as high as 20, Bill chose to reef his sail so that only about half of it was unfurled. This would prevent excessive heeling as the wind velocity increased, but still offer enough propulsion for our purposes. *Victor*, Bill explained, has a maximum speed of around 6 knots, limited by the length of her hull. The longer the boat, the faster the top speed. In order to maintain speed as we sailed out to the intended course, Bill used his diesel engine to speed our voyage from the Gateway Marina out to the place where we took up the course, just west of Norton Point at the Western tip of Coney Island.

Reefing the sail was a somewhat clumsy business. Unlike modern sailboats which have various new technology for managing sails, *Victor* uses pretty much the same methods as did *Castel del Rey* in the 18th century. Sails were reefed by hand, with canvas flapping about as the sailors (Bill and Phil) struggle to get unused bits tied down firmly to the boom. *Victor*, being a Catboat, has a strange aspect to it: the mast is situated right at the bow of the boat, and the boom is quite massive for the size of the boat (about 34 feet in length). So the crew has to walk on the deck atop the cabin as well as in the cockpit to tie down the sails. Once Bill had the reefed sail secured, we headed west under sail and diesel toward Norton Point.

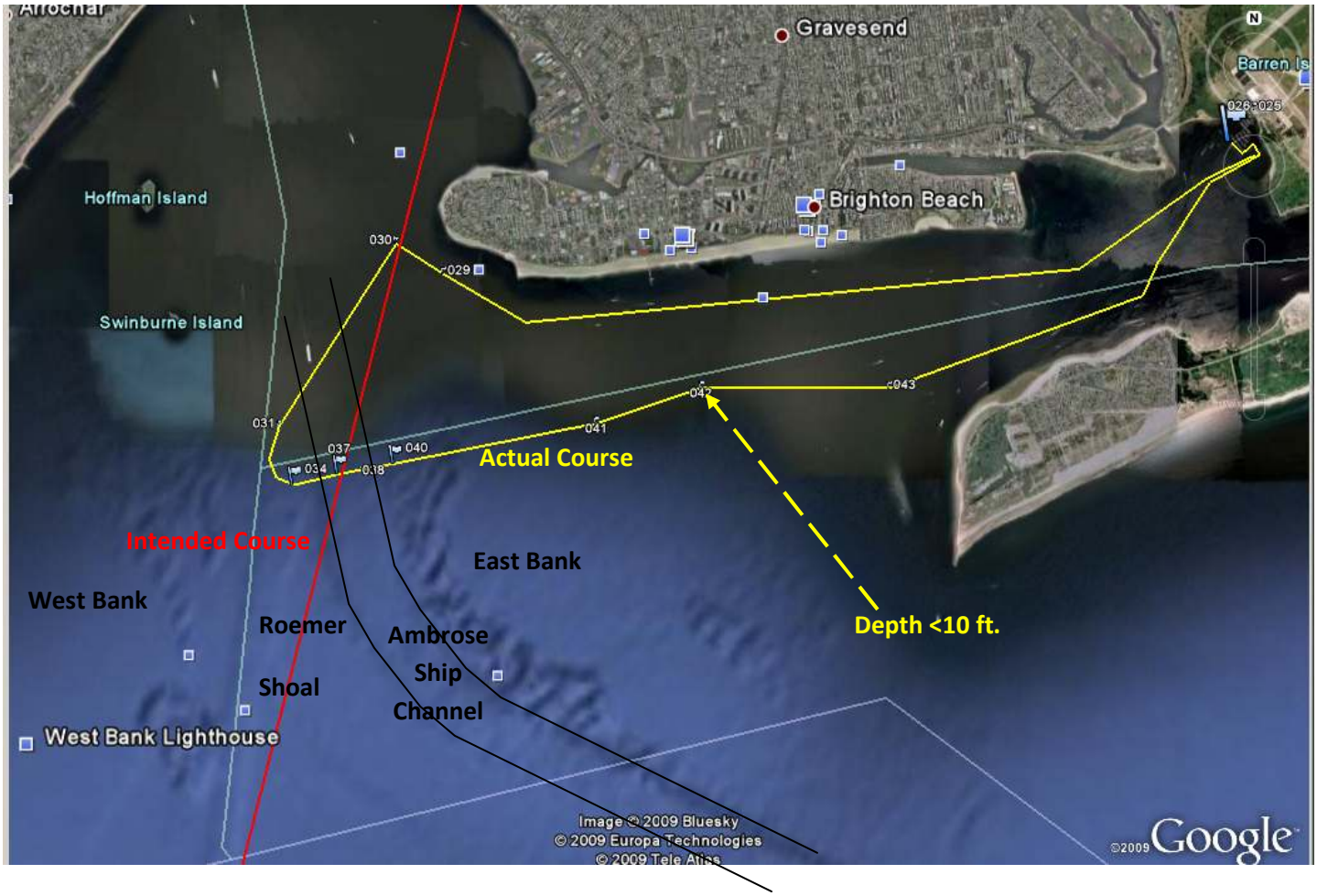
As Bill and Phil worked the sails, John manned the tiller. *Castel del Rey* would have had perhaps a dozen men unfurling the sails while a very strong man pushed and pulled on the *Whipstaff*, the connection between brawn and rudder in those days. John used a wheel helm, but this technology was adopted later in the 18th century, long after *Castel del Rey* met her untimely fate.

Here, John steers *Victor* on her course using only one hand, while Captain Bill smiles at the horizon. *Castel del Rey's* helmsman would have been struggling to control the 130-Ton ship in an icy "Easy Gale of Wind" using a Whipstaff. Otto Van Tuyl, I am quite sure, would not have been smiling!

As we made our way west toward Norton Point on Coney Island, sociologists Bill and John pointed out some interesting places on the shore. To the south way Rockaway, a small seaside village located on the grounds of a National Park, but inhabited mostly, John said, by retired cops and firefighters from New York City. As we found out later, these all-white denizens – mostly Irish (ethnicity is still big on the East Coast) – use various tricks to discourage "undesirables" from invading their turf. Later on we entered Rockaway, which stood between us and Breezy Point (National Park Land). Cop cars with ostentatiously flashing lights were athwart the road, not actually blocking it, but threatening to do so, it seemed. It reminded me of Northern Ireland, or Apartheid South Africa plunked down smack in the middle of the 21st century USA. Other ethnic enclaves lay north of us on Coney Island. Brighton Beach, is a "Russian" town. Another enclave whose name escapes me is inhabited by Orthodox Jews. This being the Sabbath, none were in view. We had all noted a building at Gateway Marina bearing the sign "Polish Yacht Club." No, this was not some sort of Polack Joke gone wrong, this was the real thing!

As we came abeam Norton Point, I noticed that we were at a point on the proposed course I had derived from the 18th century maps. Bill preferred not to venture north into Gravesend Bay – the "Jacques Bay" of 1705 from whence Otto Van Tuyl set sail. So we turned south on a course of 200º, or so we thought! The deviation between true bearing and magnetic compass bearing in New York Harbor is 13 degrees. So to achieve a heading of 200º John headed SSW at 213º. I noted this and smugly checked off another item on the list. So it was a surprise to learn later, after plotting the GPS on Google Earth, that our heading was off from the intended one:

Course of the *Victor* on July 11, 2009



Our navigational error actually worked to our advantage in terms of safety. As we sailed close to the Southwesterly wind across the Ambrose Ship Channel at 6 knots, we were able to enter and leave the Ambrose Channel sooner, crossing more quickly than if we had been on course.

As we left the Ambrose Channel sailing SSW toward West Bank Light…

We spotted a large ship steaming up the Ambrose Channel to our left…

Had we been on the intended course at this time, there could have been a serious problem! As we came abeam the passing ship, Bill had John steer west as he swung the boom to port. We headed directly toward the passing tanker with the intention to pass behind it like a pedestrian jaywalking in Manhattan on a Sunday morning…

Soon, we found ourselves crossing the Ambrose Channel on the shortest path, with only the retreating tanker in our field of view. Before we turned, we had barely arrived at the northernmost tip of Roemer Shoal, one of the possible spots where *Castel del Rey* was castaway in 1705.

The Ambrose Channel

With the coming of large-hulled steel ships in the early 20th century, New York stood to lose much of its coveted shipping business, because of the messy situation of shoals in lower New York Bay. As it turns out, one man was mostly responsible for prying money from a reluctant Congress to remedy this situation…

" The *Ambrose Channel* was named by Congress in honor of the late John Wolfe Ambrose of New York City, who devoted the last eighteen years of his life to securing Federal appropriations amounting to $8,000,000 for the improvement of New York harbor, so that vessels of the largest size and deepest draft might be accommodated at its wharves."[1]

Ambrose succeeded in getting Congressional appropriations for the deep-water channel in 1899. Dredging continued for years until, in 1907

> **New York Times**
>
> August 28, 1907, Wednesday, Page 7
>
> "The Cunarder Caronia, which sailed for Liverpool yesterday, was the first big vessel to pass through the Ambrose Channel, the new deep waterway leading from New York Harbor over the shoals of the Lower Bay to Sandy Hook. The liner passed safely through the channel, and gained half an hour in time from her pier to Sandy Hook."

Immigration via Ellis Island

"On April 17, 1907, [the year the Ambrose Channel opened] an all-time daily high of 11,747 immigrants received is reached; that year, Ellis Island experiences its highest number of immigrants received in a single year, with 1,004,756 arrivals."[2]

The ships arriving in 1907 were surely larger than their predecessors. How else could over 11,000 immigrants arrive on a single day? The Ambrose Channel and other harbor improvements made in the late 19th century were surely key factors in making possible the immigration of over 12 million people through Ellis Island over a 50-year period.

So steamship travel for the wealthy, ship-based commerce, and Ellis Island immigration all owe a debt to John Wolfe Ambrose and his eponymous Channel. For us, however, on July 11, 2009, the Channel was just a dangerous obstacle to our voyage.

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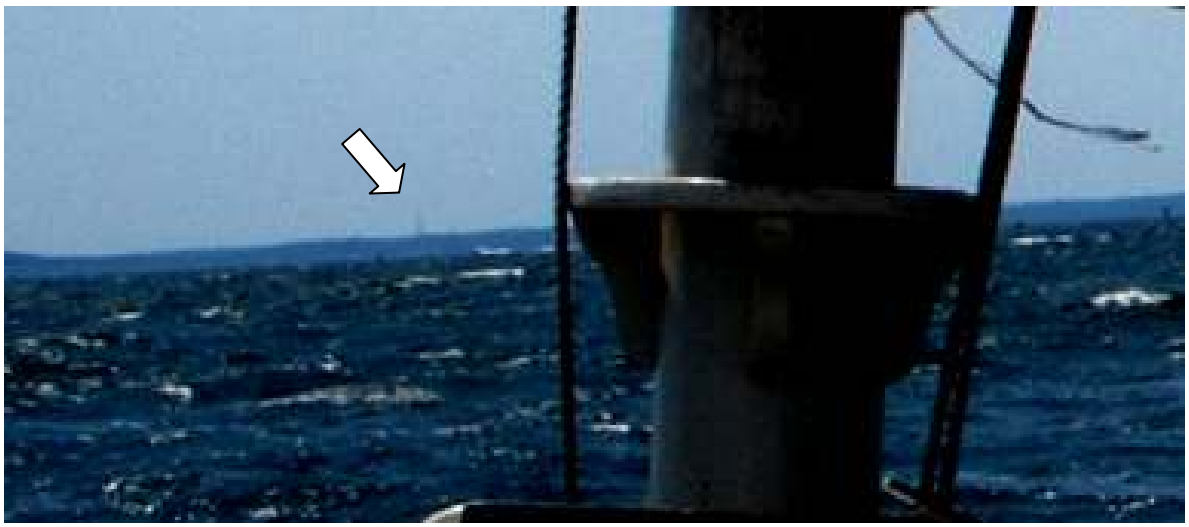
[1] http://www.oldandsold.com/articles14/new-york-69.shtml
[2] http://www.history.com/content/ellis-island/timeline

View from the Bay

The most surprising aspect of this voyage was how things looked from the deck of a boat sailing south. Coney Island to our left and Staten Island to our right loomed large in our field of view, while the Neversink Highlands of New Jersey and Sandy Hook itself seemed very far away and quite indistinct. Bill pointed out how far Sandy Hook extends into the field of view of a south-bond boat. It was impossible for me to tell whether I was looking at Sandy Hook or at the Neversink Highlands. Recall that maps from the 1730s implied that mariners could see a church steeple in New Utrecht and a natural feature called "Indian Trees" in the Neversink Highlands. Maybe this was so in those days, but to my untrained eye, there were no useful landmarks apparent as we sailed south with waves splashing into our faces over the bow of *Victor*. Here is how it looked. Can you even see the New Jersey Shore?

In this zoomed-in view from the above picture, it is possible to make out, on this beautifully clear day, the outlines of the Highlands and what appears to be a modern landmark, some sort of radio tower. Perhaps we could have navigated more accurately with the aid of binoculars: perhaps not.



But recall what the visibility must have been like on December 19th, 1705 ans Otto Van Tuyl took the *Castel del Rey* soutward in an "Easy gale of Wind" with a violent storm brewing. What he could have seen from his vantage point will never be known for sure. After this reconstruction voyage, I have a much greater appreciation for how difficult navigation must have been. We had comapsses and two GPS units, an easily handled boat with an experienced crew, various navigational buoys and an accurate chart of the bay. Still, we drifted off course. The *Castel del Rey* was a Spanish Galleon of unknown sailing ability, with a new captain and perhaps a new crew. The bay had not been charted as far as we know, and their were no such things as navigational buoys. The weather was lousy, the bay a field of whitecaps, and just to make things challenging, chunks of ice were floating down from the Hudson river. It's little wonder he ran into trouble.

On our return voyage as we transited the East Bank headed home, John noticed the electronic depth meter showing shallower and shallower water. At one point I think the depth was as little as 8 feet. *Victor*, with its 4-foot draft was never in trouble. In fact, had it not been for the depth finder, we would not have known there was any hazard at all. In the 18th century, such a warning would have required a seaman to cast a weighted rope with knots tied a 6-foot intervals into the drink and call out the depth as the boat proceeded. On a rough day with gale-force winds, such a sounding would probably have been impossible. Without and electronic depth finder, *Castel del Rey* was sailing blind, headed for her demise as a castaway on the East Bank of New York Bay.

Victor Comes Home

When we returned to Gateway Marina, Bill and John reefed the sail, covered it with a protective cover, battened down *Victor's* hatches, and cheerfully posed for this homecoming photo.

It was a great day for me, and – I believe – an interesting one for Captain Bill and the crew of *Victor.* We had survived the curse of the *Castel del Rey.*