Chesapeake Quarterly

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Bringing Big Ships to Baltimore

contents

CHESAPEAKE QUARTERLY

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Cover photo: *Pride of the Wallenius-Wilhelmsen Line of Norway, the 66,000-ton giant* M/V Taiko *heads up the Chesapeake in early May.* ***Opposite page:*** *Home from another long night's journey, this time on the 870-foot* Taiko*, pilot Dave Van Metre has guided thousands of ships up the Bay.*
PHOTOGRAPHS BY MICHAEL W. FINCHAM.

A Pilot's Passage

Story and photos by Michael W. Fincham

Dave Van Metre spends his layover day reading and napping. He's reading John Grisham's *The Last Juror* because he loves a thriller. He's taking naps because he was up late the night before leading a ship down from Baltimore to the mouth of the Chesapeake Bay. And in the night to come he'll be working all the way through to dawn, guiding a Norwegian ship on a night passage back up the Bay to Baltimore. Once he gets his call, he won't have time for another nap or another thriller.

Van Metre is a reader and, as it turns out, an occasional story teller. As a Maryland Bay pilot, however, he doesn't have a lot of hair-raising stories to pass on. Those who do are apparently not the ones you want on the bridge of a tanker carrying millions of gallons of oil, enough to pollute the entire Chesapeake. Like most pilots, Van Metre is cautious, risk averse by nature and trained to avoid collisions or groundings or weather traps by thinking ahead, way ahead. He spends his work days and nights trying to steer clear of trouble.

After 40 years on the job, Dave Van Metre is now a gray beard among the pilot corps. Behind the beard are a broad face, thinning hair, and a pervasive calmness that works well on the bridges of foreign ships. From all those years on all those ships, he has some tales to share, most of them short stories, not novels. But he will have one thriller to tell before his long passage is done.

Maryland Bay pilots climb aboard nearly every large, non-military ship bound into or out of Maryland waters. Standing in wheelhouses among mostly foreign crews, they guide deep-draft ships through a long, shallow estuary. Their skills are similar to a ship captain's: piloting, navigating and shiphandling for vessels of any size. But they bring to the boat something the incoming captains don't have: detailed local knowledge of all the Chesapeake Bay's trenches, shoals and dredged-out channels.

There is a mystique to their profession. Here's Mark Twain writing about his years as a river pilot: "I loved the profession far better than any I have followed since, and I took a measureless pride in it. The reason is plain: a pilot, in those days, was the only unfettered and entirely independent human being that lived in the earth." Pilots in these days may be more fettered than Twain was, but it's clear they see their job as one of the pinnacles of the maritime professions — right up there with ship's captain, but without the four-month rotations at sea. These are sailors home from the sea nearly every other night.

The mystique is part history, part mystery. Pilots have been around since Biblical times and they have worked the Chesapeake Bay since Colonial times. In 1852 three dozen freelance pilots met in a hotel in Baltimore and set up the Association of Maryland Pilots, the first state-chartered pilots organization in the country. For a century and a half, the Association has recruited and trained the state's pilots, passing down a culture of competence and an impressive record of safety. The Coast Guard lists only two loss-of-life collisions involving Maryland pilots since 1947. They are a first line of defense against ecological disasters like the *Exxon Valdez* oil spill in Alaska's Prince William Sound. When they bring big ships up the Bay to Baltimore, they are running the longest single-pilot passage in America.

How a pilot does his job, however, remains a mystery to most boaters on the Bay. Those of us who go oystering or crabbing or fishing or sailing seldom see a pilot. We may see a giant ship jutting up against the horizon and perhaps catch a glimpse of a

When Dave Van Metre brings big ships up the Bay to Baltimore, he is running the longest single-pilot passage in America.

solitary silhouette high up on the bridge wing, holding binoculars. How does he (or she) get a ship that big to Baltimore — without crashing into something or running aground somewhere like so many of us do?

Jacobs Ladder

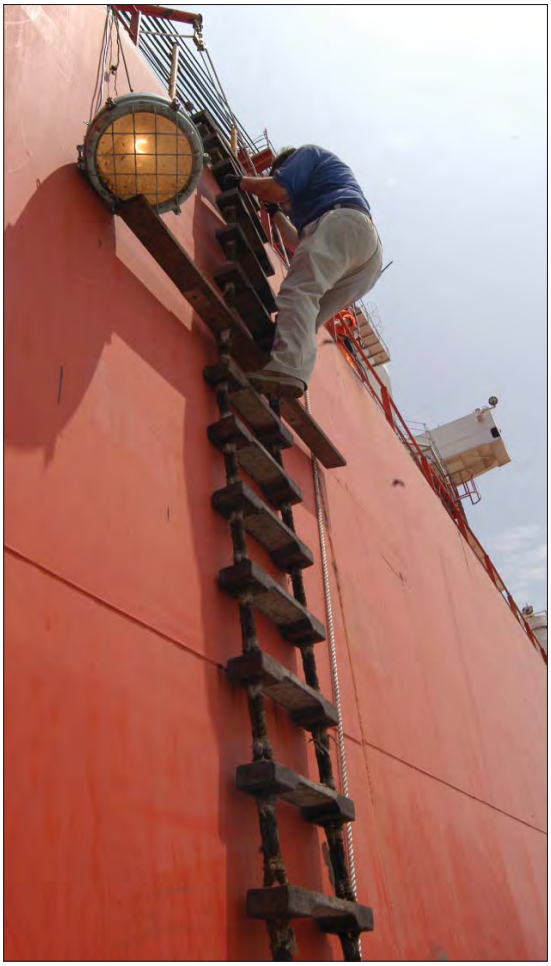
Dave Van Metre gets his call to go to work at 20:30. A ship steaming south towards the mouth of the Chesapeake Bay has radioed in. The call went first to a watch tower on the beach side of Cape Henry, Virginia, where observers track incoming and outgoing ships. The tower radioed the Maryland Pilot Station, a red-bricked, waterside structure along Lynnhaven Inlet where pilots like Van Metre can rest between assignments in bedrooms, a lounge or a well-stocked kitchen. A dispatcher then rings Van Metre's room, jolting him out of his last nap. He shuffles down the dark corridor to a communal bathroom. An hour later he is riding in a fast launch boat, bouncing across dark, choppy water. Ten miles out is his next job: A Norwegian cargo ship, towering in the darkness, waiting for a pilot.

Riding in the launch next to Van Metre, I ask him if he ever gets nervous about climbing a Jacob's ladder. A pilot usually boards a vessel at sea by stepping off the deck of the pilot launch, grabbing hold of a rope ladder dangling down the side of the ship, then clambering up its wooden treads. "I'm always wary," he says. "I always take my time." Ships are larger now than when he started, and Jacob's ladders are longer, but he's clearly not nervous. His companion might be.

I focus on the advice one of the launch operators gave me. When a swell is running, especially out of the southwest, the launch will rise and fall along the side of the ship. The first trick is stepping onto the ladder at the top of the swell. Step off too early and the launch keeps rising, squashing you against the side of the ship. Step off too late — when the launch is falling away — and it may still lift up on the next swell and mash you.

Another trick is holding on. Always keep one hand gripping a rope and one foot standing on a tread. Never let go until the other hand has a new grip, never step up until the other foot has a new tread.

I try to forget the story that came with the advice. A pilot was in the middle of reaching for the ladder, when the launch suddenly sank away before he had a strong grip. He fell, landing on his back on the rails of the boat. He survived. Others have not.



To board a vessel, a pilot must climb a Jacob's ladder *several stories high (left) from a small launch boat moving alongside the big ship, a daunting task even when seas are stable. During rough weather, getting on board can be treacherous. The Bay pilot is directing the* Taiko's *trip northward, but Captain Torbjørn Pedersen (above) keeps close watch on everything the pilot does.*

Through the windows of the launch we see two triangles of lights, low on the horizon, barely moving against the dark sky. One is our target, the *M/V Taiko* of the Wallenius-Wilhelmsen line. It's supposed to be an 870-foot ship. But to the untrained eye, it's simply dim lights on the sea. It could be a small fishing boat.

As the launch closes in, the *Taiko* takes shadowy shape, a denser blackness against the night. A sudden spotlight switches on, and we see a rust-red wall, four-stories tall, looming above us. The operator matches our speed with the ship, holds the rudder over, and keeps the launch pressed against the big hull. We seem to be motionless, a stable platform parked on the sea. Van Metre walks forward to the bow of the launch, hands his travel bag and laptop to a deckhand, then steps lightly onto the ladder and starts climbing the wall.

Sliding warily along the deck, I look down and immediately regret it. Our platform is rushing across the ocean at a good clip, much faster than anybody can swim. I hand my bag and camera to the deckhand and look up. In the Bible, Jacob saw a ladder reaching from earth to heaven with angels gliding up and down on it. The only heaven I can see is half-way up the side, a square opening with a little platform jutting out and an orange-jacketed deckhand peering down. I step off, repeating my little mantra: Reach, grip, step, let go. Reach, grip, step, let go. I don't look down until the deckhand hauls me onto the platform.

Conn Job

On the bridge of the ship, Van Metre starts with basics. He shakes hands with the ship's master, Captain Torbjørn Pedersen, and starts running through his questions: Who is on board, what's the ship's draft (depth below waterline), what speed does the master want to make, what's the stopping time, where's the whistle, the rudder angle indicator, the radar? Van Metre has been on this ship before and knows most of the answers. It's a brief, laconic conversation, part of his ritual for taking control of the ship. Pilots call it "taking the conn."

The *Taiko*, he learns, has 5 officers from Norway, 3 from India and 22 crew from the Philippines. She draws 30.5 feet, she can make a top speed of 20 knots, the captain wants to reach Baltimore by dawn.

Van Metre has his sailing orders. He walks over to the radar console on the left side of the bridge and stares down at the green-on-black screen, checking for the ship's position. The wheelhouse is 60 feet wide, larger than the control room of the *Starship Enterprise*, but darker and nearly deserted with only three men visible in the shadows. The captain and a mate talk quietly in Norwegian, and a Filipino helmsman stands rock still in the center of the bridge, staring at the compass.

The ship he's piloting is stuffed with vehicles. The *Taiko* is called a Ro/Ro ship for the huge roll on/roll off ramp it carries on its backside. It can hold up to 4,400 automobiles, enough to fill most of the new car lots in Baltimore. On this trip it's also carrying trucks, bulldozers, excavators, helicopters, airplanes. One of its sister ships once hauled a Russian space shuttle to a museum in Australia. "You name it, we got it," Captain Pedersen tells me.

Van Metre gives his first command — *Full ahead.* The *Taiko* had slowed for the pilot launch and Van Metre needs at least 12 knots for good maneuvering in the face of winds and tide. He asks for 10-degree turn to starboard, then walks forward to the huge wheelhouse windows.

The view from the bridge of the *Taiko* looks a lot like the view from the

Adapted from a map by the U.S. Army Corps of Engineers, Baltimore District

Zigzagging from one shore to the other, *a big ship heading to Baltimore must take a crooked route (left) through dredged channels and ancient trenches left behind by previous ice ages to safely navigate the shallow waters of the Chesapeake Bay. Dave Van Metre (above), on the bridge of the* Taiko*, has steered ships through these passages for 40 years.*

cockpit of a Boeing 757 heading in for a nighttime landing. From his high-altitude perch, Van Metre looks out past the distant bow to two parallel lines of lit buoys. Red on the right, green on the left, they are laid out on the black sea like landing lights on an airport runway.

Van Metre asks the captain to switch on a tiny bow light, a small bright reference point that gives him a stronger feel for the size of his ship. Like the rifle sight at the end of a gun barrel, it helps him aim 66,000 tons of ship straight down the channel.

His first target for the *Taiko* is the TH channel, named after the Tail of the Horseshoe, one of the offshore shoals fronting the entrance to the Bay. With four 10-degree course changes, he gradually swings the ship into a 332-degree compass heading, keeping it north of the shoals, getting a feel for the ship's handling. He's moving through an ebb tide that began flowing out of the Bay half an hour before.

With the ship steadied up in the channel, Van Metre walks outside onto the portside bridge wing and clamps a small antenna to a metal strut. The Maryland pilots all carry a Differential Global Positioning System that takes bearings from up to 14 satellites and one land-based transmitter. All these data streams help each pilot nail his or her position to within three feet. It's a moonless night, but I can't see any satellites overhead, just a backdrop of a million stars. I stare upwards, searching for the Big Dipper and the North Star, wondering how the first ships ever made it up the Bay.

Back in the wheelhouse, Van Metre hooks up his laptop to the antenna wire, plugs in the computer and boots up. There on the black screen, a glowing green outline of the Chesapeake channel, each buoy pinpointed, and there in the middle of the channel a tiny boat-shaped blip, the *Taiko*, plods forward. About 10 miles ahead of us, another boat blip, the *Patriot*, also inches its way up the screen towards Baltimore.

With a glance at his high-tech visual aid, Van Metre focuses on his next target: the lights of the Chesapeake Bay Bridge Tunnel, a chain of causeways, small bridges and underwater tunnels that range across the mouth of the Bay. As the *Taiko* picks up more speed, he goes back to his ritual call-and-response with the helmsman.

> *Port 10*, this, quietly, from Van Metre, asking for a right rudder.
>
> *Port 10*, this, quickly, from the helmsman, letting the pilot know what he has heard.
>
> *Three twenty-five,* this from Van Metre again, giving the compass heading he wants the ship to center on.
>
> *Three twenty-five,* the helmsman, staring intently at the compass, letting the pilot know they are now on his course.

"Very well, thank you," says Van Metre. He projects a polite, almost courtly manner, but he keeps a close eye on the rudder angle indicator. Helmsmen have been known to turn the wrong way.

This ping-pong patter will continue all night. Keeping an 870-foot leviathan in its channel takes constant, tiny 10-degree adjustments. The pilot and helmsman seem to be tinkering with the ship, rather than turning it. What they're tinkering with is the implacable physics that underlies ship handling. A thing at rest tends to stay at rest, a thing in motion

tends to stay in motion. If the thing in motion is 66,000 tons driving through the water towards a large bridge, you can't let it go very long in the wrong direction.

Up Through the Hawse Pipe

It was here in these offshore waters outside the mouth of the Chesapeake that Dave Van Metre began his career. He came up the old way, without a degree, working with deckhands on the old pilot boat, a kind of floating hotel for off-duty pilots and a training ground for apprentices. In 1965, off-duty pilots had no red-bricked waterside station with dorm rooms, spacious lounge and well-stocked kitchen. They spent their layovers crammed onto a 200-foot yacht that held 15 crew and 15 pilots in semi-comfort. Pilots waiting to work a ship back to Baltimore would spend their time resting, reading, eating, talking. Apprentices would scrape the decks, paint the decks, man the helm, and drive the small launches that ferried pilots to and from their ships.

Like a lot of older pilots, Van Metre had a family connection to the business. His father was not a pilot, but his great uncle was, and that bond would alter his life. He was a freshman lacrosse player at the University of Maryland when an opening came up with the Association of Maryland Pilots. With his great uncle as sponsor he won admission. At age 19, he was working the decks of the pilot boat and riding large ships up and down the Bay.

That career path is now largely closed for would-be pilots. Current applicants usually have to graduate from one of the country's merchant marine academies, then go to sea and work their way up the ladder from third mate to second mate to first mate to master. That's a tough climb to complete even by age 30, especially in an age of scarce jobs in a shrinking U.S. merchant marine fleet. With a master's license finally in hand, a would-be pilot applies for a five-year training program with the Maryland pilots: two years as an Apprentice Pilot, three years as a Junior Pilot. Family connections don't count.

Think of the pilot as a jockey riding a ponderous, slow-turning beast. Then think of the Bay as an obstacle course — but with barriers and blockages hidden out of sight below the water.

Working in the old system, Van Metre spent three years as an apprentice, riding more than 500 ships up and down the Bay — observing, learning, preparing, memorizing buoys, taking exams, climbing the ladder. Twenty-four hours between trips, a progress review every six months, a week off every year — and not much of a social life. At year three, he spent two weeks taking the Coast Guard exam for his first-class pilot's license.

They handed him a blank sheet of paper, told him a starting point and a destination and asked him to draw all the charts for the entire route. Pencil, paper, parallel rulers, dividers. No visual aids to work with. No books, no maps, only memory. You start with the first buoy, its color, its flashing pattern, its location. Then the distance to the next one. Include lighthouses, their flash pattern, their luminous range. Don't forget water depths, old wrecks and other odd obstructions.

Then he did it again: different starting point, different destination. Then again. And again. Until he had drawn all the major charts for the entire Chesapeake Bay. Part way up the Potomac, all the way up to Chesapeake City and the C&D canal. He spent an entire day on each chart. All the charts from memory, and forty years later, this is his memory: "It was quite tedious. And it still is tedious today for anybody doing it. Everybody dreads it."

It's a big step up the ladder. Passing his chart test made him a Junior Pilot at age 22. He could pilot ships now, but only alongside a Senior Pilot. Then came his state piloting licenses: at year four he could pilot boats drawing 24 feet, then 27 feet, then 30. Climbing the ladder. At year six, another Coast Guard exam, his Inland Unlimited Master's license and promotion to Senior Pilot. The top of the ladder at 25. He could step on board any ship of any size and pilot it anywhere in the Bay. And he could do it alone.

Master or Commander

By the time the *Taiko* reaches the Bay Bridge Tunnel, we are up to 17 knots, and the Bay pilot and the sea captain are talking books. Both are fans, it turns out, of John Grisham's legal thrillers.

Captain Torbjørn Pedersen, appropriately enough, is working his way through *Master and Commander*, Patrick O'Brian's adventure novel about the British Navy of the early 19th century. The book, however, has proved slow going with all its terminology about long-gone sailing ships. "It is really hard to read for a Norwegian," Pedersen tells his pilot. "So many technical words."

The book talk is more than a way of passing time on a long night watch. It is a kind of feeling-out process for pilot and captain. Think of it as a quiet negotiation. Who is the real master and commander on the *Taiko* as it transits the Chesapeake Bay? The pilot is clearly giving all the orders, while the ship's master is only watching.

Captain Pedersen does his watching from a tall swivel chair on the right side of the bridge. When I ask him how he feels about turning control of his ship over to a pilot, he's suddenly the commander. "The pilot is only the adviser," he says. "The pilot is never in command. That is very important to state." To maritime courts, however, the issue of command — and liability — is less clear than it is to Pedersen. He props his feet on the ledge of the front window and stares out past the distant bow of his vessel. "I can put him aside whenever I want to."

Like the pilot he is watching, captain Pedersen is old school — but old school Norwegian style. Norway, he tells me, is the third busiest seafaring nation in the world, and Wilhelmsen, the company he works for, is one of the oldest shipping lines in the world. Pedersen's father and grandfather went to sea, so he went to

Who's master of a ship in the Bay *may be arguable, but the pilot gives the commands as the ship navigates its complex passages. While pilot Dave Van Metre (left background) is in command, Captain Torbjørn Pedersen keeps a watchful eye.*

sea also, starting out at 16, working three years on deck and becoming an able bodied seaman before he ever started maritime classes. Climbing the ladder from bosun to second mate and first mate, he made ship's master at 30 years old. That system of training is gone now, he says, replaced with a maritime cadet system that has no prerequisites about on-the-deck training.

After that long climb up the old ladder, Pedersen is not going to give up his bridge until he's comfortable with his pilot. "If something wrong happens, then the pilot will step aside right away and say she's all yours captain. And then I have to decide what to do and so on," he says. "That's what I am mainly doing up here. I am sitting in."

On a long run like this, ship speed can become an issue between adviser and commander, a matter for quiet negotiation. It's already costing $50,000 a day to operate the *Taiko,* according to Captain Pedersen, or better than $2,000 an hour. At those rates a ship's captain generally wants to move as fast as he can. For a pilot, however, high speeds have a problem: it takes a long time to slow down.

Van Metre decides to keep the *Taiko* at 17 knots, at least down here in the lower Bay with its larger shoals and longer channels. The captain goes along without complaint, but he hangs around well past the end of his watch, keeping his eye on the pilot as he lines us up with the next channel.

Van Metre's Estuary

Just past the Chesapeake Bay Bridge Tunnel, Van Metre makes a small starboard swing into the York Spit Channel. It is here in the shipping channels of the Chesapeake that ship captains get nervous and Bay pilots earn their hefty fees.

Think of Van Metre as a jockey riding a ponderous, slow-turning beast. Then think of the Bay as an obstacle course — but with barriers and blockages hidden out of sight below the water.

The pilot as jockey has his cut-throughs and workarounds, all underwater. These are the shipping channels cut into the bottom of the Bay at great expense, all in hopes of keeping the port of Baltimore open to ocean-going ships. I can see the channels on charts or outlined on the black water by red and green buoys. Van Metre can see them in his head. He can see them when the buoys are under the ice, when the visibility is zero, when the radar is down.

As Van Metre prods the *Taiko* through the starting gate of the York Spit channel, he's beginning a 16-mile run that shoots between two large shoals: the Tail of the Horseshoe and the Middle Ground, a wide shallows once famous for grounding ships and breaking them apart.

Running past a shoals is a challenge because a dredged channel changes the hydrodynamics of ship handling (see "Big Ships, Narrow Channels" on page 8). A ship will "squat" lower in a channel, it will twist its bow towards the middle, it will shift its stern towards the side bank. Van Metre has techniques for handling "squat" and "bank suction" and the niceties of passing a ship in the night in a narrow channel, tricks and technologies that Bay pilots have evolved and passed down over the last century and a half.

He'll need them all. The long passage to Baltimore is littered with deeps and shallows that evolved over thousands of centuries. According to classic geology, the Bay is a drowned river valley created by the retreat of the last ice age. During the last big freeze, 18,000 years ago, this Bay was a river we now call the Susquehanna. It carved a deep valley down through Maryland and Virginia, then flowed across the continental shelf and emptied into an ocean that was 50 miles offshore of the current Virginia Beach. As the ice melted and the glaciers shrank, the sea rose and flooded back up the river valley, turning it into an estuary and shoving the Susquehanna back up to Havre de Grace. According to Jerry Schubel, a long-time marine geologist, there have been many ice ages and Chesapeake Bays and Susquehanna Rivers — and they all left obstacles behind.

The Middle Ground shoals we're moving past was part of the main channel of an older Susquehanna and an older Chesapeake that ran east of the current estuary. As all estuaries do over time, that Chesapeake filled its main channel with sediment, leaving a blockage that Van Metre has to work his way around.

There will be other legacies later in the passage. The archipelago of islands that now line the Eastern Shore includes

Big Boats, Narrow Channels

There's an art to running a narrow channel with a wide ship. And a lot of science. A Bay pilot works with a feel for the ship, the water, the weather. He or she needs excellent depth perception, a sharp sense of relative motion, a good working relationship with the helmsman and officers on the bridge of the ship. That's all part of the art of shiphandling.

But a Bay pilot also works with the physics of underwater forces. A dredged channel changes the hydrodynamics of ship handling in ways a sea captain seldom experiences.

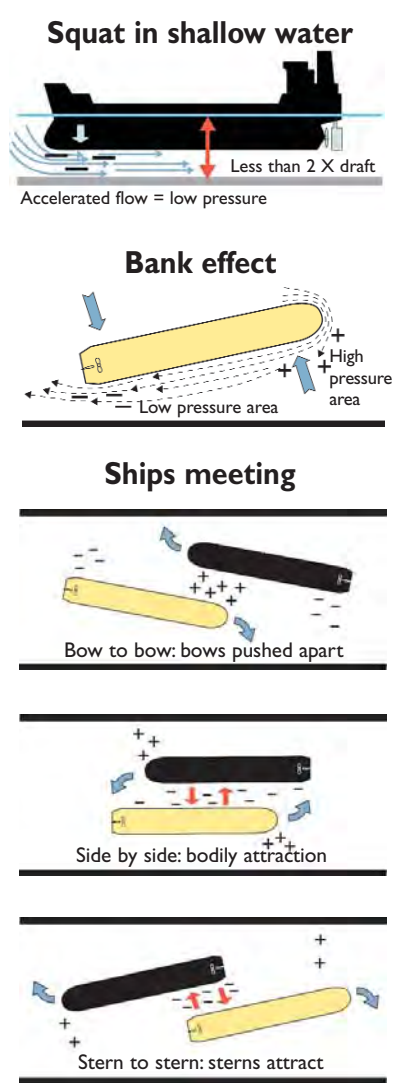
As a deep-draft ship runs a shipping channel, it sinks lower in the water. The hull squeezes water against the bottom of the channel, forcing a faster flow towards the stern. The ship creates a low-pressure zone under its hull, much like an airplane creates a low-pressure zone above its wing. On an airplane that creates "lift," on a ship that creates "squat." The faster a ship moves, the deeper it sinks.

Along the banks of the channel, the same physics is happening sideways: The hull squeezes water against the side walls, speeding up water flow on that side of the hull and creating a low pressure zone. The back of the ship is sucked towards the bank of the channel. The faster the ship, the stronger the suction.

At the front of the ship, another force is at work. The bow wave is bouncing off the bank and shoving back at the bow. Bank pressure at the front, bank suction at the back — both forces are trying to turn the ship towards the center of the channel.

In the middle, all these bank forces balance out. A pilot running down the center axis has his ship in perfect equilibrium with the same forces pushing equally on each side of the hull. The center, of course, cannot hold two ships at the same time steaming in opposite directions. That's when life gets complicated for a pilot.

In a classic, port-to-port passing, a pilot begins to turn away from the center towards the side of the channel. He's making room for the oncoming ship, but his move towards the channel wall builds bank pressure at the bow, bank suction at the stern.



Association of Maryland Pilots

Pilots, like artists, have their own styles. Eric Nielsen, president of the Association of Maryland Pilots, likes to start his turn early, a mile away in a wide channel. Other pilots like Randy Bourgeois like to wait. "I hang in there a little bit longer," says Bourgeois, the association vice president. "If you get on your side of the bank too soon, then you get all those forces pushing you back to the middle." He holds off on his turn until the ships are closing to half a mile. "I start making my move, and the other person starts making his move and you start doing this little dance step around each other."

What about the bow wave from the oncoming ship? In a tight channel passing, both pilots actually curve back towards the center, aiming their bows towards the other ship at the last minute, and letting the collision of bow waves straighten their ships out. In the abstract, all those rudder moves describe an S-shaped sequence: a turn away towards the side, a turn back towards the other ship, then a turn away again. The result: each ship seems to steam straight ahead — sliding safely past the oncoming vessel.

Another trick in a tight channel is slowing down. "All these forces vary by the square of the speed," says Nielsen, "so a small reduction in speed would have a large reduction in forces." A pilot has more control at 9 knots than at 12. And at slower speeds he keeps a power reserve that he can unleash when needed.

That's a lot of dance moves for big ships to make in a narrow channel, even on a clear day. "You do it in zero visibility," says Bourgeois, "Then you do it in high winds, in ice, in snow, when the buoys aren't there, when you can't see." When you have big ships dancing in the dark, you hope you have an artist at the wheel.

— MWF

Hooper, Taylors, Poplar and Kent — islands that once lined the bottom of earlier Susquehanna rivers. According to Jeff Halka of the Maryland Geological Survey, those old channels filled up with sediment over the centuries, heaping up islands that now hold villages, condos and marinas.

So Dave Van Metre — like Mark Twain — is also a river pilot, picking his way through deeps and shoals that were dug out and shifted around by ancient rivers in their millennial wanderings. Like all of us, he's afloat in the river of time, but he's going in the opposite direction. As he winds his way up the current Chesapeake, he's working his way up through time — from an older estuary to a younger one. The last great flooding took thousands of years, making the Bay mouth and southern Bay the oldest parts of the estuary, first invaded some 10,000 years ago, according to Schubel. Where Van Metre passes the Potomac, the estuary is about 8,000 years old. Where he passes Annapolis, it's about 5,000 years old. When he docks at Baltimore at the end of his long passage, he'll be an older man in a younger estuary.

Ships in the Night

As Van Metre bends the *Taiko* rightwards into the second leg of the York Spit Channel, he takes his turn in small 10-degree chunks, a trick to keep the big ship from swinging out of control. A pilot carries the layout of the channels embedded in his brain from thousands of trips, but on each trip he has to find his feel for his new ship fairly quickly. Van Metre starts with a 10-degree starboard rudder, then fairly quickly calls *Midships*, returning the rudder to a straight ahead angle. He calls this "checking the swing."

Standing out on the bridge wing, I can see the turning, but I can't feel it. The *Taiko* is so massive, it creates its own gravity field. It becomes a still point in a turning world. Everything ahead of us is shifting: the lines of red and green buoys, the ship lights on the horizon, they are all drifting leftwards past our distant bow light. The planet is revolving around us.

Some of those lights I see are a ship

U.S. Coast Guard

It was the worst ship collision on the Bay *over the last half century. On a Friday night training run, the chief officer aboard the* Cuyahoga*, a small Coast Guard cutter, misread the running lights of an oncoming ship. Off the mouth of the Potomac he turned into the path of the* Santa Cruz II*, a 571-foot-long Argentine coal carrier. The crash slammed the* Cuyahoga *backwards, sending it to the bottom in two minutes. "It felt like an earthquake," one survivor told the* Washington Post*. "The ship just fell out from under our feet," said another. Eleven crew members died.*

heading towards us. Inside the wheelhouse, Van Metre has been tracking it on radar, but out on the bridge wing, working without technology, the oncoming approach is hard to read: simply a triangle of lights standing way off the starboard bow, one red and two white lights that seem to blur together. They give no hint of the speed or size of the ship.

Ship lights on the Bay at night are never easy to read, even for experienced seamen, but reading them right is the first step to pulling off a safe ship-to-ship passing. The worst ship collision of the last half century began with Coast Guard officers misreading the lights of an oncoming ship.

On an October night in 1978, the Coast Guard officer in command of the cutter *Cuyahoga* peered through his binoculars at distant lights and decided he was looking at the lights of a small fishing vessel. His 125-foot cutter was steaming north up the Bay with plans to turn left into the Potomac River for an overnight anchorage. On board were 29 crew members, many of them officers in training. He walked into the chartroom, checked the radar contact and decided the fishing vessel was already headed into the Potomac River.

The lights were not a "small fishing vessel" but a 571-foot cargo ship, and it was not headed into the Potomac River. The *Santa Cruz II*, an Argentine coal ship, was steaming straight south past the Potomac. On board was a Maryland Bay pilot who read the lights of the northbound *Cuyahoga* accurately and prepared to steam past it on a basic port-to-port passing, much like two cars on a highway.

With the ships closing fast, however, and with no ship-to-ship warning, the Coast Guard officer ordered a series of left turns, curving his small cutter directly in the path of the larger cargo ship. The Bay pilot aboard the *Santa Cruz* made all the right moves according to the nautical rules of the road: he sounded a whistle blast signaling he was holding course as the "privileged vessel." Then he sounded another blast, followed by five short danger blasts, then five more.

The *Cuyahoga* commander ordered stop engines and full astern, slowing his cutter directly in front of the oncoming cargo ship. On the flying bridge a young seaman saw a terrifying sight: the lights of the "fishing vessel" became a cargo ship on a collision course.

The *Santa Cruz* plowed into the *Cuyahoga* just aft of its wheelhouse, bulldozing the cutter backwards at 13 knots for more than 30 seconds. Below decks the impact caused fractured skulls and broken necks and frantic scrambling to escape a sinking ship. The *Cuyahoga* sank stern first within two minutes, taking eleven crew members to their deaths.

Major investigations followed, then congressional hearings, a court martial and changes in Coast Guard training. The episode highlighted how easily human error can override high-tech navigational aids and unleash disaster, even death on the water, especially in the close quarters of a ship-to-ship passing.

From the bridge wing of the *Taiko,* I see what the crew of the *Cuyahoga* saw: ship lights headed down in this direction, one of them a red portside running light. But inside the wheelhouse Van Metre knows the track of the ship from the radar screen, and from his laptop GPS he also knows the name of the oncoming ship, its size, speed and cargo. Behind those approaching lights is the *Tasmania*, 708 feet long, drawing 35.5 feet, five feet deeper than us. The laptop screen also shows the name of the other pilot: Jim Mead, a veteran who joined the Association of Maryland Pilots one year before Van Metre did.

The radio crackles and Van Metre responds. "Stand by, Jim. Good Evening. One whistle, port to port, sounds good." A short conversation, two old friends passing in the night, but it's a key communication. Each pilot is letting the other know well ahead of time what he's planning to do with his ship. It's a conversation the commander of the *Cuyahoga* never tried.

When ships pass in a dredged channel, however, Van Metre has more underwater physics to think about. He moves the *Taiko* away from the centerline, creating more separation for the *Tasmania* and its deeper draft. As the hull of the *Taiko* slides along the side wall of the underwater cut, its stern is sucked even closer to the bank of the channel.

As it closes on the oncoming ship, the *Taiko* displaces tons of water outward, pushing a hefty bow wave towards the oncoming ship. The same physics is working on the *Tasmania* along the other side of the channel. The solution: In a tight channel passing, both pilots actually curve back towards the center, aiming their bows back towards the other ship, slanting away from the side wall and letting the collision of bow waves straighten their ships out.

That's tricky enough to make any captain nervous, and the approach of the *Tasmania* brings Captain Pedersen to the bridge wing as another lookout. As it closes on us, the *Tasmania* remains to the eye only three small lights ghosting down the nighttime Bay. The lights, I realize, are hanging high above the water, the first sign this is a large ship. *Tasmania* finally takes shape as a container ship, its deck loaded with trailers ready to go on trucks. The ship, all 708 feet of it, slides by so quietly all we can hear is the hissing of its bow water. That's the last ship out of Baltimore this night, Van Metre tells us.

It's suddenly a lonely Bay out here in the middle of the night with only three large ships moving through: the *Taiko,* the *Tasmania* behind us, and the *Patriot* ahead of us. When Van Metre began as an apprentice and Pedersen began as a deckhand, Baltimore was drawing many more ships to the Chesapeake — ships that were smaller, but more "shiplike." "Thirty years ago," says Van Metre, "you'd have maybe eight ships to carry this amount of cargo."

Many of the behemoths now nosing up the Bay barely resemble ships. A typical car carrier is a floating box. There's a traditional flaring bow but it's followed by a long, blank-sided box that stretches three to four city blocks back and towers 15 stories high. A container ship carries truck trailers stacked high behind the bow, obliterating the sweep of its lines. A Ro/Ro carries a cargo ramp for a stern.

Bad Dreams for Bay Pilots

When terrorists flew airplanes into the World Trade Center and the Pentagon, the world suddenly changed for the men and women who pilot planes — and ships. "Security right now is the main concern as you're climbing up the side of a ship," says Captain Eric Nielsen, President of the Association of Maryland Pilots. "The question in the back of your mind is: What are you going to meet with?"

Before 9/11, a Bay pilot boarding a strange ship knew he might encounter bad weather, equipment breakdowns and incompetent crews — any of which could cost lives or cause environmental calamity on the Bay. One incident like the *Exxon Valdez* grounding in Alaska could unleash enough oil to ruin the oyster bars and fish-spawning grounds and bird-feeding wetlands in most of the Chesapeake. Such were the old nightmares for Bay pilots.

When terrorists took over airplanes, killed their pilots and turned their planes into flying bombs, Bay pilots suddenly had something new to worry about. What could terrorists do with a ship? Crash it into a bridge? Run it into the liquid gas docks at Cove Point? Crash into another tanker? Or simply run it hard aground on the edge of a key shipping channel? The next *Exxon Valdez* incident may be no accident. These are the new nightmares.

It's part of Nielsen's job to worry about these scenarios. He heads up a 153-year-old association that numbers 61 Bay pilots and 50 support staff, including dispatchers, drivers, deckhands, mechanics and office personnel. As president, he's the one who hears all the scare stories about possible terrorist plots. He sits at the table with the Coast Guard, the Navy, the F.B.I., Homeland Security, and Maryland state agencies as they plan out anti-terrorist strategies for the new world order.

For Bay ports, the first line of defense,

Association of Maryland Pilots

according to Nielsen, is profiling. Before a ship enters the Chesapeake, it now has to give 96-hour notice, time for the Coast Guard to run a computer analysis of its cargo, officer list, crew list and recent ports of call. Included in these profiles are reports from intelligence agencies in the U.S. and other countries, especially information on ports with sloppy security procedures. The result: any high-profile ship gets an offshore visit. "If there is a high-interest vessel we try to board it as far out as we possibly can," says Petty Officer Donnie Brzuska, a spokesman with the Coast Guard's Atlantic Area Fifth District Command. "How far out depends on the vessel and where it sits on that targeting matrix."

A Coast Guard cutter intercepts the ship, a newly trained team climbs the Jacob's ladder and everybody goes to work: safety inspections, cargo list checks, crew reviews. The higher the ship's profile, the more intense the offshore inspection. The officer in charge may take a face-to-face with each crew member, checking his face against his ID, checking his ID against the crew list. He may even haul up bomb-sniffing dogs. Coast Guard captains have the authority — and they have used it — to turn boats away from the Bay. The Guard calls these tactics "pushing the borders out."

A second strategy is another, surprise boarding later in the ship's Bay passage. For certain Baltimore-bound ships, the Coast Guard station at Annapolis sends out an armed, eight-man boarding team. They climb the ladder, then split up to cover key stations throughout the ship: the bridge, the helmsman's station, the engine room, the emergency steering area, the anchors, the stern. For the rest of the trip — under the Bay Bridge, through the entrance channels, under Key Bridge, sliding up to the dock — Coast Guard personnel stand their posts. From their stations, they witness all the pilot's orders and all the crew responses, an approach they call "positive control." If a helmsman turns the rudder the wrong way, if an engineer steps up the RPM in a crowded harbor, a Coast Guardsman can step in.

Most incoming ships are not inspected, however, making the Bay pilot the third line of defense. It's a solitary line. The pilot is usually the only American aboard a ship where the crew speaks foreign languages — where the officers, in fact, may be European while the seamen may be Indonesian or Filipino. What Nielsen worries about is a terrorist takeover of a wheelhouse or an engine room — an easy enough trick on today's lightly manned ships. It would not take much of a takeover: just long enough for a wrong rudder move approaching a bridge or a harbor or another ship in a narrow channel.

So Nielsen warns his Bay pilots to be on watch for suspicious behavior. Perhaps a lot of extra crew in the wheelhouse. Perhaps extra questions about the course, the channels, or the arrival times at key locations like the Bay Bridge near Annapolis or Key Bridge near Baltimore. Perhaps a crew member taking a lot of pictures. The pilots now have a secret signal they can send that will bring an armed team from the Coast Guard or the Navy. They have, on occasion, sent the signal.

— MWF

Mostly gone are the "break-bulk" carriers with a classic merchant ship profile: the high, sharp bow sweeping down to a cargo deck topped with derricks and booms, then further back a high-standing superstructure with wheelhouse on top and bridge wings to each side. You see this profile on posters and billboards advertising Baltimore as a port city, you seldom see it on the Bay.

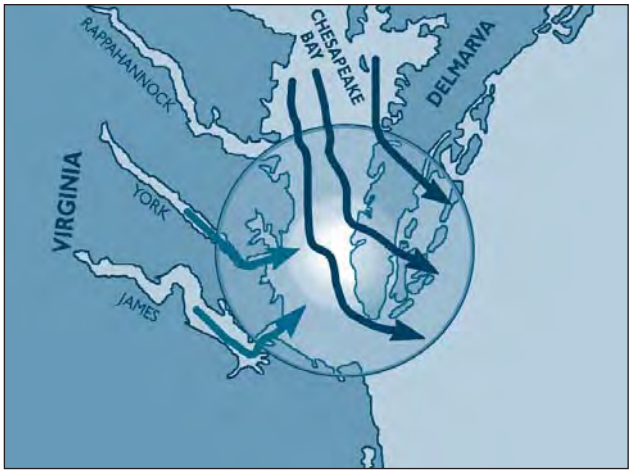
Out of the Deeps

At the end of the York Spit channel, Van Metre glides the *Taiko* into a deepwater tract called the Virginian Sea Trench. Here in these wide sudden deeps along the Delmarva Peninsula, a pilot's work gets easier — no worries about shoals for awhile. Van Metre is steering across the crash site of another collision, one more catastrophic by far than the sinking of the *Cuyahoga*.

Thirty-five million years ago, a giant meteor came blazing through the solar system headed for earth. The era was the late Eocene, a warmer epoch when the Atlantic Ocean reached inland almost to the Appalachians, covering the Bay and all the sites like Norfolk and Baltimore that would later become the cities of the Coastal Plain. If Van Metre were working these earlier waters, he'd have no shoals to worry about until west of Richmond. If he'd looked skyward to check the stars, he'd have glimpsed a terrifying sight: a light in the night that became a meteor. And that light would have been the last thing he ever saw.

The meteor shot through the earth's atmosphere at six times the speed of a bullet and smashed into the ocean. A blast wave immediately incinerated all life forms within six hundred miles and sent tsunamis roaring across the Coastal Plain towards the Piedmont Plateau. The impact blasted a crater 50 miles across and a mile deep, centered on what is now Cape Charles City, and then nearly filled it up again as fragments of rock fell back into the hole.

That crater and its rim, buried beneath 35 million years of earth, shaped the southern Bay we're sailing through — according to researcher C. Wylie Poag, of the U.S. Geological Survey, and a number of other geologists. There is evidence, they say, that rivers like the James, the York and the Susquehanna once ran separately to the sea — and might still do so today without meteorite intervention. Norfolk might be a port on James Bay, Yorktown on York Bay and Baltimore, perhaps, on Susquehanna Bay.



Adapted from a figure by C. Wylie Poag

The crater left by a meteorite collision *35 million years ago probably caused the York and James Rivers to alter course (2 left arrows) and eventually link up with the Susquehanna to form the southern basin of today's Chesapeake Bay. (Circle shows crater and rim.) After each of the last three ice ages, the main channel of the Chesapeake moved west and the Bay moved south (3 right arrows).*

But the meteorite left a crater that would gather together these three rivers into one basin. Over millions of years, the crater's center kept sinking faster than the rim, creating a downhill path, drawing together the York, the James and the Susquehanna rivers. As ice ages came and left, the York and the James eventually merged with the mightier Susquehanna and ran as one river to the sea. These deeps above the old crater now give Van Metre some easy piloting on his long passage through the newest Chesapeake.

Meteorites and ice ages could come again — and the best piloting can do nothing to prevent them. Within five million miles of earth, there are ninety-nine asteroids larger than half-a-mile in diameter, according to a survey by the National Aeronautic and Space Administration, and any one of them could rearrange the Chesapeake Bay again and wipe out life — including city life — along the Mid-Atlantic.

On the bridge wing of the *Taiko*, I look up at the stars again. Lights in the sky, like lights on the Bay, are hard to read. What's a shooting star? What's an oncoming disaster?

Midnight Run

We're nearing the upper edge of the Virginian Sea Trench when Captain Pedersen, master of the *Taiko*, decides he has seen enough of this pilot.

Van Metre will soon come up against the Rappahannock Shoals, the largest underwater shallows in the Chesapeake, but the sea captain is finally comfortable giving up the bridge. He has seen Van Metre maneuver through three channels and pass one ship. "I have an old pilot who has been there before," Pedersen says, standing by the exit door. "I go down and take some paperwork." And perhaps some sleep.

With the captain below, Van Metre swings sharply west by northwest into the Rappahannock Channel, a 14-mile furrow that cuts through the Rappahannock Shoals. There are no natural troughs around this huge, Baywide hump, and no satisfactory explanation for why it's here. Van Metre runs the channel on a 322 compass heading, adjusting for drift from an ebb tide that's pushing against the hull.

At the end of the shoals, Van Metre calls for *Zero-Zero-Zero:* We're headed due north up the Deep Trench, the long paleochannel dug out by the Susquehanna River during the last ice age. Here the Bay bottom drops away to depths of 100 feet and more. We're not halfway to Baltimore yet, but the Deep Trench, long and straight, has the look of the home stretch at the Preakness. And Van Metre, the ship jockey, takes a gentle whip to his big horse, asking with his courtly man-

ners for more RPM. The *Taiko* slowly ramps up to 19 knots.

Van Metre gets through nights like this with coffee and conversation. The first mate from Norway tells him about rehabbing the *Taiko* in China. Van Metre tells him about fishing Eastern Shore rivers with Indian names and watching dozens of oyster buyboats stacked high with harvest. The bridge radio crackles with tugboat talk, some of it drifting down the night from Delaware Bay.

As the night deepens and he rides yet another ship up the Trench, one of 4,000 or more ships he's piloted, he thinks also about retirement — climbing down the Jacob's ladder for a last time. "It's a big decision. You do something all your life," he says, "and then you look at the rest of your life and decide what you want to be doing with it." Fishing, gardening, raising Japanese koi fish, watching more lacrosse, the game he played at the University of Maryland — these are some of the things he would be doing. But what does he do with all those buoys and lights and channels he carries around in his head?

Dawn's Early Light

In the gray pre-dawn, the Bay Bridge is a dim skeleton asleep in distant haze. By the time the *Taiko* cruises under it, cars and trucks are crossing above us, headlights on, early morning drivers off to work. In the wheelhouse of a Ro/Ro carrying even more cars to Baltimore, Van Metre gets ready to finish his work day. Just north of the Bay Bridge he starts the *Taiko* through the last, tricky stretch: the Baltimore entrance channels.

Seven channels in all, some named for the engineers who dug the trenches: four Craighill channels, the Brewerton channel, then Fort Carroll, and finally the Fort McHenry Channel leading under the Francis Scott Key Bridge — a series of linked cuts that allows Van Metre to squeeze his big ship through shoals built up by the unending sediment flows washing down the Patapsco and Susquehanna rivers.

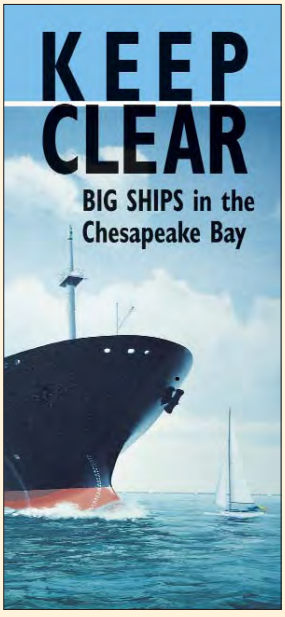
Because of these channels, Baltimore is still a port city. In the 18th century, Van Metre would have been piloting ships upriver to Joppatown and Georgetown, Bladensburg and Upper Marlboro and Piscataway. All were busy seaports, but all clogged up and closed down shortly after the arrival of deep plowing and deforestation. The first age of plowing, like the last age of ice, altered the evolution of the estuary — as did the building booms of the 20th century that raised so many cities, suburbs, shopping centers, and highways and flushed so much earth down towards the Bay.

Whatever washes into these channels the Army Corps of Engineers has to dredge out. They've been working the Baltimore channels since 1836 when the controlling depth was 17 feet, and Congress decided it was in the national interest to have one major port in Maryland. The channels deepened in small chunks, growing finally to 50 feet deep and 800 feet wide in most cases. Most of the dredging money came from the federal government. Most of the dirt dredged out of these cuts came from the farms of Pennsylvania.

The master of the *Taiko* is back on the bridge, bright-eyed after a couple hours sleep. Captain Pedersen got his wish — Baltimore by dawn — but he's still a man in a hurry. His next goals are the port of Savannah, a flight home to Norway, and the start of a four-month vacation. What does a ship captain do with his time off? "Travel," he laughs. "Everything."

He's working his binoculars, checking out the early morning sights — after 10 days of empty ocean, this is his first city. The sun, still low, has burned off the haze and great slabs of light are falling on the smoking towers and shipyards and steelworks at Sparrows Point. From the smokestacks to the north, from the cooling towers to the south, pillars of steam bracket the channel, opening a bright gateway to Baltimore.

For a moment, it's a gateway back in time. Steaming under Key Bridge is the



Watch Out for Big Ships

It is one of those dark hazy nights typical of a Chesapeake summer, humid and still, even in the middle of the Bay. You see nothing up ahead as you motor through the gloom, but when you finally think to look astern you notice faint white lights not there before. Are they shore lights? A fishing boat? A tug pushing (or pulling) a barge? Or a freighter, longer than three football fields and drawing over 40 feet, heading your way at close to 20 knots?

With precisely that experience in mind, Maryland Sea Grant's Jack Greer, an avid sailor, concluded that it was high time to put out information that would help recreational boaters become more aware of avoiding traffic on the Bay, especially those big ships bound for Baltimore — and especially at night. The Association of Maryland Pilots agreed to help, and over the past two decades Maryland Sea Grant and the Maryland Pilots have published several editions of a small brochure entitled, *Keep Clear: Big Ships in the Chesapeake Bay*. One year the Maryland Department of Natural Resources even mailed the brochure along with its annual boater registration form, so the pamphlet has reached literally hundreds of thousands of boaters throughout the state.

Included in the pamphlet are diagrams showing light configurations of big ships, facts about the constraints under which large vessels operate, and helpful tips on what to look for and how to respond in the vicinity of freighters and other large craft.

Though no substitute for good navigation skills and experience, or for time-honored navigational books and manuals, *Keep Clear* nevertheless serves as a handy reference for the recreational boater, and reminds anyone at the helm to continually sweep the horizon a full 360 degrees, and to watch for those seemingly small white range lights that signal the approach of one of the world's ocean-going leviathans.

Keep Clear is available as a printed brochure from Maryland Sea Grant (call 410.403.4220, x22) and also on the web at www.mdsg.umd.edu/CB/keepclear.html.

Ship Shape for the Future?

A zero-emission ship? That's the daring concept from Wallenius-Wilhelmsen, the progressive partnership of two historic Scandanavian companies. The Wallenius Line began in Sweden in 1934 with one small coastal tanker carrying vegetable oil. The Wilhelmsen Line began earlier with less, starting in Norway in 1861 with part ownership of one ship. Joined in 1999, these family-owned companies now operate more car carriers and roll-on/roll-off ships than any company in the world.

The *E/S Orcelle* represents their vision for the future. Named for an endangered dolphin, it has a streamlined shape, tall sails, solar cells and five long slender hulls that create energy out of ocean waves. No engines, no burnt hydrocarbons, no ballast water: zero emissions.

It's a ship of ideas that may never be built in its entirety, according to Wallenius-Wilhelmsen, but its design elements should start showing up in their future ships. Let's hope the cars they carry will also be zero-emission.

Guadalajara, an old fashioned freighter gliding towards pilot and captain like a vision out of the past. A high-strapping bow, swooping back to a cargo deck with derricks, and a tall superstructure beyond. "It looks like 1970 again," says Van Metre. Both veterans are working the binoculars now. This is what ships looked like when both were young and working their way up the old ladder from deckhands to ship drivers. "They don't build them like that anymore," says Pedersen.

Conn Artist

Van Metre's passage ends just inside the Key Bridge. A docking pilot is already making his way up the Jacob's ladder. For pilots working the Bay out of Baltimore, the bridge is the gateway out, the gateway home. For Van Metre it's the site of his worst nightmare, the one thriller he has to tell me.

He was taking a container ship out of Baltimore for a night run down the Bay. The year was 1980, the ship was the *TFL Freedom*, a name that rings in his mind after 25 years. He had the ship up to 11 knots, picking up speed, headed for Key Bridge, when everything failed: power, lights, steering. It's called "losing the plant," and it can bring disaster in a port or a close ship-to-ship passing — or a bridge approach.

Standing in the wheelhouse in the darkness, Van Metre had 30,000 tons in motion headed for an immovable object. And all he had to work with was his own hand-held radio, his shiphandling and his judgment.

His only hope was the ship's anchors, but that's a tricky, one-shot chance. If he lets the anchors out too soon while the ship is moving too fast, they will run all the way out and break free from the windlass. The anchors are gone and the ship is still moving. If he waits too long, he may not have time to stop the ship from smashing into the bridgeworks. If he drops the anchors in shallow waters, they may tear a hole in the bottom of the boat. He has to judge the speed by eye, the distance by eye, and the channel by memory.

And he has to be prepared. Because he was leaving the dock, he had a man waiting forward by the anchor, a safety precaution. Then he had to wait, watching the water for speed, watching the bridge for distance, watching for his one shot. When he ordered the anchors let go, he waited some more, hearing them clank overboard, waiting for them to bite the bottom, waiting for the brakes to grab — and not break.

He brought the *Freedom* to rest just short of the bridge. He was, at the end, looking almost straight up at the bridge, seeing the nighttime traffic humming above him. It remains, he says, his most terrifying experience. It's why they pay pilots well.

For More Information

The Chesapeake Bay Pilots. 1953. M.V. Brewington. Maryland Historical Magazine 48:109-133.

Chesapeake Invader: Discovering America's Giant Meteorite Crater. 1999. C. Wylie Poag, Princeton University Press.

The Life and Death of the Chesapeake Bay. J.R. Schubel. 1996. Maryland Sea Grant College.

Baltimore Harbor: A Pictorial History. Robert C. Keith. 2005. The Johns Hopkins University Press: Baltimore and London.

Minding the Helm: Marine Navigation and Piloting. 1994. The National Academy of Sciences.

Ancient Channels of the Susquehanna River beneath Chesapeake Bay and the Delmarva Peninsula. 1990. Steven M. Colman, Jeffrey P. Halka, et al. Geological Society of America Bulletin 102 (September):1268-1279.

Effects of Soil Erosion on Navigation in Upper Chesapeake Bay. 1945. L.C. Gottshalk. Geographical Review 35 (2/April):219-238.

The Chesapeake Meteorite, Message from the Past. U.S. Geological Survey, http://meteor. pwnet.org/impact_event/impact_crater.htm

Maryland Association of Pilots, www.marylandpilots.com

American Pilots Association, http://www.americanpilots.org

With the *Taiko* in the harbor, Van Metre gives up the bridge quickly. A brief conversation with the docking pilot. "Dead slow, Merrill, we're 7.2 knots, bow and stern thrusters working, 30.6. Okay?" Tall and light-haired, Captain Merrill Brunson will handle docking duties, using tugboats to muscle the *Taiko* up to the pier.

Van Metre and Pedersen shake hands, both courtly and polite and pleased with their trip, both headed home. Walking with the chief mate, Van Metre starts the long descent down elevators and stairwells to the pilot platform.

Then down again, holding the ropes, hitting the wooden treads, working his way down the years to a waiting pilot launch, the kind of boat where he began his career. Stepping lightly on the launch, he looks up, waves and lets go of the ladder.

Pioneering Bay Pilots

By Michael W. Fincham

Photos by Michael W. Fincham

Back in high school in the late 1960s, Avis Bailey never thought he'd become a Chesapeake Bay pilot. He was going to be an astronaut, a reach for an urban black kid coming out of Cardozo High School, then and now one of the rougher schools in Washington, D.C. What he became in 1979 was a maritime pilot — the first African American state-licensed pilot in the country.

Alison Ross Schulte knew from early on that she was going to sea. The daughter of a ship's captain she went to sea with her father and her sisters whenever she could. "I was the only daughter that didn't get seasick," she says. "That sealed my fate." In 1993 she became the first state-licensed female pilot in the Chesapeake and the second in the country.

Bailey and Ross Schulte are part of the new breed: pilots who come in with no family connections, but lots of professional training. For a hundred years or more many of Maryland's Bay pilots were the sons or grandsons or nephews of older pilots, often admitted as apprentices while still in their teens. Though the traditional "family apprentice system" worked well for training pilots, it led to public accusations of nepotism, according to Mike Watson, president of the American Pilots Association, especially whenever the state Association was lobbying for higher pilotage fees.

Since the early 1980s, most Maryland pilots have earned a four-year degree from a maritime college, then worked their way up the ladder from third mate to second mate to first mate to unlimited license.

Avis Bailey came out of Cardozo with several college scholarship offers — and an appointment to the U.S. Merchant Marine Academy. His plan was to do well, then switch to the Air Force Academy. When he heard more about the salaries a ship's officer could expect, he learned to love the sea.

After graduation, Bailey became the first African American ship's officer for Sun Oil company. He was on track to become the first black skipper of a Sun Oil tanker when he applied to the Association of Maryland Pilots, a pioneering group that began in 1852 as the first state-chartered pilots organization in the country.

For Bailey, being first has an ironic twist. In the late 18th and early 19th century, a number of well-known Bay pilots were African American slaves. Piloting, however, began to close down as a career path for blacks — either free or enslaved — when state governments began regulating freelance pilots more closely. Pilots were required to train apprentices who were "free, white citizens."

Like her father before her, Alison Ross Schulte graduated from a maritime college, then went to sea for 10 years working on oil tankers trading all around the globe. She made chief sailing officer before she ever applied to become a Bay pilot.

So what's the attraction of piloting over sea-going work? "Being in control," says Bailey. "Coming on board, meeting the captain and saying, 'I have you, Captain, I've got it.' And then taking control of the ship."

Shiphandling is the draw, says Ross Schulte. "You get to maneuver ships in any sort of situation. It's work that many people at sea would like to do." A pilot working her way through the channels of the Chesapeake may make more shiphandling moves than a captain on a trans-Atlantic crossing.

According to Ross Schulte, changing the status quo can challenge both crew and pioneer. "Either the captain is screaming that there is a woman climbing up the side of his ship, or everyone is sitting there with his mouth open." Or they run and take a shower, she says, and when they come back, they've often overloaded with aftershave. "I usually have to leave a bridge door open because my eyes start to burn."

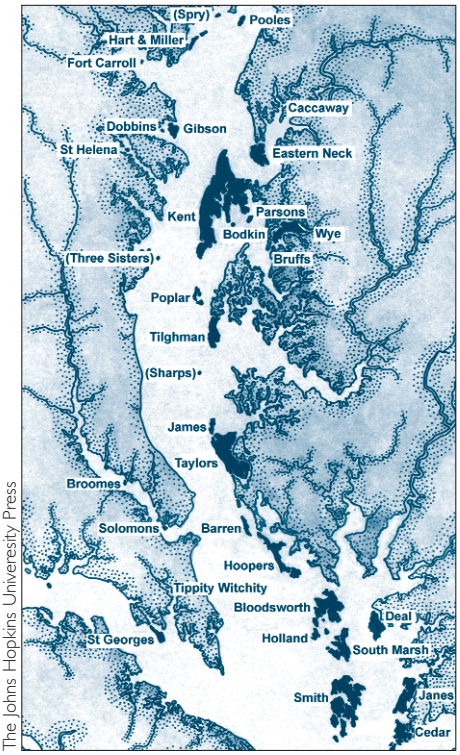
Both Ross Schulte and Bailey are still minorities in the world of piloting. Out of 1200 maritime pilots around the country, only 8 are blacks, according to Bailey, and some 25 are women. "I'm proud of the fact I can and did have others follow," says Bailey. "I wish there were more."

Book Review

The Bay's Vanishing Islands

By Jack Greer

The Disappearing Islands of the Chesapeake by William B. Cronin. The Johns Hopkins University Press, 2005. Baltimore and London. 200 pp.



The Johns Hopkins Univeresity Press

The year is 1900. On Holland Island, off Maryland's Eastern Shore just north of Smith Island and just south of Bloodsworth Island, some 250 people live and work, mostly farming and fishing. Holland Island has its own post office, a school and a baseball diamond. Along with a postmistress, it boasts a doctor and a preacher. But already global forces are eating at the island, and rising Bay waters, driven by winds and storms, continue to dissolve the soft banks, day by day, month by month, year by year.

The island is melting away, and by 1910 the preacher, the postmistress and the doctor are gone. Others leave with them, and in 1918 a summer gale drives the last family from their home on Holland Island.

Every island tells a story, and now William Cronin, oceanographer and obvious island-lover, has compiled an anthology of those stories in a new book from Johns Hopkins University Press, *The Disappearing Islands of the Chesapeake*.

Cronin's affection for the people and the places he describes draws on his personal experiences. For many years Cronin served as a staff oceanographer for the Johns Hopkins Chesapeake Bay Institute, and captained the research vessels *Lydia Louise I* and *II*. These cruises took him to many an island, and his twenty-five foot sailboat, *Ginger*, took him to many more. There he met and spoke with island residents and shared their memories, or wandered alone with the ospreys and herons, on islands where human denizens have long since disappeared.

Cronin makes clear that the process that formed the Bay when the glaciers began to melt 15,000 years ago "has never ceased." With some 8,100 miles of exposed island and mainland shoreline, he points out that the Bay is "perpetually vulnerable to forces of wind and water."

And those forces have radically increased. Until 1900, Cronin writes, Bay waters rose at a rate of about three feet every 1,000 years, or about three and a half inches per century. During the past 100 years, the Bay rose twelve inches — a rate of one foot per century.

More than a scientific treatise, Cronin's book is at its heart a tour — or a cruise. His trip through time includes rumrunners, Revolutionary War patriots, and tea-bearing brigs. Cronin tells the colorful story of the Three Sister Islands that lay off the mouth of the West River, where the 130-ton brig *Totness* went aground in July 1775 with its cargo of tea. After allowing the crew to vacate the ship, local rebels burned it to the waterline.

The Three Sister Islands, though for years plowed and planted by farmers, gradually melted away in the Bay's rising waters, and by the 1850s they finally vanished altogether. Anyone sailing out of the West River now will see only endless waves, and a shallow sandbar on the chart.

A similar fate befell Sharps Island, at the mouth of the Choptank River, which Cronin says was first recorded at 449 acres. Owners came and went during the 1600s, 1700s, 1800s. The island saw farms and livestock and houses, and finally at the end of the nineteenth century a hotel and a long pier for visiting steamboats. By 1900 the island had shrunk to 94 acres, and then continued to crumble — at a remarkable rate of 110 feet a year, according to Cronin. By 1963 it was gone for good.

Not every island has eroded away, of course, but while Cronin provides endearing descriptions of the islands that are still with us, somehow it is the ones that have vanished that touch us most. They capture in a remarkable way the inexorable toll of time.

The *Disappearing Islands of the Chesapeake* is a book well worth owning for anyone interested in the geography, history and lore of the Bay. Alongside its informative text the book contains numerous maps and charts, and its pages are further graced with the photographs of A. Aubrey Bodine (1906-1970), whose love affair with the Bay is described in an introductory note by Thomas Moore, Curator of Photography at the Mariners' Museum.

Sea Grant Review

The Maryland Sea Grant College Program will be reviewed by an external Program Assessment Team on September 25-29, 2005. This notice is to invite all those interested to address written comments on any aspect of the program to Mr. Nathaniel E. Robinson, Chair, Program Assessment Team. These comments should be sent in care of Dr. Elizabeth Day, National Sea Grant College Program. NOAA R/SG 1315 East-West Highway Silver Spring, MD 20910 or via email to: elizabeth.day@noaa.gov. To provide timely input please submit your comments by September 2, 2005.

Greer Receives UMCES President's Award for Excellence

Maryland Sea Grant's Jack Greer has received this year's President's Award for Excellence in the Application of Science from the University of Maryland Center for Environmental Science (UMCES). In presenting the award, President Donald Boesch cited Greer's outstanding efforts in communication and policy facilitation over 25 years of service to the Chesapeake Bay region.

Greer, Assistant Director for Communications and Public Affairs at Maryland Sea Grant, has made equally significant contributions in both environmental communication and policy work. In addition to writing, editing, and producing scores of articles, books, and reports for a wide range of audiences, Greer served for 12 years as the director of the University of Maryland Environmental Finance Center and, recently, helped to facilitate the high profile Chesapeake Bay Watershed Blue Ribbon Finance Panel. The panel was appointed by the governors of the Bay states and the other members of the Chesapeake Executive Council in December 2003 to recommend finance strategies that would take the Bay cleanup effort to the next level.

"The timeframe for the Panel process was very tight. There was a lot of work and not much time to do it; yet, every deadline was met with thoughtful, high quality products," writes Rebecca Hanmer, director of the U.S. Environmental Protection Agency Chesapeake Bay Program. "But what is most striking about working closely with him is his unfailing patience and good nature, and his ability to gently lead a group towards a positive, successful outcome."

Kirsten Frese

"My work has brought me in contact with hundreds of leaders working to protect the Chesapeake Bay," writes Ann Pesiri-Swanson, Executive Director of the Chesapeake Bay Commission, who worked closely with Greer on the Bi-State Blue Crab Advisory Committee, charged with facilitating dialogue and coordinating blue crab fishery management options in Maryland and Virginia. "Few have impressed me more than Jack Greer. He is unmatched by his peers in both facilitation and writing. He can assess a situation quickly and recommend a course of action. Importantly, he can find the common ground when most have not yet found the story line."

The President's Award was established to recognize outstanding contributions in the application of scientific knowledge to benefit society. The award, endowed by President Boesch in 1999, recognizes faculty contributions in developing and applying a predictive ecology for the improvement of Maryland's environment.

Boesch presented Greer with the award, a bronze statue of two egrets, at a dinner reception during the UMCES Convocation, held April 28-29, 2005 in Solomons, Maryland.

Send us your comments — visit *Chesapeake Quarterly Online* at www.mdsg.umd.edu/CQ

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