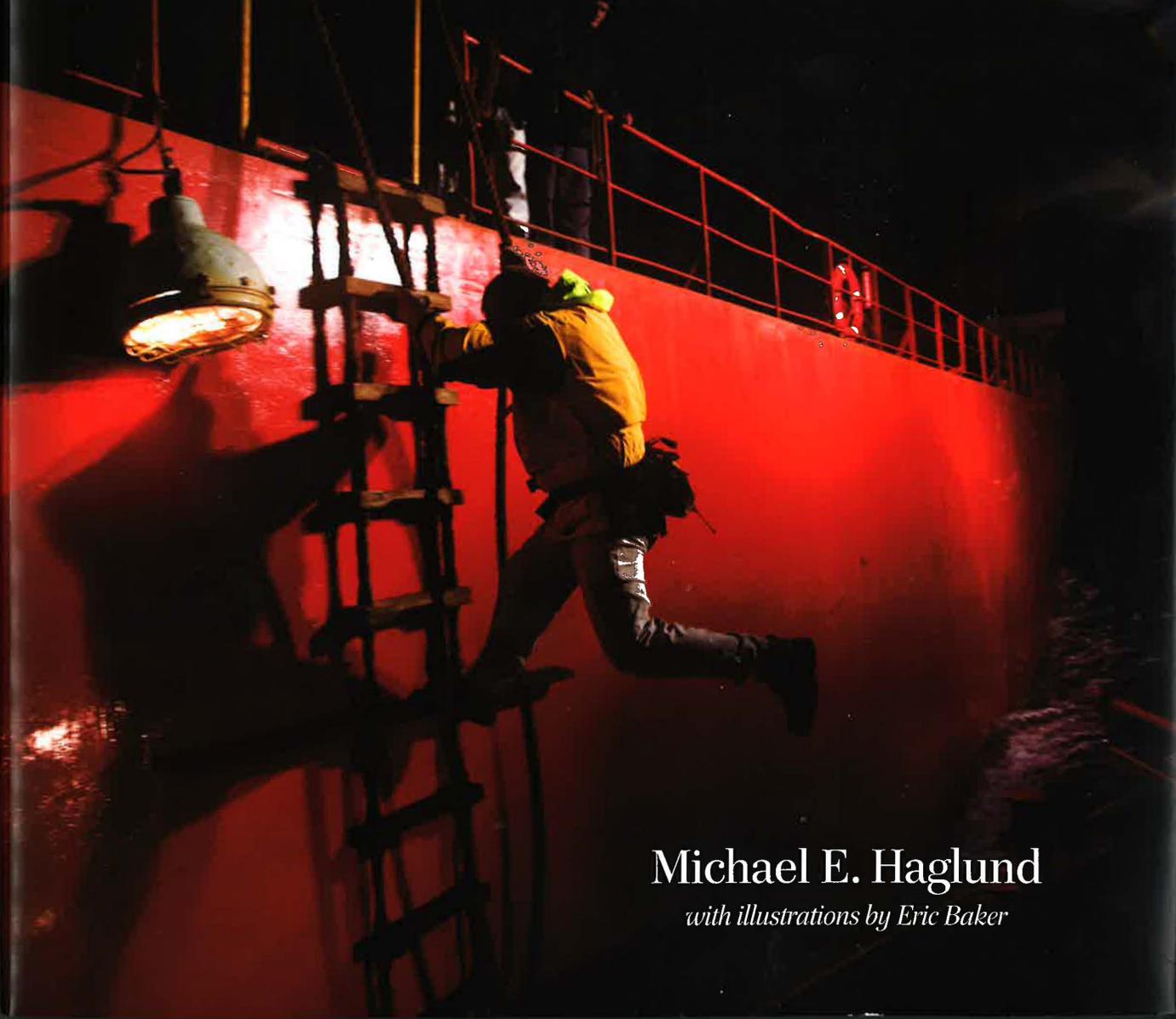


World's Most Dangerous

a history of the Columbia River Bar,
its pilots and their equipment



Michael E. Haglund

with illustrations by Eric Baker

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Second Edition



Columbia River Maritime Museum
Astoria, Oregon 2021

CHAPTER 6

THE TAI SHAN HAI: MODERN NEAR MISS

ON CHRISTMAS DAY IN 2002, the *Tai Shan Hai* departed San Francisco bound for Longview, Washington, some 40 miles upriver from the Columbia River entrance. A Chinese flag bulk carrier operated by Cosco Bulk Carrier Co., one of the world's largest shipping lines, the *Tai Shan Hai* was just shy of 100 feet in width and covered nearly two football fields in length from bow to stern. Now 16 years old, she was middle-sized by modern standards, but nonetheless was the equivalent of a 57-story building floating on its side and being pushed through the water by a 9,230 horsepower engine turning a single propeller.

The ship was scheduled to take on a cargo of petroleum coke for a return voyage to China where the pet-coke would help fuel China's remarkable industrialization. The *Tai Shan Hai* sailed under a National Weather Service offshore forecast that warned of gale and possible storm conditions from northern California to southern Washington. Despite this forecast, Captain Guixin Tian elected not to fill all of his ballast tanks because he wanted the No. 3 hold ready to receive cargo upon arrival in Longview.

By early morning on December 27, the *Tai Shan Hai* was off the northern Oregon coast headed inbound for the mouth of the Columbia River. At the time, a storm warning and high surf advisory was in effect. The National Weather Service forecast predicted southerly winds of 50 knots with gusts to 65 knots and seas of 20 to 24 feet subsiding to 16 feet by late afternoon. The Columbia River Bar forecast was ominous, calling for seas of 18 feet with breakers expected during the ebb

current. A subsequent weather update reported that seas off the southern Oregon coast had reached 23 feet and that the ocean swells near the mouth of the Columbia River would "build rapidly during the next few hours due to storm force wind associated with a strong Pacific storm system."

The ship's second officer first made contact with the Columbia River Bar Pilots at 0300 on December 27 when the vessel was approximately 35 nautical miles south-southwest of the Columbia River entrance buoy. The dispatcher advised him to call back when the ship was 15 miles from the entrance buoy. Meanwhile, Captain Charles Lane was piloting the Korean container ship *Hyundai Admiral*, which had dropped off containers in Portland and picked up others for its return voyage to the Far East. Knowing that the ETA for the *Tai Shan Hai* at the entrance buoy was 0600, Captain Lane planned to pilot the *Hyundai Admiral* from Astoria across the bar to the open sea where he would be hoisted off by helicopter and then transferred to the *Tai Shan Hai* for the inbound bar passage.

As the *Tai Shan Hai* neared the mouth of the river, Captain Tian observed "large waves and white caps" stretching across the river entrance and began to doubt that a bar pilot would actually bring his ship across the bar. He started to look for an anchorage area north of the entrance in case the bar was closed.

At 0500, the winter storm knocked out power at the Astoria Regional Airport, and the *Seahawk's* crew radioed that the helicopter was grounded due to the power outage. When this message was relayed to Captain

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Lane, he quipped, "If I'm working in the dark, why can't the helo." Hearing the radio traffic that the helicopter likely would not be flying, the captain of the pilot boat *Columbia* self-dispatched to disembark Captain Lane from the *Hyundai Admiral*.

Captain Tian's decision not to fully ballast his vessel during a storm was now coming back to haunt him. Not filling the No. 3 hold with water caused the ship to ride higher in the water. As a result, as the *Tai Shan Hai* pitched fore and aft riding 20-foot plus waves, her propeller was coming out of the water and racing. This caused the main engine governor to cut in and temporarily reduce engine speed. Between 0530 and 0600, the main engine speed was reduced in an effort to deal with the pounding and racing of the propeller.

With the helicopter out of service, the bar pilot dispatcher radioed the *Tai Shan Hai* to stay five nautical miles offshore. Captain Tian's English was so poor, however, that he misunderstood and continued on toward the pilot station assuming a bar pilot would still board at 0600. By 0600, the *Tai Shan Hai* was just one mile south of the pilot station and on a course that would complicate Captain Lane's planned disembarkation from the *Hyundai Admiral* to the pilot boat *Columbia*. Debarking by pilot boat took an extra 30 to 45 minutes compared to a hoist off by helicopter. The ship had to turn into the wind to create a lee that provided calmer water to accommodate the pilot boat approach and enough time for the pilot to climb down the pilot ladder and then time his jump using one or two manropes (it's actually more like rappelling) to cover the last 10 to 15 feet between the side of the ship and the deck of the pilot boat.

Captain Lane called Captain Tian and requested that the *Tai Shan Hai* make room for his disembarkation by turning to starboard, passing south of the entrance buoy and moving 10 miles offshore to await further instructions. But the *Tai Shan Hai* kept on com-

ing and repeated her request for a pilot. Captain Lane reiterated his instructions for the vessel to move out to sea, and the master and chief officer of the *Hyundai Admiral*, recognizing the problems with Captain Tian's language skills, intervened and tried to assist with the radio communications.

Captain Tian attempted to turn the *Tai Shan Hai* to starboard, but the strong winds, high seas, and reduced power from the continued uncovering of the propeller thwarted multiple attempts. As the ship sought to come to starboard, the wind and sea pushed her toward shallower water near the dredge spoil dump site just south of the river entrance. This was an area where the ship could encounter breaking seas and be forced aground on Clatsop Spit. Recognizing the danger of drifting into that area, Captain Lane called the *Tai Shan Hai* and urged Captain Tian to swing the ship to port. "The *Hyundai Admiral* is west-southwest of the entrance buoy. Head towards me and try to hit me," Lane urged.

For the next hour, the *Tai Shan Hai* tried without success to swing to port and move offshore. At 0700, Captain Tian radioed for tug assistance, but Captain Lane replied that conditions were too rough and it was time for the exercise of "captain's judgment" to remove the vessel from danger. As the *Tai Shan Hai* drifted into the Columbia River entrance channel, Captain Tian ordered his chief officer to ready both anchors.

At 0740, shortly following reports to the Coast Guard by Captains Lane and Tian of the developing emergency, the *Tai Shan Hai* dropped both anchors simultaneously in 66 feet of water. Biting into the bottom just north of the charted entrance channel, the anchors arrested the vessel's perilous drift toward Peacock Spit on the Washington shore. As the sun rose during the next 20 minutes, Captain Tian remained on the bridge as his ship battled southwest seas of 30 to 46 feet. The anchors appeared to be holding.

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At 0750, with the *Hyundai Admiral* having made her lee, Captain Lane successfully disembarked to the pilot boat *Columbia*. But he had to abort the plan to board the *Tai Shan Hai*. Any attempt to board an anchored ship rolling heavily in 30-foot seas and sustained winds of 50 knots with no ability to create a lee for the pilot boat would have been suicidal. The tide was also beginning to ebb, increasing the risk of breakers in the ship's vicinity.

As the *Columbia* passed the *Tai Shan Hai*, Captain Lane observed that the anchor chains had adequate space between them, but were under such excessive strain as to be close to the breaking point. He also saw that the propeller was not turning. Captain Lane quickly called Captain Tian to suggest that he reduce the strain on the anchor chains by engaging his engine on a slow ahead bell and that a crewman be stationed on the bow to monitor the chains. Lane confirmed compliance with his suggestion when he saw a puff of smoke from the ship's stack.

While Captain Lane was busy advising the *Tai Shan Hai* and attempting to depart the *Hyundai Admiral*, Captain Mike Dillon, the bar pilot in rotation behind Captain Lane, had sprung into action. Informed of the *Tai Shan Hai's* plight, he proceeded directly to the airport to meet the helicopter crew and Coast Guard personnel. By 0800, the *Seahawk* had been returned to service after power at the airport was restored and an indicator light showing metal in the main rotor gearbox was traced down as a false alarm. In his meeting with the Coast Guard duty officer and others, Captain Dillon laid out his plan to fly out to the *Tai Shan Hai*, assess her situation and hold her at anchor if possible until the weather subsided. If her anchors did not hold, he hoped to somehow maneuver the vessel out to sea.

The *Seahawk*, an Italian-made Agusta twin engine helicopter, lifted off at 0915 with Captain Dillon and pilot John Glen and co-pilot Tom Thompson en route

to the *Tai Shan Hai*. Ten minutes later, the helicopter was above the stricken ship that was rolling heavily as the seas washed broadside over her main deck. Despite never having transferred a pilot in 70-knot winds, Glen managed to set the *Seahawk* down on deck long enough for Captain Dillon to scramble out. As the helicopter lifted off, Glen recalled, "We took green water over the deck right where we had just landed." The helicopter briefly lost sight of Captain Dillon and hovered close by, caught sight of him entering the house and confirmed by radio that he was OK. Once in the wheelhouse, Captain Dillon assessed the situation, set up his GPS system and established communications with his office and the Coast Guard. He observed that the vessel was steaming at various speeds in an attempt to maintain a heading into the swell, but was at times rolling hard to starboard "with swell breaking on deck." Captain Tian appeared very concerned and well aware of his ship's precarious situation. Captain Dillon tried to bolster the Chinese captain's confidence with a quick recap of the pilot's previous experience waiting out severe storms in the Aleutians off Alaska when Dillon commanded Chevron oil tankers. "I told him that the winds were so strong that the radar antenna was unable to rotate, but we had complete success with anchors down steaming into the swell," recalled Dillon.

Captain Tian advised that both anchors were dropped at the same time, but had good spread between them. Doubting that this was possible with a simultaneous anchor drop, Captain Dillon went down to the forecabin to take a look at the anchors. This inspection, which was interrupted by a full soaking from a swell across the deck, confirmed his worst fears. The anchor chains led together into the sea with one or the other taking all the strain. Captain Dillon became concerned about the ability of the anchors to hold the ship and the risk of fouling both anchors. Their entanglement could cause one or both to part or to drag.

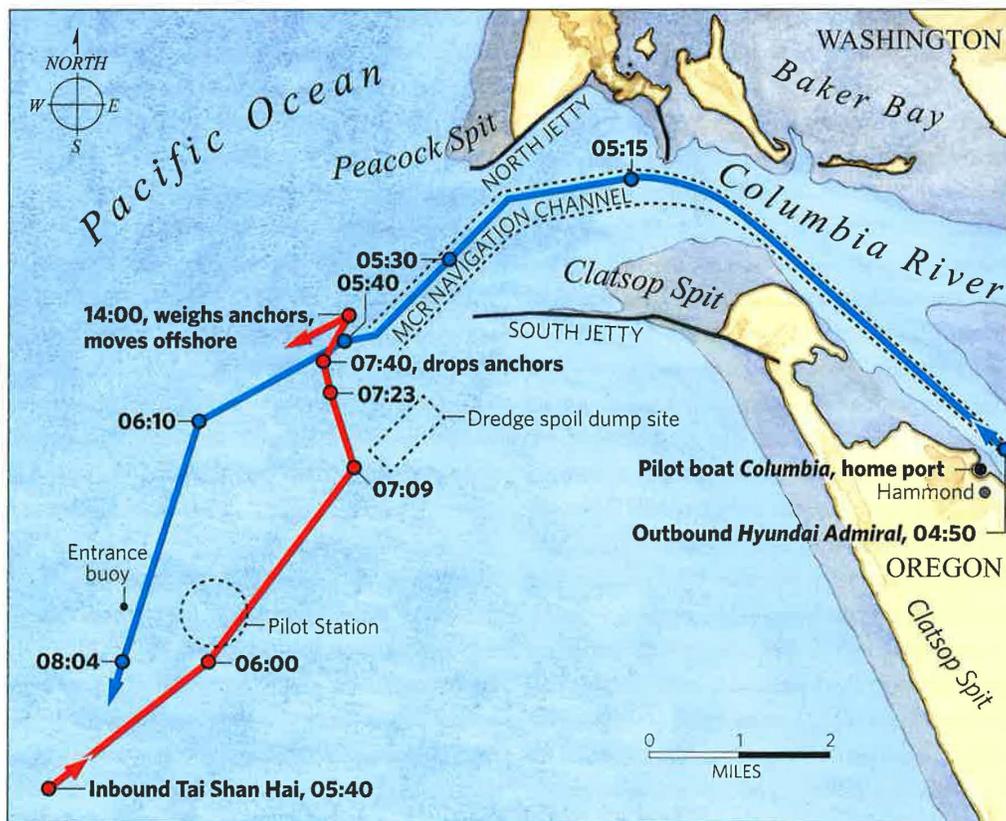
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In fact, the anchors were dragging. In just over two hours, the *Tai Shan Hai* dragged anchor six-tenths of a nautical mile northeast of her original anchor position. As the chart below shows, the ship was now on the Washington side of the channel less than one mile from shallow water off the southern end of Peacock Spit. If she continued to drag anchor on her current heading, the *Tai Shan Hai* would run aground and break up within a matter of hours in the heavy swell.

While on the forecastle, Captain Dillon also assessed the crew that accompanied him from the bridge. The

chief mate appeared both competent and able to understand the gravity of the situation. "I hoped that he had the ability, knowledge and conviction to slip the anchor should an emergency maneuver warrant," Dillon said later. But as he saw the boatswain and another crewman hiding under the fair-weather, Captain Dillon had less hope for their abilities to take quick and decisive action in an emergency.

For over three hours, Captain Dillon monitored the ship's position and the weather forecasts, occasionally running the engine at full speed to protect the anchors



THE STORY UNFOLDS

This chart depicts the positions of the *Tai Shan Hai*, *Hyundai Admiral*, and pilot boat *Columbia* on December 27, 2002.

and mitigate the northward drag. When the forecast showed the storm front passing and the seas moderating by 1400, Captain Dillon made a plan to heave up the anchors if the forecast proved correct and proceed to seaward of the entrance buoy. He also cleared the plan with the Coast Guard.

By 1300, when there was a marked drop in sea and swell conditions, Captain Tian began to insist that the *Tai Shan Hai* weigh anchor and attempt to cross the bar rather than head out to sea. But Captain Dillon viewed the conditions as still marginal and refused. Fearing that the Chinese captain would continue to exercise poor seamanship and might attempt a bar passage without a pilot, Captain Dillon made the extraordinary request that the top Coast Guard official with jurisdiction over the Columbia River issue a Captain of the Port Order prohibiting the ship from crossing the bar without a bar pilot and only under moderate conditions.

When the conditions calmed further by 1400, Captain Dillon executed his departure plan. The anchors were successfully brought home, but even with orders for full maneuvering power, the *Tai Shan Hai* encountered difficulty staying on course and never generated the RPMs that would be expected at full power. It was only with considerable maneuvering that Captain Dillon was able to keep the ship from turning broadside to the incoming swell. In his view, these problems were the result of the ship's inadequate power plant for the conditions, the lack of proper ballast to keep the prop and rudder in the water, and poor communications between the deck and engine departments that continually resulted in lower levels of power to the propeller than ordered from the bridge.

Nearly two hours after heaving up the anchors, the *Tai Shan Hai* was safely offshore. Captain Dillon was hoisted off the ship's deck by the *Seahawk* at 1550 and landed at the airport at 1605. Before departing the ship, he confirmed that the Coast Guard Marine Safety Of-

fice in Portland had issued the Captain of the Port Order and he went over its terms with Captain Tian.

That order left nothing to chance. The loss of the ship could result in the spill of her nearly 200,000 gallons of fuel and a major environmental catastrophe. The *Tai Shan Hai* was directed to stay a minimum of 12 nautical miles offshore with her head into the prevailing seas and to maintain a communications watch with the Coast Guard. Because of her inadequate power, the ship was directed to remain offshore until entry approval for a bar passage was granted. To gain that approval, the order laid down four conditions: wind less than 20 knots; swells less than six feet; bar pilot boarding no closer than 12 nautical miles from land; and demonstrated maneuvering capability at sea speed satisfactory to the bar pilot.

The following day, December 28, bar pilot Captain Gary Lewin boarded the *Tai Shan Hai* via the *Seahawk*. While approaching the ship aboard the helicopter, he noted damage to the port side pilot ladder. Once in the wheelhouse, he checked out all of the vessel's navigational equipment and then conducted the propulsion and handling tests that the bar pilots had recommended and the Coast Guard had incorporated into its order.

Captain Lewin knew well how the *Tai Shan Hai* should handle if she was to be cleared to cross the bar that day. During a 15-year career at sea, including two years as a captain, Captain Lewin had experience in all sorts of weather all over the world. He'd even had the incredibly unique experience of delivering a tanker to Chittagong, Bangladesh, to be scrapped on a long Indian Ocean beach on literally his last job before joining the bar pilots in 1983.

Captain Lewin thought of that experience as he headed out to the *Tai Shan Hai* for her sea trials. He recalled that the tanker he captained was over 20 years old but of a similar size to the Chinese ship that had almost become involuntary scrap on Peacock Spit. Af-

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ter waiting through the night for the high tide, he maneuvered the ship north offshore of Chittagong and pushed the vessel to full ahead and maximum RPMs to a designated location where he waited for a radio message from the beach.

On the shore, a scrap yard manager monitored the ship's progress by following her lights and then radioed, "Turn." Captain Lewin ordered the helmsman to turn hard to starboard while keeping the engine full ahead. As the ship lumbered toward shore, he called out her heading every 60 seconds and adjusted course per instructions from shore. Several hundred yards from shore, Captain Lewin could make out the space on the beach his ship was supposed to fill between two derelict ships in varying stages of dismantlement.

The ship's bow generated a huge wake as the ship closed in on the beach, drowning out the engine. As her keel hit the sand, she continued to plow landward under the twin power of 25,000 tons of forward momentum and a single screw turning full speed until the ship's rudder hit bottom. The huge hull slid up the beach another 100 yards before skidding to a stop with a slight list to port. Captain Lewin ordered the anchors dropped, the engine and generators stopped and a rope ladder deployed to disembark his crew. Within hours, hundreds of ship breakers armed with torches were aboard, ripping the ship into pieces of steel piled by hand on the debris-strewn shore.

That Bangladeshi experience flashed through his mind as Captain Lewin readied the *Tai Shan Hai* for tests of her engine and maneuverability. In the relatively calm conditions prevailing that day, the ship was up to the task. He called the Coast Guard to report his findings, and the Captain of the Port order prohibiting her entry into the Columbia River was lifted. The *Tai Shan Hai* transited the bar during daylight hours on December 28, 2002, without further incident and made her way upriver to take on her cargo of pet-coke at Longview.

After disembarking the *Tai Shan Hai* in the protected inland waters of Astoria and handing her over to a river pilot for the balance of her voyage to Longview, Captain Lewin was struck by how close this typically underpowered, middle-aged cargo ship had come to making headlines around the world. There was only one small line separating the anonymity of the *Tai Shan Hai* as she plied the planet's oceans from an environmentally disastrous oil spill generating 24/7 TV coverage and costing millions of dollars. And that was the expertise of that small group of sea captains who comprise the Columbia River Bar Pilots and the pilotage system created by them at the mouth of the Columbia.

This human expertise and technical capability embedded in the pilot transfer system made three critical accident-preventing contributions to the *Tai Shan Hai* incident. First, there was Captain Chuck Lane instructing the ship to stay offshore and use her engine to take some strain off the anchors. And then came the extraordinary flying capability of *Seahawk* pilot John Glen delivering bar pilot Mike Dillon in a 70-knot wind to the deck of the *Tai Shan Hai* just before a huge swell washed over her decks. Lastly, Captain Dillon's experience in worse North Pacific storms enabled the ship to ride out the storm and eventually move out of the shadow of Peacock Spit and safely offshore to deep water.

In a thorough post-incident investigation, Washington's Department of Ecology Spill Prevention Section commended the bar pilots on all three counts. The report also admonished the *Tai Shan Hai's* captain for poor communications procedures with pilots and English-language capability, failing to more fully ballast the ship "to improve its handling capabilities in anticipation of storm conditions that were forecast prior to his ship departing San Francisco," and inadequate planning for a bar crossing requiring special considerations.

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World's Most Dangerous

a history of the Columbia River Bar, its pilots and their equipment



For two centuries, the Columbia River Bar has, by reputation, been called one of the world's most dangerous passages. The loss of nearly 2,000 ships on her many shoals has earned the Columbia River Bar the moniker "Graveyard of the Pacific."

But a reputation based on explorers' accounts and wrecked hulls is open to argument. This book definitively establishes the Columbia River Bar as the world's "most dangerous" based on science: the unique geologic history of the Columbia River's relatively young mouth is what produces its unparalleled propensity to generate waves that can topple the world's largest ships. In all the world, there is no place where it is more critical to have a pilot.



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