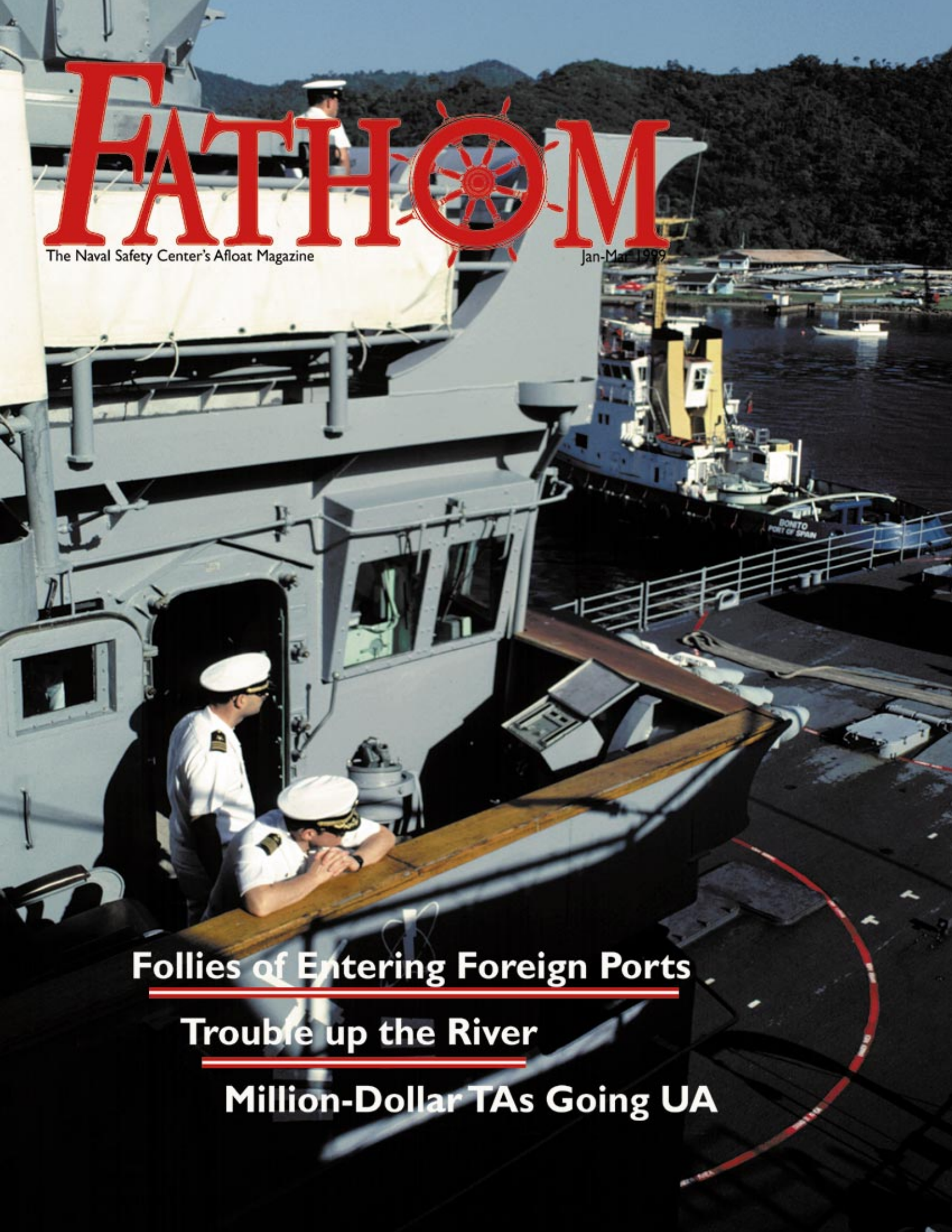

Follies of Entering Foreign Ports

Trouble up the River

Million-Dollar TAs Going UA

inside

FATHOM

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Editor's Challenge

When you see a photo in *Fathom* without the apparent safety violations noted in the caption, don't just call or e-mail me with a list of the problems. Become part of the solution by sending me a corrected photo.

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POSTMASTER: *Fathom* (ISSN 0014-8822) is published quarterly by the Naval Safety Center.
Periodicals postage paid at Norfolk, VA, and additional mailing offices
Send address changes to:
Commander, Naval Safety Center
Attn: *Fathom*, Code 714
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Volume 31, Number 1, 1999

Cover:
A bridge crew guides their ship alongside a pier in a foreign port.

Sections

FLASH! FLASH!

I need photos and slides showing every facet of shipboard electrical safety (e.g., electrician's mates on the job doing what they do), and I need them ASAP. As noted in the previous issue's table of contents, the April-June 1999 *Fathom* will be devoted to the fleetwide problem of electrical shocks and tagouts. If you can help, mail your photos to: *Fathom* Editor (Code 714), 375 A St., Norfolk, Va. 23511-4399. I'll also accept images attached to e-mail in JPEG format. My e-mail address is ktestorf@safecen.navy.mil. Anything you send in the mail will be returned if you include a request with a return address.

Trouble up the River
A container ship collides with a Coast Guard cutter on the Columbia River in Oregon.
pg. 4

Follies of Entering Foreign Ports
Some tales about ships entering foreign ports are comical. Other stories, however, aren't amusing. As a few COs have learned, overcoming a language barrier can be a costly adventure.
pg. 9

Million-Dollar TAs Going UA
Some submarines are having problems keeping their towed-sonar arrays.
pg. 13

Articles

Departments

YOU WANT TO BE LIKE Superman?

By Rae Mack
Naval Safety Center

Actors often portray quadriplegics, who are paralyzed from the neck down, and paraplegics, who have the entire lower half of their body paralyzed. Except for having to sit in wheel chairs until the show ends, they look and have well-toned bodies. That's because they're actors and are playing parts. But one actor isn't playing a part. He is Christopher Reeve, perhaps the most famous quadriplegic in the world. Reeve, who brought Superman to life on the screen, is still broad-shouldered and handsome, still has muscular thighs and a full chest, and seeing him in a tuxedo sitting in his industrial-strength wheelchair, you may think that life for him is not so bad after all.

Think again.

Reeve has written a book titled *Still Me* that tells how his life changed drastically since May 27, 1995, when he fell from a horse during a jumping competition. For reasons he will never know, his horse, Buck, put on the brakes in midjump. The actor went flying over the horse's head, unable to break his fall because his hands were tangled in the reins.

Reeve was taken to the University of Virginia Hospital in Charlottesville, where doctors devised a never-before-performed operation to reattach his skull to his spinal column. He had what is called a hangman's injury—the same trauma produced by being dropped through a gallows trapdoor with a noose around your neck.

This kind of injury can happen if you dive in shallow water, get knocked down in waves, fall off a motorcycle, slam into the roof or windows of a car during a wreck, or get ejected during a collision. Since 1993, 23 Marines and nine Sailors have suffered hangman's injuries and are quadriplegics or paraplegics.

Despite having the best available medical care since his mishap, Reeve has been in shaky health since his fall. Eleven times he has returned to the hospital, often with life-threatening trouble: pneumonia, a collapsed lung, two blood clots, and an infection that nearly forced doctors to amputate part of his leg.

In his book, Reeve describes what his life is like as a quadriplegic. There are days when the ritual of getting up in the morning and getting in bed at night takes five hours.

A nurse and her aide appear at 8 a.m. and serve him 20 pills—vitamins plus drugs to control spasms, keep his bladder from shrinking, and maintain bowel function.

He sleeps in arm and foot splints, and after being in one position all night, his joints and muscles are frozen. His arms and legs go into wild spasms when the splints come off, and it takes the full power of the nurse and the aide to hold them down.

Then follows the morning hello from his 5-year-old son and an hour of so of "ranging"—the slow manipulation of his limbs by the nurse. This prevents atrophy, for as Reeve notes, you can't stand or walk with atrophied leg muscles. *[Reeve has vowed to walk again by the time he turns 50. That will happen in September 2002—Ed.]* After that, he's ready to be dressed. "When two people

have to roll you back and forth in order to put on your underpants at age 45, it's a difficult lesson in acceptance," he writes.

"I used to have to control my anger with myself for having ended up in this situation. Often I listen to music or watch TV so I don't have to think about being taken care of like a baby."

Frequently through the day, he blows into a little tube that's placed before his face. This causes the chair to shift his weight, helping prevent the ulcers that are a constant worry.

The nighttime ranging is almost pleasant after so many hours in the chair, but it is followed by perhaps the hardest part of the day: the "bowel" program.

"I'm turned on my side, and the aide pushes on my stomach with his fist to force stool down through the intestines and out onto plastic sheets placed under me. Sometimes it can take nearly an hour...It seems like an eternity."

Reeve takes a sedative to control nighttime spasms and finally drifts off to sleep.

That's how a privileged person with the resources to pay for round-the-clock nursing care at $40 an hour spends his days. That care costs him $960 a day, or $350,400 a year. He has three medical-insurance policies, one of which has run out. And his exercise equipment cost him more than $100,000.

The lance corporal who dove headfirst off a boat ramp into shallow water, the AO2 who dove headfirst into a 3-foot-deep children's wading pool, and the SH3 who fell out of a tree in his backyard don't have these resources. Neither do most of the civilian employees of the Navy and Marine Corps.

How would you fare if you were in the same situation as Christopher Reeve? Think about this before you dive into shallow water, before you drive around without being buckled up, or before you ride that ornery bull at an amateur's rodeo.

Reprinted from Winter 1998-1999 Ashore.

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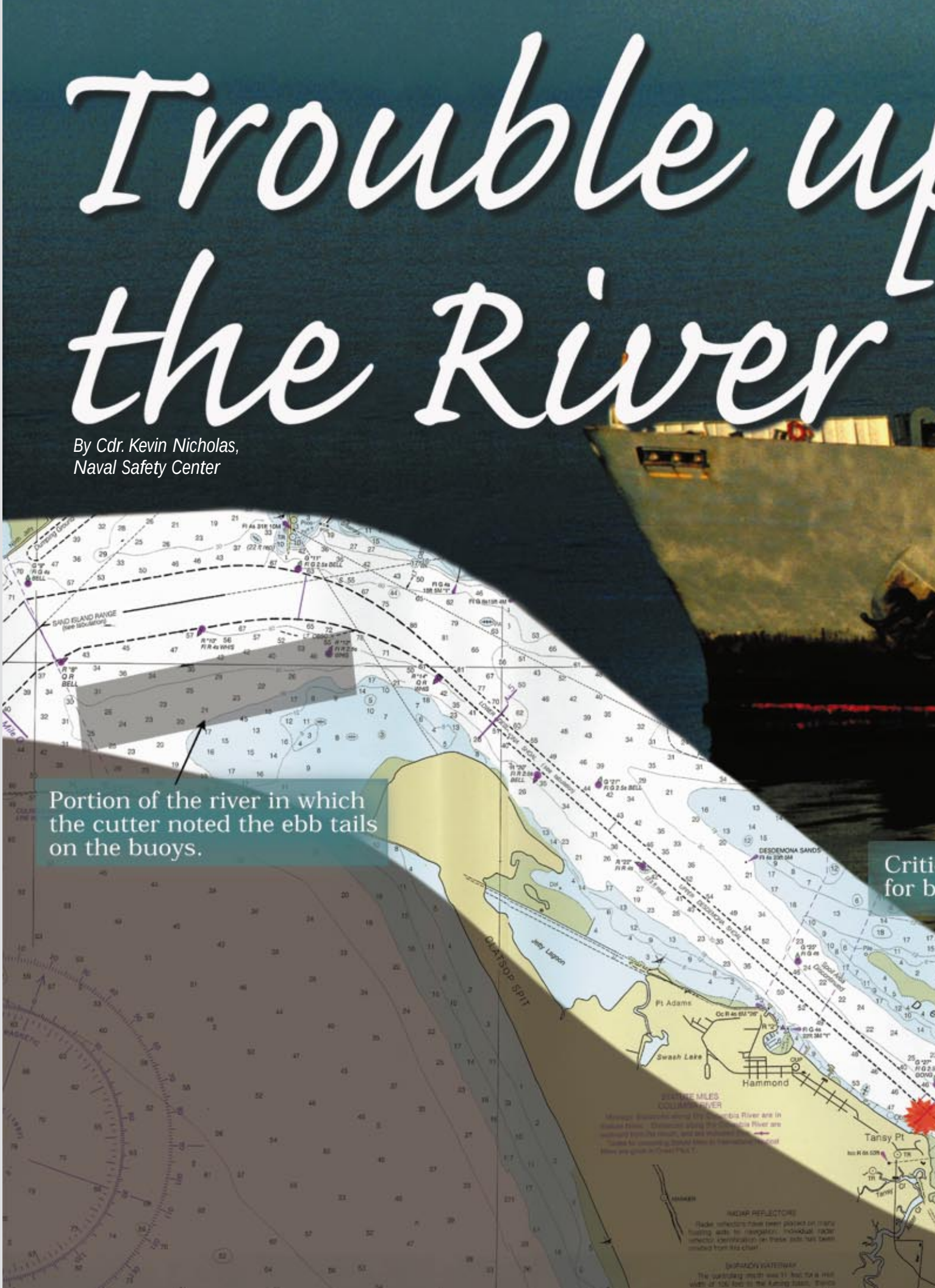
Trouble up the River

By Cdr. Kevin Nicholas,
Naval Safety Center



Rules of the road, voice communications, and fundamental seamanship are supposed to prevent mishaps. However, they didn't keep a Coast Guard cutter and a container ship from colliding on Oregon's Columbia River.

With a Coast Guard cutter's CO and OOD stationed on the port bridge wing, the CO ordered five short blasts on the ship's whistle. Meanwhile, the boatswain's mate of the watch ordered the collision alarm sounded. He also passed the word, "Collision port side imminent, brace for shock."

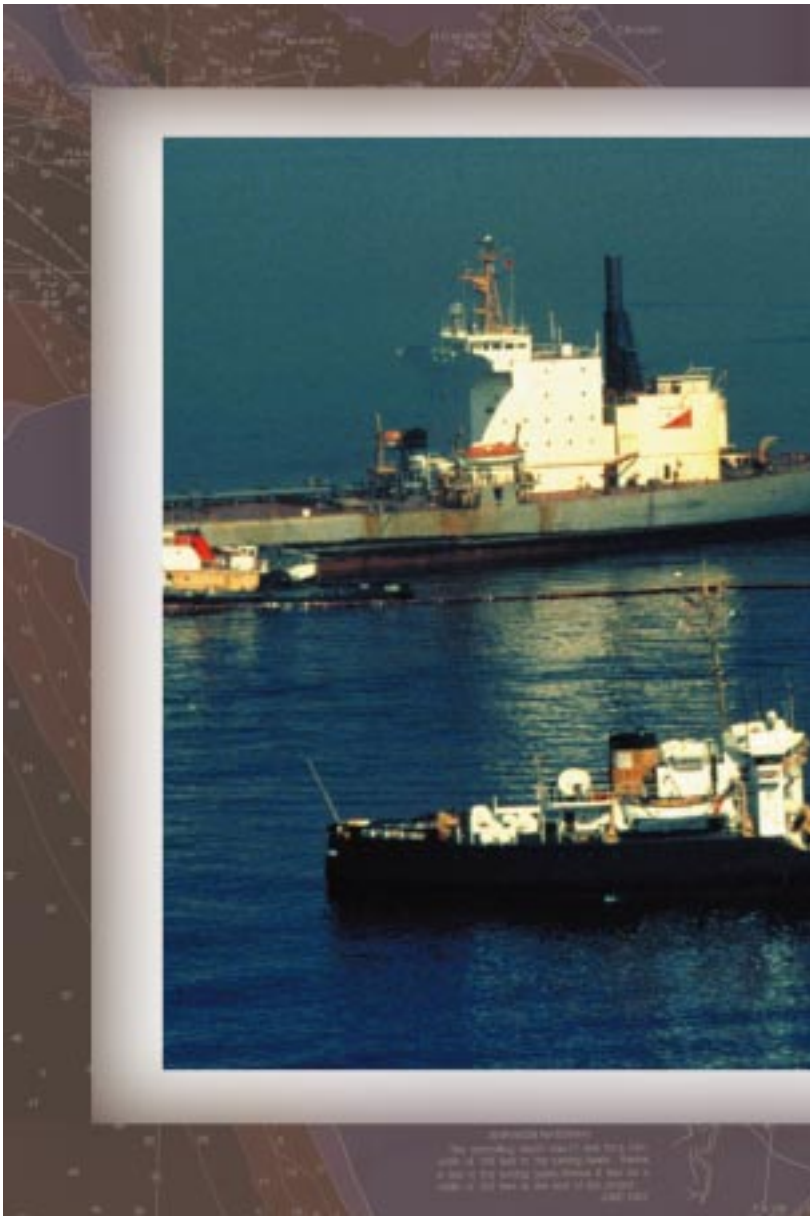
During the next few anxious moments, bridge-watch personnel aboard the 180-foot cutter watched helplessly as their ship crossed the path of a 757-foot container ship. When the cutter was about halfway across the container ship's bow, the CO ordered, "Left full rudder," in an effort to kick the stern clear. Nearly simultaneously, a pilot aboard the container ship executed a similar maneuver. About 2125, the two ships collided with a glancing port-to-port blow.

"I thought rules of the road, voice communications, and fundamental seamanship were supposed to prevent mishaps like this one," you're probably thinking, and you're right. These devices usually do help ships share the oceans, coastal waters and rivers with merchant vessels without incident. However, they didn't thwart this collision on the Columbia River in Oregon. The circumstances surrounding this mishap can serve as a training aid for seasoned ship handlers, as well as personnel qualifying as OODs. Here's the story:

With its three-day mission complete, the Coast Guard cutter approached the entrance to the Columbia River about 2000. Watch personnel made a security call on channel 13 to advise other vessels of the impending transit. They also called the bar pilots to verify expected traffic on the river. During this call, they learned that two tugs and the pilot boat were outbound in the first two legs of the trip. A series of three deep-draft ships were outbound farther up the river.

The sun set at 2040, and fog limited visibility to 500 yards during most of the transit. Because of these factors, the cutter sounded fog signals and averaged 7 to 10 knots during the transit. The OOD kept the ship along the extreme right edge of the channel and occasionally had to alter course to avoid the red buoys marking the red side. The radar-navigation team produced good fixes throughout the transit.

Using a hand-held marine radio, the CO talked to watchstanders aboard four outbound vessels during the first half of the 20-nautical-mile voyage up the river. These discussions were routine.



Although the current was predicted to be flooding, several bridge watchstanders saw ebb tails on passing buoys in the Sand Island Range Reach. As the cutter entered the Desdemona Shoal Reach, the CO ordered the plotter to recalculate set and drift. The plotter noted a one-and-a-half-knot ebb along the channel axis, which agreed with visual observations.

At 2055, the outbound container ship exchanged its river pilots for a bar pilot while in the Astoria Range Reach. At 2102, the bar pilot ordered half ahead, which, for the container ship, meant 12 knots. The pilot testified he believed it would take about 30 minutes to achieve that speed. He remained at half ahead throughout the transit. At 2107, while passing under the Astoria Bridge, the pilot made a security call on channel 13. He announced his location, direction and 36-foot draft.

About 2110, the Coast Guard cutter called the container ship on channel 13. At that time, the ships were on opposite sides of a 48-degree cutoff turn connecting Desdemona Shoal Reach to Tansy Point Range Reach. The pilot aboard the container ship proposed a port-to-port passage, but the cutter's CO suggested a starboard-to-starboard. He explained that the water depth along the green side of lower Desdemona Shoal Reach was too shallow for the container ship, but that it was adequate for the cutter. The pilot rejected this proposal and restated his preference for passing port-to-port. The cutter's CO agreed.

At this point, the ships were about three miles apart. The cutter was making eight knots, and the container ship was making eight to ten knots, building to 12.

Moments later, the cutter's CO had a second conversation with the container ship's pilot on channel 13. It isn't clear who initiated the call, but the pilot told the CO that his ship was occupying the portion of the channel (e.g., the point of maximum encroachment of the Desdemona Sands Shoal onto the channel) in which he preferred not to meet. The pilot later testified that he used this conversation to explain he would need most of the channel to complete his turn.

About 2119, as the container ship passed buoy 29, the pilot started the cutoff turn to starboard by ordering, "Right ten degrees rudder." When an undetermined period of time had passed, he realized that his order didn't have adequate effect, so the pilot increased rudder to right 15 degrees. The course recorder installed on the container ship noted that the ship started turning to starboard at 2120, with about 2,800 yards separating the two ships. The cutter's shipping officer saw the container ship making its turn to starboard and thought it was turning late, which would make it come close to the wrong side of the channel. However, he didn't report this matter to the CO or OOD.

Sometime during the container ship's turn, the pilot increased rudder to right 20 degrees. This move was in response to his concern about the cutter's position relative to the container ship's projected turning radius. Just before 2122, from a position on or slightly outside the right-hand edge of the channel, the cutter's CO told the OOD to slow and alter course to starboard so the container ship would have more room to turn. The OOD passed orders to slow to four knots. He also said to steer a course 10 degrees right of base course. The cutter held this course and speed for about a minute and a half, which put it outside the right edge of the channel.

Seconds later, the container ship's pilot called the cutter's CO on channel 13 for the third and final time. The pilot said there was good water to the red side and that passing would be "close but OK." He testified he was trying to get the cutter's CO to give him more room. The CO, however, stated there was no request or demand for his ship to come still farther right. Because the CO was concerned about his situation, he told the OOD to come farther right. The OOD ordered another five degrees to the right. The pilot testified he saw the cutter in the radar moving to the right.

Immediately after this radio communication, the pilot turned his attention to shoal water along the green side of the next channel leg. He felt certain he now would pass the cutter safely to port. He checked the swing of the container ship to start his alignment with Desdemona Shoal Reach. It isn't clear which rudder commands he used, but the mechanical course recorder showed the container ship steady on a course of 294 degrees for about a minute after this turn. That course was 18 degrees left of the channel axis of 312.

The cutter's shipping officer recalled seeing the container ship's radar-course vector swing to its left and the closest-point-of-approach distance decrease to less than 100 yards. About 2124, both ships came in sight of each other. The cutter, from a position 160 yards outside the right-hand channel boundary, held the container ship off its port bow. The container ship, having swung wide through the turn, held the cutter visually 500 yards off its starboard bow. Both the master and pilot aboard the container ship ordered, "Hard right rudder," and kept the vessel's speed at half ahead. The cutter's OOD moved the throttle to back full. The CO then ordered, "Right full rudder," and moved the throttle to ahead full.

Despite these and other last-minute efforts, the cutter and container ship collided at 2125. The port-side flair of the container ship's bow hit the port bridge wing of the cutter. This blow crushed the cutter's bridge wing inboard and down, pinning the throttle in the ahead-full position. The container ship's stem then hit the cutter on the port side aft at an angle of five to ten degrees. The plotter aboard the cutter sounded the general-emergency alarm, but there was no announcement made over the 1MC to set the general-emergency bill or to set material-condition Zebra. After the collision, both ships passed clear.

Immediately after the collision, the flooding alarm for the motor room sounded in the engineroom. The engineer of the watch (EOOW) reported this flooding to the bridge watch, who repeated the report over the 1MC. The first person to arrive in the motor room found fuel pouring from a ruptured fuel tank and running into the bilge. He also found damaged piping and a hole in the skin of the ship above the waterline. He climbed the ladder to damage-control central and reported this damage to the EOOW.

Through his own investigation and more reports from the repair-locker investigators, the EOOW determined there was no external flooding. He used a hand-held radio to pass this information to the bridge watch. When the CO learned the cutter wasn't taking on water, he ordered, "Left full rudder," followed by "Rudder amidships," to clear the beach. The throttle still was stuck at ahead full. Because he couldn't confirm the bridge had communications with the engineroom, the CO ordered, "Stop the engines" piped over the 1MC. The EOOW and the engineroom oiler secured the engines.

About 2132, the Coast Guard cutter anchored, and crewmen investigated the extensive damage to the port-side bridge wing, air castle, freeboard, and a variety of equipment and systems. Three crewmen suffered minor injuries. Meanwhile, the container ship reported only minor damage to some hull plating, with no injuries.

The primary cause of this mishap was human error. The container ship's pilot misjudged the handling characteristics of his ship and underestimated the presence and strength of the ebb current. He turned late, used too little rudder, and steadied up 18 degrees short of his new course—before the Coast Guard cutter was past and clear.

Here are some recommendations to help you avoid similar mishaps:

- Do a thorough and continuous risk assessment and maintain a careful, accurate navigation plot. Situational awareness is critical, especially while transiting in restricted waters.
- Project the point of passage with other vessels to avoid meeting another ship in a turn. When meeting a vessel in a turn, use extreme caution.
- Use the 1MC system to keep all personnel aware of time-critical information. Their ability to make sound, effective decisions ensures the safety of the ship and its crew.

How does your command prepare for and handle transits in restricted waters? Are you ready to face the unexpected, as well as the expected?

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Follies of Entering Foreign Ports

By Ken Testorff, Naval Safety Center

Two diesel submarines on a Med deployment approached a small Greek port, anticipating several days of liberty. The lead submarine reached the harbor entrance a bit early and slowed to wait for the pilot. Shortly, an official-looking boat approached and came alongside. A man in a Greek naval uniform, carrying a chart and newspaper, boarded. Crewmen escorted him to the bridge.

Pleasantries (much nodding and smiling) were exchanged, a cup of coffee was provided, and the new harbor chart was examined. The CO then asked, "Is there good water in this area?" and "Is this the best entrance through the outer mole?" The only response he got, though, was more affirmative nodding.

The submarine proceeded into the harbor and moored without incident. The berth

Whether the ship involved is a submarine…

...or an aircraft carrier, mooring tales run the gamut from comical to costly.

Navy photo by PHAN Trahan

selected was chosen because it was the only one vacant and line handlers were waiting. The CO thanked the supposed pilot and asked him if he would be hailing his boat and returning to the harbor entrance to board the other submarine. Because he didn't get a response, the CO rephrased his question. "The submarine following also desires a pilot. Will you be her pilot, or is another pilot going out?" he asked.

A peculiar expression then swept across the Greek's face, followed by this response: "Pilot? Me? I not pilot, not even seaman!"

Later discussion with the local naval and port authorities revealed that the submarines had arrived early. The harbor pilot had been on time and had been waiting for a visual signal before setting out to help. The sailing directions plainly laid out the requirement for this signal, but the submarines didn't follow the plan.

The CO then asked, "Is there good water in this area?" and "Is this the best entrance through the outer mole?" The only response he got, though, was more affirmative nodding.

Who was the Greek who rode the first submarine to its berth? He turned out to be the previous night's radio duty officer. He was just delivering a corrected harbor chart on his way home from work.

Although this tale is comical, stories about other ships entering foreign ports aren't as amusing. For example, a cruiser reported $40,000 to $50,000 worth of damage while mooring to a pier in the Netherlands Antilles. The ship was entering port with a harbor pilot embarked, and one tug aft and one forward to guide the ship to the pier. Winds were at 15 to 20 knots from the east. The ship pivoted and backed into the berth, using a back one-third bell.

At 500 yards, the CO ordered the anchor dropped to stop and control movement of the bow, but the anchor didn't drop. Quickly, the bow started setting down onto the pier. The CO ordered the pilot to have the forward tug stop pushing in the bow. He also gave the order, "All ahead two-thirds, left full rudder," in an effort to correct bow drift. Because the pilot was giving orders to the tugs in a foreign language, the CO never learned whether his order was relayed.

The ship's momentum made it hit the pier. The ship then returned to the basin to make another approach. Before this second approach started, though, the CO, conning officer, and pilot again discussed how to use the tugs. This time, the event went smoothly.

In his report of this mishap, the CO said his future moorings would include a brief with the bridge-watch team and the pilot. He also modified the ship's mooring procedure with a requirement to place the anchor at the dip before setting the sea-and-anchor detail to ensure its release if necessary.

Another ship visiting the same port nine months later had mooring problems, too, and, like the cruiser, required about $50,000 worth of repairs. This ship was scheduled to moor at berth five, but it was occupied by a merchant vessel. The local pilot recommended shifting to berth six, just aft of berth five. He told the CO another ship of the same class had berthed there with no problem. When the CO expressed concern about berth six having enough space, the pilot reassured him.

With no further delay, the ship rang up all-stop, and the pilot turned the ship with tugs made up forward and aft and started backing it into the berth. The XO called ranges to the quay wall from the fantail, while the safety officer called ranges to the vessel at berth five from the fo'c's'le. As the XO reported, "Ten feet to the quay wall and continuing to close," the safety officer reported, "Forty feet to clear the moored vessel," which didn't leave enough room for the ship's bow.

The CO ordered, "All ahead one-third," immediately followed by an ahead two-thirds bell on both engines. The forward tug initially kept pushing the ship aft into the berth, which caused the stern to smack the quay wall. The blow was hard enough to poke a one-foot-by-one-foot hole in the hull in the ram room, about three feet above the waterline. No stringers or frame-structural members were damaged, though. The pilot didn't know the ship had hit the quay wall until the CO told him.

The ship proceeded into the harbor and stood off while the pilot ordered the merchant vessel to clear berth five. When the merchant vessel had moved, the ship moored without further incident. Ship's-force personnel then assessed the damage and made temporary repairs.

After this mishap, the CO adopted some new rules to prevent a recurrence:

- Before arriving at a berth, make a scale drawing of the pier and obstructions. Using a to-scale cutout of the ship, visualize how it will look when moored safely and be able to show it to pilots in foreign ports.
- During the ORM portion of the navigation brief, discuss alternate plans for berthing the ship in case the assigned berth isn't available.
- Train the fantail and fo'c's'le safety personnel to report ranges by marking points on the pier (e.g., "the stern is even with the red bollard," "the stern is even with the forklift").
- Don't try to fit a 596-foot ship into 580 feet of pier space.

Some information for this article appeared in the Summer 1970 issue. The author's e-mail address is ktestorf@safecen.navy.mil.

Read the account that follows for details of a ship's run-in with a pier in a U.S. port.

Mooring Dangers Also Lurk in U.S. Ports

By Ken Testorff,
Naval Safety Center

A ship, with a pilot embarked and tugs made up forward and aft, planned to moor port side to a naval station pier. Winds were blowing at 21 knots onto the pier.

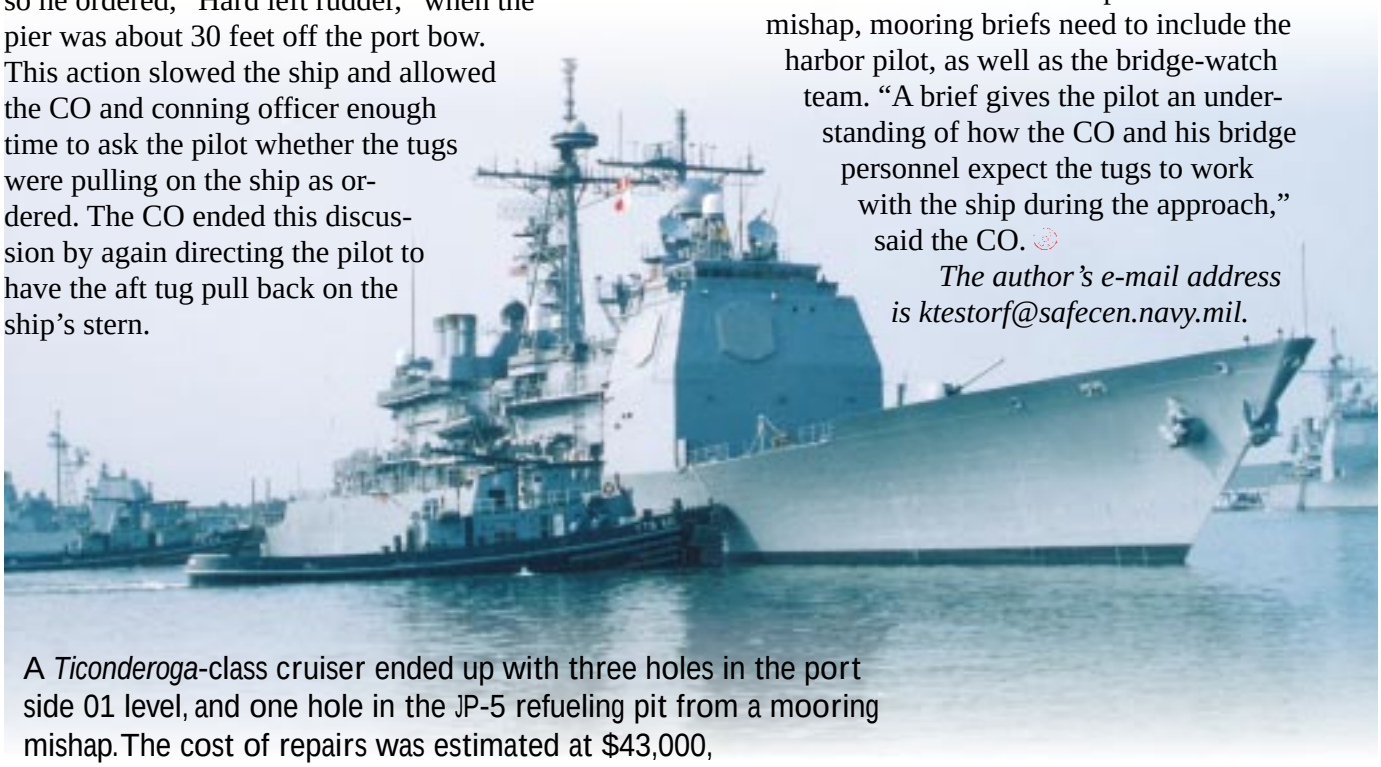
As the ship approached at three knots, its stern quickly started setting down onto the pier. The conning officer expected a collision, so he ordered, "Hard left rudder," when the pier was about 30 feet off the port bow. This action slowed the ship and allowed the CO and conning officer enough time to ask the pilot whether the tugs were pulling on the ship as ordered. The CO ended this discussion by again directing the pilot to have the aft tug pull back on the ship's stern.

Moments later, the ship struck the pier on the port side, 01 level. The ship was about two degrees off the pier heading, with forward motion of less than half a knot. Witnesses on the bridge, aft missile deck, and fantail reported seeing no signs of the after tug trying to pull the ship away from the pier.

Damage to the ship from this mishap included three holes in the port side, 01 level, and one hole in the JP-5 refueling pit. These holes ranged in size from 3.5 inches by 3 inches to 6 inches by 14 inches. There also was cosmetic damage to three spots on the pier, where the boat boom dragged along its edge. The cost of repairs to the ship was estimated at $43,000.

As the CO noted in the report of this mishap, mooring briefs need to include the harbor pilot, as well as the bridge-watch team. "A brief gives the pilot an understanding of how the CO and his bridge personnel expect the tugs to work with the ship during the approach," said the CO.

The author's e-mail address is ktestorf@safecen.navy.mil.



A *Ticonderoga*-class cruiser ended up with three holes in the port side 01 level, and one hole in the JP-5 refueling pit from a mooring mishap. The cost of repairs was estimated at $43,000,

Million-Dollar TAs Going UA

By Ken Testorff,
Naval Safety Center

Davey Jones' treasures are growing, and so are COs' headaches, compliments of some submarine operations gone wrong. In recent months, three ships have reported losses (or failures) of their million-dollar towed arrays (TAs).

In one case, a submarine's crew was holding engineering drills as part of their preparations for an operational reactor safeguards exam (ORSE). These elements for a mishap were in place:

- There was no one to supervise excessive backing bells or to ensure control surfaces (e.g., rudder and stern planes) were **not** in auto.
- The drill briefing didn't discuss how to manage the risk of gaining sternway while towing an array.

When the SSBN started backing, the control surfaces didn't respond quickly enough. As a result, the sub cocked at such an angle that the array became fouled in the screw. Voila! The screw cut the cable, and the array sank.

In another incident, a submarine crew's problems started with improper and incomplete PMS checks. Compounding the situation was a risky attitude about non-qualified Sailors operating the towed-array handling system. As a result, one of these Sailors pushed the "deploy" button on the control-indicator unit (CIU) for the TB-23 thin-line array while in control. He thought the unit was de-energized.

Later, a sonar technician found the CIU energized (with illumination turned down) and an indicated array scope of about 750 feet. He told his chief, but the chief ignored him because he believed a bad array-position sensor was making the equipment malfunction. The chief also didn't pass the word up the chain of command.

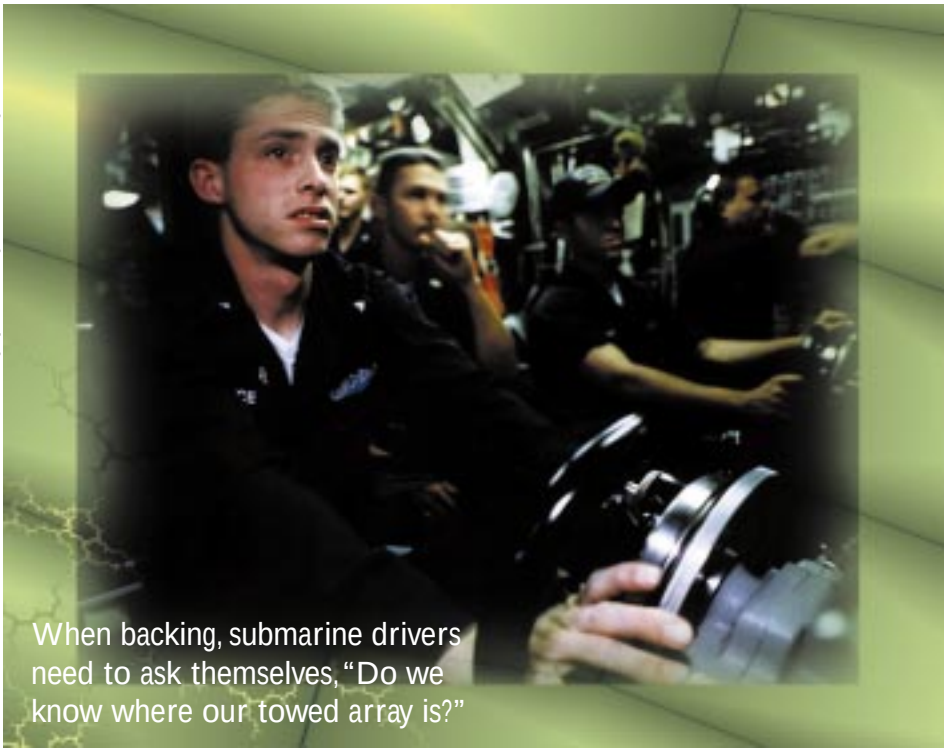
Then came the moment of truth, when the TA was ordered deployed to a specific length. The system automatically stopped about 800 feet short of its expected stopping point. This time, the chain of command was informed, but no one questioned the indications (which were correct), nor did anyone challenge the validity of the PMS checks done on the sensors. Instead, they chose to rely on the opinion of the LPO, who was wrong.

When the operation ended and crewmen retrieved the array, the system went to a negative value, which should have told everyone that more cable was out than they thought. Much of the array was still out of the tube when the array supervisor stopped retrieval, and the submarine surfaced and headed to port. As part of the standard procedures for entering port, backing bells were used to check propulsion. (Because the array doesn't float, it wouldn't be visible on the surface.)

No one gave this situation another thought until the next underway period when there were indications of a failed towed array. An in-port inspection showed half the array wrapped around the screw, with the rest in the tube—flooded and shorted.

Last but not least comes this report of a submarine's crew that was preparing for a selected-restricted availability (SRA). The crew had arranged to have the TB-23 towed array removed. To offload it, divers first had to tie a line to the end so personnel on a support barge could withdraw it.

Operators prepared for this event by deploying about six feet of the array beyond the bellmouth of the array tube so divers could tie it off the next day. The only place this action was documented was in the operator's log for the towed-array-handling system.



Navy photo by PH2 Jeffery S. Viano

When backing, submarine drivers need to ask themselves, "Do we know where our towed array is?"

After inspecting the submarine's underwater hull the next day, the divers tied one end of a line to the array and the other end to a cleat on the pier. Unfortunately, no one documented this action in any report or log. There also was no discussion about the array being bumped out during watch turnover that day. This problem-in-the-making was compounded by the fact the ship's duty officer didn't know the array had been tied off with a line secured to the pier. The end of the array was underwater, and the line wasn't apparent to an observer on the ship or pier.

Two weeks later, tugs came alongside to breast out the submarine and move it 50 feet aft to support a weapons offload. Personnel involved in this shift didn't know or see that the TB-23 still was tied to the pier. As a result, no one realized the array stretched until it broke in half at the bellmouth. This problem came to light a couple weeks later, when Sailors moved the line from the cleat to the barge in preparation to offload the array. Only a six-foot section of the array was attached to the line.

Here are some things you can do to avoid similar problems:

- When teaching Sailors how to operate and handle the TAs used aboard submarines, include questions based on realistic situations (e.g., "You're at sea, deploying the array, when you receive these indications...").
- Make sure the entire chain of command and all duty personnel understand their accountability and responsibility for the status of an array. Consider discussing array status as part of your ship's conditions during watch turnover in port (for example, make it a line item on a checklist).
- Periodically make sure your ship is following type-commander guidance on TA operation, and compare that guidance to drill guides. These efforts will ensure adequate monitors are stationed to protect against big-dollar damages. It's not enough just to have a copy of the rules in the OOD's notebook and assume that everybody knows them.
- Avoid cavalier attitudes about unqualified personnel operating equipment if you don't want to injure shipmates and damage expensive gear. The submarine force's long-standing policy on controlling personnel in a qualifying status hasn't changed. They shouldn't touch or operate equipment without the supervision of a qualified shipmate.

As you'll learn from an article in the July-September 1999 issue, surface ships also have problems with towed arrays.

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The Day Oscar Became Real

By Lt. Paul Berthelotte, Naval Safety Center

It was just another calm Sunday at sea as the amphibious ready group steamed toward the coast of Somalia. Our mission was to participate in Operation United Shield, which involved helping United Nations forces withdraw from that war-torn country. I was the on-call boat officer, but, because there weren't many flight ops scheduled, I had retired to the wardroom with plans to watch a John Wayne flick.

At 1117, the boatswain's mate of the watch announced over the 1MC, "Now man the ready lifeboat, now man the ready lifeboat!" I knew by the tone in the announcer's voice that this emergency was real. As it turned out, a helo had crashed immediately after liftoff, and we had to rescue the crew.

Although the wardroom on my ship, an LHD, is two decks up and a couple hundred feet forward of the slew-arm davit, I made it to the davit in less than 30 seconds. You'd be surprised how quickly people will get out of your way when you're rushing toward them yelling, "Boat crew, move!"

Members of the boat-and-davit crew were on station and dressed out in less than 45 seconds. The armorer, meanwhile, took about a minute to arrive, but that was long enough for me to don my kapok life jacket. In three minutes, the boat was to the rail and ready for loading, and we were roaring away to recover the personnel in six minutes. We had rescued the first person in six-and-a-half minutes—well before the alert-10 helo launched.

Why did this operation run so smoothly? Training. Before deployment, I was the 2nd division officer, which made me responsible for the ship's small boats. I also was responsible for training the lifeboat crew. With help from my BM1 and khaki in deck department, I set up a comprehensive training program. An integral part of it was a training folder.

This folder contained the training schedule and qualification sheets for everybody on the team and their backups. Another section showed every man-overboard drill we had done, how long it had taken us to recover Oscar, and comments about any problems we'd had. After each recovery, team members got together on station for a self-critique session. We discussed anything that went wrong and praised those who had done a good job. The training team also debriefed with the CO and the bridge-watch team.

I used most of the session after our real-life recovery to pat everybody on the back. After all, we had beaten our best training time by two-and-a-half minutes, which shows what a little adrenaline can do. More importantly, we had the four aviators safely aboard in the shortest time possible.

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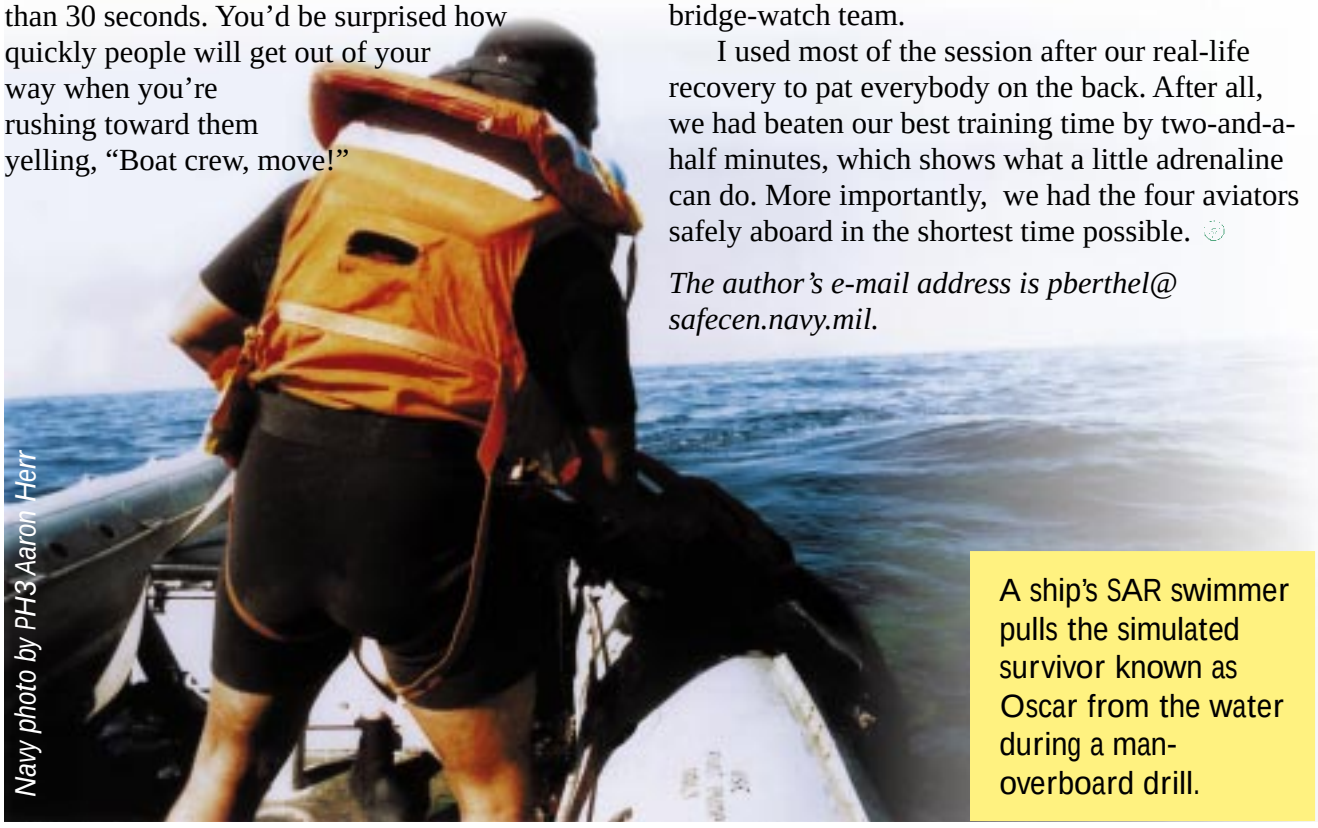

Navy photo by PH3 Aaron Herr

A ship's SAR swimmer pulls the simulated survivor known as Oscar from the water during a man-overboard drill.

Rudder Amidships

Bad Reports + Bad

By EMC(SW) Carl Henry, Naval Safety Center

As I review the electrical-mishap reports that come across my desk daily, I often wonder, "Does anyone have a clue why we have so many of these reports?"

In most cases, the reports explain what happened but not why it happened. I also learn whether the victim has been through annual electrical-safety training as required. Finally, I learn that the victim is giving electrical-safety training to shipmates.

Here's what I'd really like to know:

- Was the victim working on energized equipment? If so, did he have the CO's permission?
- Did the victim assess the risks of his maintenance task before starting?
- Was the testing equipment tested?
- Was a safety observer standing by to assist?

As I wrote in the April-June 1998 issue of *Ships' Safety Bulletin*, tagouts need to be done, ORM needs to be in place, and hazards cannot be ignored for speed. Otherwise, you end up with the kind of statistics we accumulated from FY96 through FY98: an average of a shock a day. Most of these shocks could have been avoided with better training and supervision and a little risk management.

It's not surprising that so many people are getting shocked when you consider the electrical problems safety surveyors uncover. For example, we found an unattended, unsupervised, unprotected IC-switchboard section with exposed wiring. This switchboard still was energized!

In another case, we found exposed, energized wiring under a food warmer on a serving line. The warmer had no bottom cover, and neither the galley-watch captain nor the ship's senior electrician's mate had trained their people to inspect the warmer or repair the problem.

A third example involved an AQB-101 breaker that was being used as the disconnect switch for a

To avoid electrical shocks, make sure danger tags (like the one these Sailors are checking) are hung, ORM is in place, and hazards aren't ignored for the sake of speed.

ship's boat davit. A safety observer had his hand inside the metal box actuating the breaker. Incidentally, it was raining when we stopped this event.

In closing, let me leave you with this account. A PO3 was doing maintenance checks on a radar. While perched on the 106-foot platform, the technician received a mild electrical shock. Why? Because he failed to re-check all terminal boards and wires for voltage after shifting the antenna from "standby" to "off," as outlined in the NSTM.

This technician was OK, but what if he had suffered a serious—perhaps heart-stopping—shock? How long would it have taken shipmates to

Habits = Bad News

reach him? How long would it have taken them to remove him from the mast? What if he had fallen? There would have been more injuries, or he could have died from the fall. How long would it have taken them to transport him to the nearest medical facility?

To everyone in the fleet who works with electricity and electronics, I have an urgent message: Think about the risks involved with a job, instead of just finishing it as quickly as possible. If you ignore enough risks, sooner or later one of them will send you to medical—or the mortuary.

Reference: NSTM, Chapter 300, Electric Plant General

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On one ship, safety surveyors found this unattended, unsupervised, unprotected IC cabinet, with exposed 450-VAC wiring–and no tagout.

Great Flying

By Cdr. Kevin Nicholas, Naval Safety Center

As a ship departs the harbor, crewmen start securing from the sea-and-anchor detail. The fo'c's'le detail has disconnected the riding stopper and engaged the wildcat to house the anchor in the hawsepipe. Meanwhile, a windlass-machinery operator sees the locking pin is partly backed out on the wildcat-engagement lever. Without telling the topside personnel, he tries to reseat the pin. He mistakenly disengages the wildcat, allowing the anchor to run free and damage the sonar dome.

A ship approaches its designated anchorage in 187 feet of water. The CO has two shots of anchor chain walked out, achieves sternway on the ship, and orders the anchor let go. With a cloud of dust rising from the anchor as it runs out, the brakeman doesn't see an order to set the brake. This problem, combined with the depth of the water, causes the anchor to run out of control. When crewmen see the yellow shot appear, they clear the fo'c's'le. The red shot soon shows, and the anchor is lost.

A ship is completing its transit of a traffic-separation scheme at 18 knots as crewmen on the fo'c's'le secure the anchor for sea. Thinking the wildcat is engaged, they release the stopper on the anchor. Sixty feet of chain run out before a quick-acting brakeman stops it. Later, divers find damage to the sonar dome. Miscommunication with the anchor-windlass room and a failure to test the wildcat contributed to this problem.

With their ship operating independently in deep water, crewmen decide to lower the anchor and repaint all the markings. They walk out the anchor and eight shots of chain so they can paint the red shot first. However, they don't check the rating of the anchor windlass before starting this event. Too late, they learn that the windlass is not rated to lift the dead weight of the anchor and all its

Navy photo by PH1 Michael D.P. Flynn

A brakeman lowers a ship's anchor.

Flukes!

chain. They spend eight hours trying to retrieve the anchor but finally have to let it slip into the sea.

These four mishaps are just a few of the ones in which ground tackle was lost that ships have reported to the Naval Safety Center since June 1, 1993.

Checklist for Maintaining Anchor Chains

Here are procedures you should follow during maintenance:

Inspect the chain, detachable links, and bending shackles when weighing anchor. As outlined in the NSTM, tap each link with a hammer and listen for links that don't ring true. Look for the smallest cracks because they can be deceptive. Some cracks appear tiny on the surface but spread out inside the metal-like tree branches.

Look for bent, deformed or stretched pieces of ground tackle. If you have any doubts about the strength of a fitting, replace it. If no replacement is handy, shift the suspect part to the bitter end of the chain until you get a replacement.

Disassemble and clean detachable links in the chain at intervals prescribed in NSTM and PMS requirements. These links are serialized and must be matched; pieces aren't interchangeable. If you're going to take apart several detachable links, work on them one at a time, especially if the numbers are hard to read.

Use the detachable link with the hairpin in the outboard swivel shot because that part of the chain takes the most beating. When disassembling the link, make sure you have replacement locking wires. Clean all detachable links, then "slush" them with a preservative and lubricant.

These tips should ensure that when the POIC (yellow hat) hollers, "Anchor's aweigh," he doesn't really mean, "Anchor's away."

Reference: NSTM, Chapter 581, Anchoring

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A deckhand tightens the turnbuckle on a chain-stopper. (This Sailor's pants legs should be tucked in his socks.)

Navy photo by PH2 Johnny Bivera

Common Anchoring Pitfalls

Here are some common errors that account for anchoring mishaps:

● No goggles worn on the fo'c's'le. Don't wait until an anchor chain is whipping across the flash plate and orders are flying to holler, "Wait just a second; I have something in my eye." Chains throw off rust, barnacles and debris. Even freshly painted chains throw off paint chips. Brake and wildcat operators and everyone working the chain forward of the operators must wear goggles and other PPE, as required by the *NavOSH Program Manual for Forces Afloat.*

● Using wrong terms. Standard commands and reports, such as "Thirty fathoms on deck" or "Anchor at short stay," help boatswain's mates and deck officers understand each other. Events happen quickly during anchoring operations. The brakeman must know immediately what the POIC means. The phone talker must relay info quickly and precisely.

● Ordering "Let go the anchor" before a ship is backing. To drop and set an anchor correctly, the navigator and conning officer must make sure the ship is backing. The sternway lets deck hands pay out chain smoothly and evenly. This action prevents damage to the ship's stem. It also prevents underwater projections from damaging the anchor-chain assembly.

● Brake turned the wrong way. The brake handle should have raised arrows on it to prevent this mistake, particularly during night anchoring.

● Letting out the chain too fast. When dropping anchor anywhere, except in shallow water, don't let the chain run out of control. Use the wildcat brake.

● Chain piled up on the bottom. This error makes it hard to set an anchor. It also can foul and damage the anchor.

Reference: OpNavInst 5100.19C (with change 1)

A BM2 signals a controlman to stop the port anchor. She is flanked by another BM2, acting as a safety oberver for the event.

Navy photo by USS Nimitz *(CVN 68) photo lab*

What Life Jacket, Where and When?

By BM2(SW) Todd Williamon, Naval Safety Center

Confused by several changes to the NSTM and other published guidance, more and more Sailors are asking these questions.

Here is the latest information available on the four most common life jackets used aboard ship:

Kapok Life Jacket

Kapok: Vest-Type With Collar, Type 1

Outfitting:

In 1993, ships were told to retain five percent (carriers retain two percent) of their original allowance of kapoks for use in operations in which the new Mk-5 could be damaged (e.g., welding). The existing allowance of kapoks for ships' boats was maintained.

Application:

Wear this life jacket during these events:

- handling lines, stores or other deck equipment during underway replenishments
- towing operations
- small-boat operations during hoisting and lowering, as well as during heavy weather
- topside working parties or watches
- working over the side

Status:

Kapoks remain available in the supply system, and there are no plans to change the allowance quantities.

Mk-5 Life Jacket

Mk-5: Auto-Inflatable Utility Life Preserver (AIULP)

Outfitting:

All ships were authorized an allowance of AIULPs as a replacement for the kapok. ComNavSeaSysCom distributed a follow-on alteration, which added stabilizing straps to hold the bladder in place when the jacket is inflated.

Application:

This life jacket can be used as an alternative to the kapok for all operations, except when personnel are working over the side or during hot-work. Personnel riding in aircraft or riding the brakes while moving aircraft also should not wear the Mk-5 because of its auto-inflation feature.

Status:

Because of problems with the auto-inflation device and other design issues, the Navy is phasing out the Mk-5 in favor of an updated version of the Mk-1 flight-deck life preserver. Until this shift is complete, you can get spare parts, but you can't order new jackets to replenish the current supply-system inventory.

Mk-1 Flight-Deck Life Jacket

Flight-Deck Jacket: Mk-1 Vest-Type Life Preserver

Outfitting:

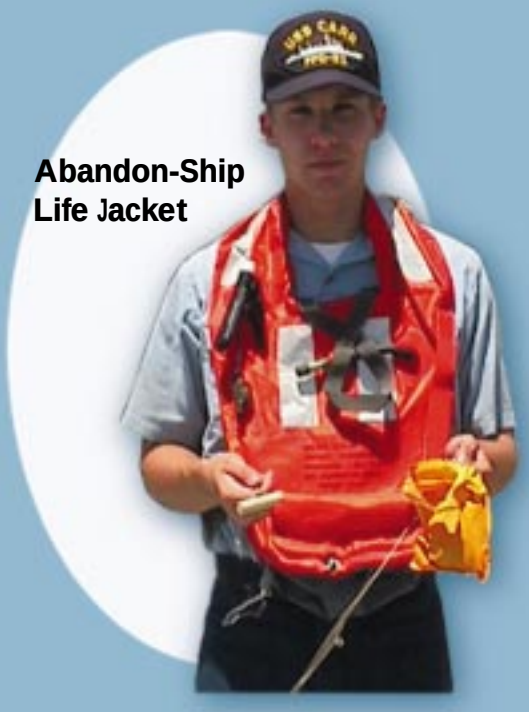
The original Mk-1 was specifically designed for use on flight decks and only could be inflated manually. In 1992, ComNavSeaSysCom authorized changing Mk-1s to an auto-inflatable configuration for use on all air-capable ships, starting with aircraft carriers. Some platforms still use both the manual- and auto-inflatable models.

Application:

The auto-inflatable version can be used as an alternative to the kapok for all operations, except when personnel are working over the side or they are doing hot-work. Personnel riding in aircraft or riding the brakes while moving aircraft should use only the manual-inflatable version.

Status:

A non-explosive (chemically non-reactive) version of the auto-inflation device is undergoing fleet testing and should replace the current device, which uses CO_2. When ordering the Mk-1 life preserver, you may receive one with the snap-type or zipper-type front. Both designs have the same stock number. Preservers with the snap-type fronts will be issued until stocks are depleted.



Abandon-Ship Life Jacket

Inflatable Abandon-Ship Type With Pouch

Outfitting:

This is the standard abandon-ship life preserver found throughout the fleet. An orange version is issued for surface-ship operations, and a gray version is used for Marine Corps helicopter-assault operations.

Application:

Wear this preserver for these events:

- general quarters
- abandon ship
- handling lines, stores or other deck equipment during underway replenishment
- Marine Corps helicopter assaults
- riding in aircraft or riding the brakes while moving aircraft

Status:

No changes are planned for this life preserver.

Accessories on Life Preservers

Type of Life Preserver	Reflective Tape	Whistle (See Note 1)	Distress Marker Light	Sea-Dye Marker	Buddy Line
Vest-Type With Collar, Type 1 (Kapok)	Yes	Yes	Yes	Yes (See Note 2)	No
Mk-5, AIULP	Yes	Yes	Yes (See Note 3)	Yes (See Note 4)	Yes
Mk-1 Flight-Deck Vest	Yes	Yes	Yes (See Note 5)	Yes (See Notes 4 & 6)	No
Abandon-Ship Type Pouch	Yes	Yes	Yes	Yes (See Note 4)	Yes (See Note 7)

Notes:

1. *Attach the whistle to the Mk-1 vest-type life preserver and the AIULP with an 18-inch lanyard. Attach the whistle to other life preservers with a 12-to-15-inch lanyard. Secure all lanyards with a bowline.*

2. *Attach the sea-dye marker to the left (non-adjustable) chest strap.*

3. *See the AIULP technical manual (SS710-AB-MMO-010) for a description of its distress marker light.*

4. *Attach the sea-dye marker to the life preserver or the life-preserver belt with a 48-inch lanyard tied with a bowline.*

5. *This life preserver has a mercury-strobe-type, SDU-5E, distress-marker light.*

6. *Attach the sea-dye marker to the Mk-1 vest-type preserver only if the vest has a pouch to stow it in.*

7. *Tie a 48-inch toggle (buddy) line to the life-preserver belt with a bowline knot if the manufacturer does not supply a suitable toggle line.*

Now that we've answered your questions about the what, when and where of the common life preservers, make sure you use yours. Too many people don't want anything to do with PPE until it's too late.

Reference: NSTM, Chapter 077, Personnel Protective Equipment

The author's e-mail address is twilliam@safecen.navy.mil. All Sailors in the accompanying photos were assigned to USS Carr *(FFG 52) when they were taken. Photos are of FC3 Paul Stevens (page 23), EW2 Robert Mixon (page 24, top) and SN Brad Haynik (page 24, bottom).*

New Web Site

For the past six months, we've been working hard to redesign and improve our web site: www.safecen.navy.mil. The new site – ten times larger, easier to navigate, and better looking – goes on line Friday, Jan. 29. What are some of the new features? For openers, you'll find a download page containing all items from the bulletin-board system, as well as copies of the magazines and other Naval Safety Center publications. There also will be an FTP site to improve the time it takes to download files. All this without even a password required – it doesn't get much better.

Is Your Ship Fused for

By GSCM(SW) Richard Eckenroth, Staff, ComNavSeaSysCom

"**Overfusing** is a fleetwide problem—an issue that we, InSurv, the Propulsion Examining Board, and the Afloat Training Group address every time we're aboard ship." That's how a senior surveyor at the Naval Safety Center describes a major shipboard hazard: using fuses that have too high an amperage rating, which don't protect equipment and distribution panels.

The most commonly overfused circuits are those supplying power to personal computers, TVs, VCRs, mess refrigerators, and entertainment-system components. Some equipment, such as high-speed buffers and refrigerators, draw a lot of current when you first turn them on. Accordingly, only those buffers that operate on a 15-amp fuse without overloading a circuit are approved for shipboard use. Authorized refrigerators are those purchased through the supply system and hard-wired to the ship's electrical system.

Equipment upgrades and changes are other major areas of concern aboard ship. For example, most people keep installing more equipment for testing and evaluating without considering whether the existing electrical circuits will handle it. Even if they realize they need more electrical power, they usually don't make the necessary changes to handle the increased requirement.

The next time you deliberately overfuse a circuit aboard ship, remember what happens at home if you try to hook too many items into one multi-plug extension cord. You may not have any

Navy photos by PH2 Matthew J. Thomas

Electrician's mates looking for overfused conditions aboard ship should pay particular attention to the circuits supplying power to such equipment as vending machines...

Fires and Brownouts?

problem using your VCR and TV to watch your favorite movie while you iron. But when your son or daughter plugs in a hair dryer, the circuit breaker in the power panel probably trips or a fuse blows, right?

After losing power for the third time in two weeks, you decide to use a higher-amperage fuse or circuit breaker—one that exceeds the city and state building and electrical code. "I didn't exceed the rating of the replacement circuit breaker or fuse," you think, "so I'm OK."

You're wrong, though.

The replacement circuit breaker or fuse may not blow, but it causes another problem: extra strain on your home's wiring and the extension cord. As a result, the insulation on the wiring or extension cord can get so hot it ignites, setting your home on fire.

The same thing can happen aboard ship. The next time your supervisor tells you to replace a fuse, stop and ask yourself, "Why did that fuse blow? Could it be I have too many appliances or pieces of equipment on the same circuit?" Each power panel has fuses installed to handle several individual circuits. How many of them did you overfuse? Will the fuse you inserted cause a Class C fire or make all the computer screens go blank?

You can do several things to prevent overfusing. When a fuse blows or a breaker opens, check the cause. See if you overloaded the circuit, then check the listed fuse rating against the installed fuse.

Follow the guidelines in the NSTM, which says, "Always replace fuses with fuses of the required voltage and amp capacity." Use ship's wiring diagrams, General Specifications for Overhaul of Surface Ships, MilSpec (Fuses: Instrument, Power and Telephone), and Mil-Std (Fuses, Fuseholders and Associated Hardware, Selection and Use of) for specifics. Never overfuse a circuit deliberately, even while you're investigating the problem.

Set up qualified teams who know the ship's electrical distribution and can help identify overfused circuits. Have them pay particular attention to entertainment equipment, buffers, personal computers, copiers, and vending machines. Also have them inspect all the receptacle panels and fix overfusing problems. Then they should mark each panel, showing it is fused properly.

The people who designed and built your ship expected a certain amount of increase in electrical equipment. However, someone must control that increase. For example, when a new copying machine arrives, check its load rating. Alone, it may not exceed the total rating of a branch circuit. Combined with everything else in your office, though, it may be enough to open a circuit breaker or blow a fuse.

As shipmates bring more personal equipment aboard ship or they upgrade current equipment, they place larger load demands on the ship's circuits. The amount of electrical power available, however, remains fixed. More distribution panels and isolated-receptacle fuse panels can help this problem.

Some classes of ships install larger generators to meet the increasing load requirements.

...and copiers, as well as entertainment equipment, buffers and personal computers.

Whatever you do, make sure the circuit has the right fuse before you use any equipment. Sometimes, you'll have to upgrade a power panel to handle the larger current load.

A recent issue of a newsletter published by the Pacific Fleet PEB contained an item about how the crew of one ship overcame the problem of overfusing. Here are the key ingredients to that success story:

Make a master list of all fuse boxes on the ship, then use the list to inspect all boxes. Look at amperages and voltage ratings, and verify that fuses requiring silver-plated ferrules have them. Also check the cleanliness of the fuse box, and make sure the installed label plates are correct.

Train the electrician's mates to inspect fuse boxes any time they open one to remove or replace fuses (e.g., removing fuses as part of a system tagout). When they install fuses, it's a good practice to have them turn the fuses so the amperage ratings are visible. This effort makes it easier to do spot checks.

Train all supervisors to identify overfusing. If the fuses are installed with the amperage ratings visible, supervisors can easily find fusing discrepancies during zone inspections.

References: NSTM, Chapter 300, paragraph 2.29; NavSea S9AAO-AB-GOS-010/GSO; MilSpec Mil-F-15160F; Mil-Std-1360

▲ **A Naval Safety Center surveyor checks a ship's fuse panel as a crewman observes. Overfusing, loose connections, grounded circuits, and frayed wiring are some of the common electrical problems found during surveys.**

Fuse Boxes: The Rest of the Story

By LCdr. Dale J. Morse, Staff, CinCLantFlt PEB

Every time I read a Navy safety publication, I seem to see another article about overfused circuits. Although overfusing is a concern, it's not the *only* or *worst* fuse-box problem. Potentially more serious hazards include loose connections, grounded circuits, frayed wiring, and tools adrift. Because of the increased heat caused by loose connections, they are fire hazards.

PMS MIPs require annual inspection and maintenance of fuse boxes. Some ships, however don't have this PMS coverage, or their equipment guide lists are inaccurate. Consequently, personnel don't regularly inspect fuse boxes, and problems go undetected.

I recommend the following:

- Ensure PMS coverage is provided and equipment guide lists are accurate.
- Train maintenance personnel to recognize and correct fuse-box problems.
- Install tamper-proof seals after completing fuse-box maintenance to increase personnel accountability and decrease unauthorized entry. Commands that tried this idea reported a high success rate, and we found significantly fewer discrepancies during inspections.

When electrician's mates open a fuse box for maintenance, why not have them do a complete inspection? It only takes a few extra minutes.

At the time the author wrote this article, he was assigned to USS Mount Whitney *(LCC 20).*

References: PMS MIPs EL5/156-69, 3240/2-69, 3301/3-86

Overhaul:
Recollections of an Assistant Safety Officer

By Ltjg. David Murvihill

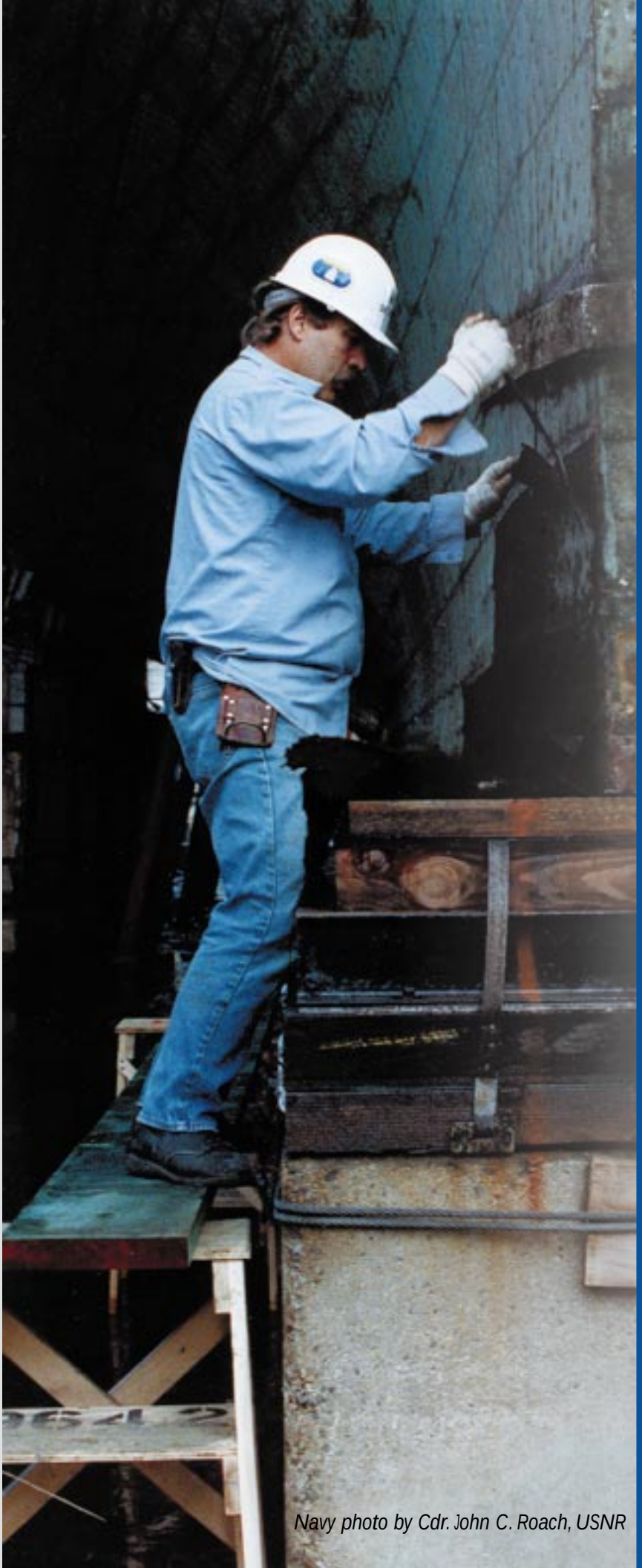
This article concludes our four-part series designed to help ships' crews prepare for an industrial environment. Check previous issues for the rest of this series, which features an updated collection of articles previously published in Fathom.*—Ed.*

Achieving the last five percent of any task requires as much effort as the first 95 percent. Before you decide that 95 percent is good enough, remember what the stakes are and what you're betting on.

How do you judge a successful overhaul? In our case, we spent six months in a shipyard with no major mishaps, injuries or equipment damage. Now, I didn't say we were hazard- or mishap-free, but that was our goal. Trying to prevent all mishaps may seem unreasonable, but don't write off this goal as taking too much effort. Your extra effort could neutralize a serious hazard and perhaps save a life.

Consider the lessons learned from some of the mishaps we had during our overhaul. A shipyard worker was welding a bulkhead in a fuel tank. On the other side of the bulkhead was another fuel tank. Both tanks were certified gas-free by the shipyard gas-free engineer, but the other tank wasn't certified "safe for hot-work." Two pipefitters were working in the second tank when residual fuel in it ignited. The pipefitters quickly extinguished the fire and prevented any injuries or damage. Our investigation revealed that the shipyard's fire-watch personnel used improper procedures. Fire watches must be able to see both sides of a bulkhead. A second fire watch is necessary when the first one can't see both sides of a bulkhead. These watches must check for and remove all fire hazards around the hot-work area on both sides of the bulkhead. They also should establish some means of communication to report a hazardous condition or to stop all hot-work.

Before another mishap, ship's-force personnel covered a deck with paper as part of the preparations for painting a passageway. Three decks above, a shipyard worker was welding when a spark fell the entire distance—despite



Navy photo by Cdr. John C. Roach, USNR

Whether overhauling a new ship or an old one – in this case, the 44-gun sail frigate USS *Constiitution* – it takes a lot of effort to stay mishap-free. Don't write off this goal as unreasonable, because your extra dedication could save a life.

intervening ladders—and ignited some wet paint on the paper. There was a lot of smoke but no damage. The fire didn't spread because the paper was fire-resistant. Again, the shipyard's fire watch didn't check carefully for hazards, install a protective barrier (in this case, a welder's cloth), or close the hatch. He also didn't post hot-work-warning signs. The ship's-force painters shared the blame for the fire because they didn't post the required warning signs, saying "No Smoking—No Hot-Work." Before entering a shipyard, the crew should cover equipment to protect it. Fire-resistant paper and herculite will not burn without another source of fuel, so use them instead of flammable plastics to cover your gear.

One day, fuel from a leaking line filled a void. The sounding and security watch found it early, but ship's-force personnel couldn't isolate the leak until the fuel tank was pumped out. A hydrostatic test of the fuel system would have prevented this mishap.

One other time, a plumb bob punched a hole through the hull at the bottom of a sounding tube. The water level did not get above the bilges, so there wasn't any damage. It took years of corrosion and dropping plumb bobs to penetrate the striking plate and hull. While you're in drydock is a good time to check and repair your sounding tubes and striking plates.

Here are some suggestions that will help you when your ship is in overhaul:

Shipboard

Make sure the quarterdeck watch wears a hard hat. A bolt falling from a crane missed one of our OODs by less than a foot.

Make sure the quarterdeck watch has the telephone numbers for the fire department,

hazmat-recovery team, police, and ambulance. It's also important that they know what pier at which the ship is berthed.

Exercise the in-port fire party in hazmat-spill response and emergency-rescue procedures. The *NavOSH Program Manual for Forces Afloat* provides detailed information on hazmat-spill response. You can find guidance on emergency-rescue procedures in the NSTM.

You will find that the shipyard's safety regulations are different from the Navy's. Their regulations comply with OSHA instructions, which may not be as strict as the *NavOSH Program Manual for Forces Afloat.* For example, OSHA instructions don't require chafing gear for leads and cords passing through doorways and hatches. Instead, they only require that the sheathing on the cable remain intact. I found several leads and cords chafed to the copper and immediately threw them off the ship. Placing a hard rubber collar or stopper around the leads or cords will keep a door from shutting on them.

The supervisor of shipbuilding, conversion and repair; the shipyard; or both will have a pamphlet regarding safety in the shipyard; use it to train your crew. Registered users can get a copy of "Guide to Safety in Availability (Rev/Sep 98)" from the Naval Safety Center bulletin board at (757) 444-7927 (DSN 564). The filename is "guideaval.exe" in file area "afloat general." This guide also soon will be available on the Naval Safety Center web site.

Shipyards have many flatbed trucks and pickups with drivers who will offer rides to the crew. Teach your people about the regulations that prohibit accepting such offers.

Attend daily safety walkthroughs. If you can't go, send a ship's representative. Your attention will directly affect the attention the shipyard pays on your ship.

Off Duty

If the shipyard is located away from your home port, the number of off-duty mishaps probably will increase. People are uprooted, families are located elsewhere, the ship is unpleasant (if not uninhabitable), and the crew works harder. Recreation becomes more important because the crew no longer can do the things they normally do after working hours.

Upon arrival at the shipyard, ask for information about the areas with a high crime rate. Check with local Navy facilities for a list of off-limits areas. Our lack of familiarity with the unsavory section of an adjacent town resulted in several injuries to crewmen.

Alcohol-related crashes, involving both motor vehicles and pedestrians, also probably will rise. Increased awareness and education and alternative forms of transportation (such as welfare and recreation vans) will help the situation. Other forms of entertainment (e.g., picnics and tours) also will help keep people out of bars.

Automobile crashes increase as crew members drive home or visit surrounding areas. A seven-hour trip back to home port after a long day of work creates unsafe driving conditions. We started knocking off at 1730 on weekdays and 1130 on Fridays so our people could drive during daylight hours. Education on the hazards of nighttime driving also helps.

Athletic injuries increase. Providing protective equipment and educating everyone keeps problems to a minimum.

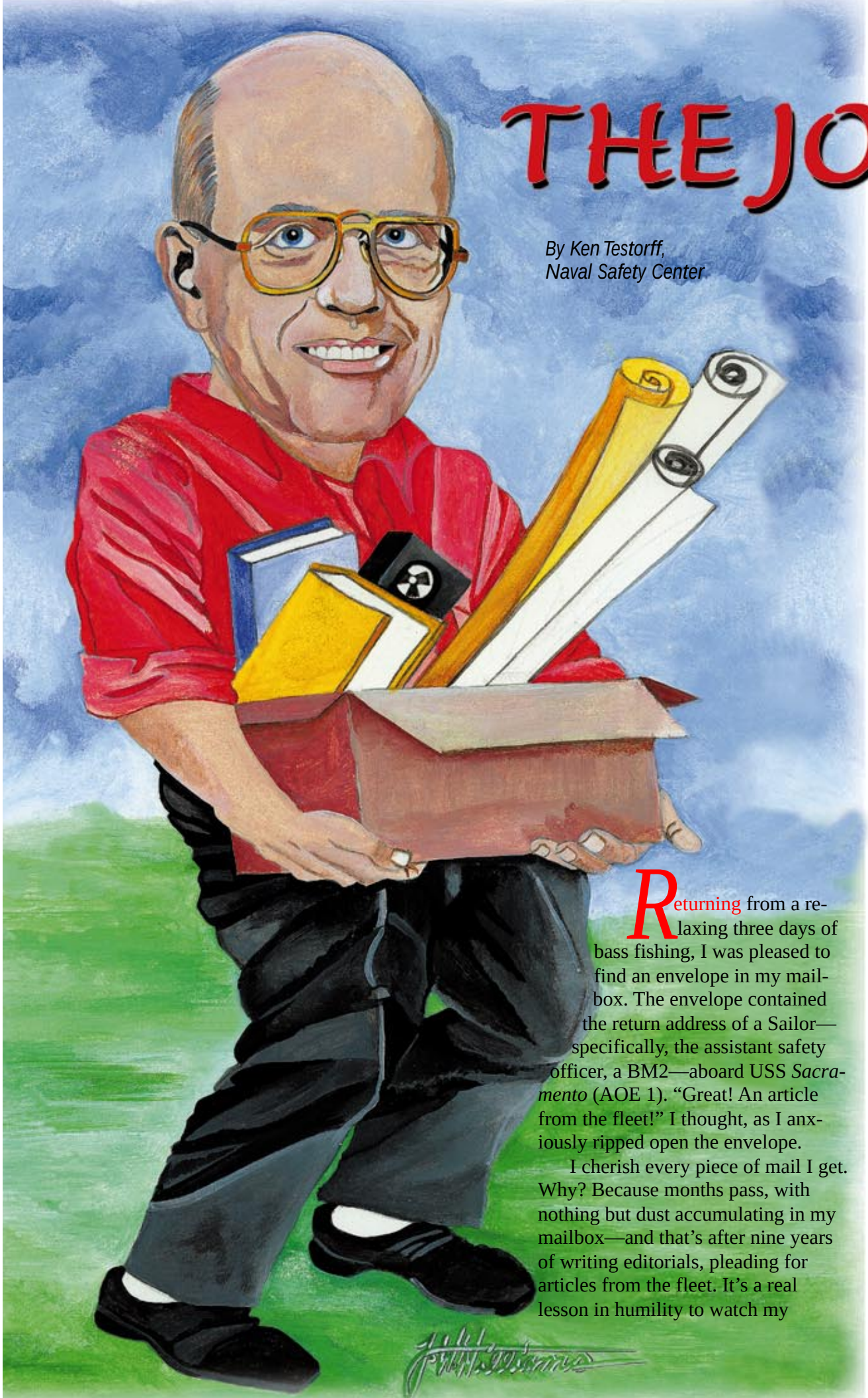
If the CO regularly addresses safety and sets the example himself, the rest of the crew is apt to pick up on it. Our CO's motto was this: "Safety is a big part of the ship's routine, but safety issues have head-of-the-line privileges for command attention." Find and promote activities that stir up your crew and keep them interested.

References: OpNavInst 5100.19C (with change 1), appendix B3-A; NSTM, Chapter 074, Vol. 3, Rev. 3, section 20

At the time Ltjg. Murvihill wrote this article, he was assigned to the now-decommissioned USS Luce *(DDG 38).*

THE JOK

By Ken Testorff,
Naval Safety Center



Returning from a relaxing three days of bass fishing, I was pleased to find an envelope in my mailbox. The envelope contained the return address of a Sailor—specifically, the assistant safety officer, a BM2—aboard USS *Sacramento* (AOE 1). "Great! An article from the fleet!" I thought, as I anxiously ripped open the envelope.

I cherish every piece of mail I get. Why? Because months pass, with nothing but dust accumulating in my mailbox—and that's after nine years of writing editorials, pleading for articles from the fleet. It's a real lesson in humility to watch my

LE'S ON ME

counterparts with *Approach, Mech, Ashore,* and *Ground Warrior* open armfuls of mail every day. But that's another subject.

Some of my joy faded when I realized the envelope held only a letter—no article. The BM2 immediately restored my full interest, though, with this statement: "I have been privileged to receive your publication." He then noted that he uses much of the information in *Fathom* for training and combat readiness and that many articles are reprinted in the ship's safety publication.

"That being said," the BM2 continued, "I must now comment on a problem that has left many of my shipmates in turmoil: the back cover of your January-March 1998 issue. In the picture, *Sacramento* [with hull number shaded, but not enough to keep eagle-eyed Sailors from finding it] is steady on Romeo Corpen, with a customer pulling up to the pumps. Above the photo is the caption, 'An AOE Sailor dies after falling 35 feet from a pilot's ladder and landing headfirst in a motor whaleboat.' ...Though I can appreciate the fact that file photos of AOEs in such remarkable shape as *Sacramento* are hard to find, I hope your subscribers don't confuse the ship in the mishap with the 'Golden Bear.' Let me assure you this devastating tragedy did not occur aboard my ship, the fastest AOE in the fleet."

By now, I wasn't smiling, because I've never enjoyed writing corrections or apologies, and I knew that's what I would have to do. If I had any doubts about my responsibilities, the BM2 helped clear them up with his next paragraph.

"To ease the grief and embarrassment caused by this horrible oversight," he wrote, we had to meet a long list of demands. These demands included a letter of apology, seven back issues of *Fathom,* a lifetime subscription to all Naval Safety Center publications, up-to-date copies of all available Naval Safety Center software, any available safety stickers, and five safety-training videos.

At this point, I was having flashbacks to my days as a Navy chief. I couldn't recall any young Sailor ever having had the nerve of this BM2, but a few had rankled me over the years, and let's just say I always had had the last word. After thinking about the present situation for a moment, I decided my best move was to let my lieutenant intervene. His initial response, as well as that of the department head, however, was the same as mine. Neither could believe what they were reading. Finally, though, the editor in chief offered the possibility that the BM2 might be having a good laugh at our expense. With this suggestion, the lieutenant called *Sacramento's* safety officer and found out the letter indeed was a clever way to request safety material.

My hat's off to ya, BM2. You pulled my chain hard this time. For the record, I apologize for my error in the Jan-Mar 1998 issue. I should have ensured the hull number was removed from the photo before we used it. I take full responsibility. At the same time, let me congratulate you and your shipmates on *Sacramento's* proud history of accomplishments:

- CNO Surface Ship Safety Award, Combat Logistics (Large) Category, for 1993, 1994 and 1996
- Battle "E" winner for 1997.

You set an example others would do well to follow. Incidentally, we couldn't respond to all the "demands" in your letter, but we put together a package of the materials we had on hand. Keep up the great work!

When the BM2 referenced in this editorial wrote his letter, I doubt that he imagined it being used as it was here. Perhaps he'll respond like a former CO of USS Stark, *after I had offended him by a caption I used with his ship. He answered a similar apology with an article.*

I welcome material for Fathom *from everyone. If the information pertains to shipboard hazards, mishaps or near-mishaps, I probably can use it. Don't forget that photos always improve a submission. Send everything to:* Fathom *Editor (Code 714), Naval Safety Center, 375 A St., Norfolk, Va. 23511-4399. My e-mail address is ktestorf@safecen.navy.mil. Call me at (757) 444-3520, Ext. 7251 (DSN 564).*

Navy photo by PH3 John Grasso

"Passing the word" plays an important role in daily shipboard routine. It also helps us warn Sailors and Marines about afloat hazards. When you finish reading an issue of *Fathom*, pass it along to a shipmate.