



## Extreme Bollard Pull

### Description

**A large container vessel had just begun cargo operations.** Approximately 2 hours later, the bollard holding the bow lines was pulled out of the dock. The bow of the vessel swung outboard slightly, and the stern swung into the dock. Fortunately, the forward spring lines held and stopped the swing. The stern of the vessel contacted

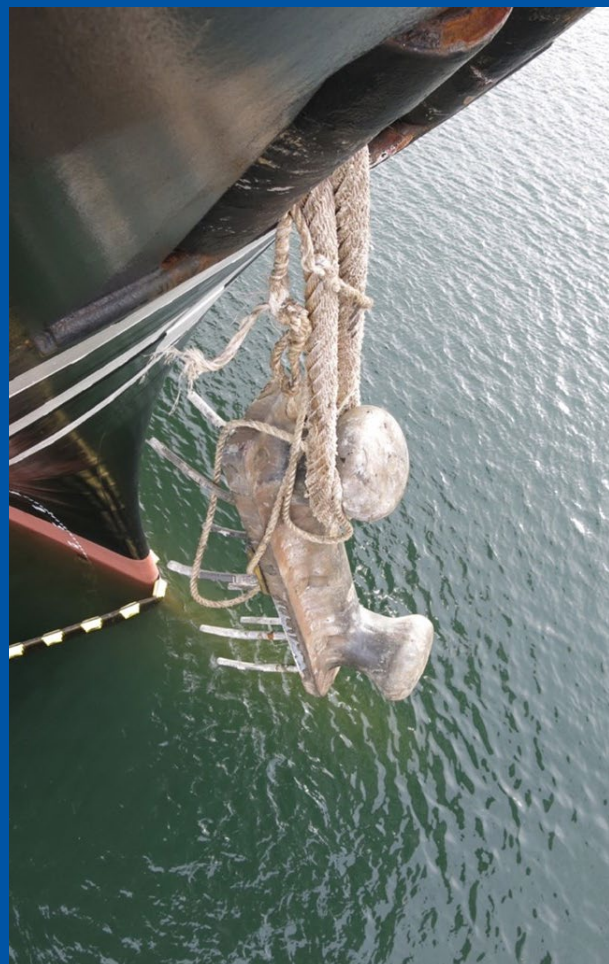
the fendering system but neither the vessel nor the fenders were damaged. The crew was subsequently able to resecure the bow lines to different bollards.

Upon investigation, the four bow lines from the vessel had all been attached to the same bollard, the one that failed. The two forward spring lines were both attached to a different bollard. The two aft spring lines were both attached to yet another bollard. The four stern lines were paired to two different bollards astern of the vessel.

The Master explained that the while mooring, their normal practice was to place no more than two mooring lines on each bollard, but the pilot and line handlers had attached all four to the same bollard because a container crane was partially blocking access to the next bollard forward that would have otherwise been used. The Master said he deferred to the judgement of the pilot and line handlers.

At the time of the bollard failure, the wind was mild, and the current was minimal.

Inspection of the bollard indicated that some of the bolts attaching the bollard to the dock had sheared and some of the bolts were pulled out of the mounting intact. Each of the four bow lines was on a self-tensioning mooring winch. The combined load of the four winches together exceeded the bollard's rated load. The Master indicated that he did not know the rated load of the bollard and had just assumed it was adequate since the pilot and line handlers placed all four bow lines on it.



### Actual Damage

The repair to the bollard exceeded \$37,000. There was no damage to the vessel.

## Potential Damage

The damage could have been significant. Had the winds been stronger, they could have pushed the vessel off the dock and the forward spring lines could have parted. That would have likely brought the stern into harder contact with the fendering system and dock causing damage to both.

Additionally, a rapid and unexpected motion of the vessel during cargo operations while containers were being lifted could have damaged containers and/or the container cranes.

## Prevention

- ★ Do not overload bollards with multiple mooring lines. If the load capacities of the bollards are not known, the Master should contact the port or facility owner via the agent to obtain that information and adjust the mooring plan accordingly so the bollards will not be overloaded.
- ★ When deviating from a normal mooring practice such as only putting two mooring lines on a bollard, the specific risk of overloading a bollard should be evaluated based on the capacity of the bollard, the number of mooring lines that will be placed on that bollard, and the settings on the self-tensioning winches.
- ★ If cranes or other dockside equipment block access to bollards that would normally be used, or if bollards that would normally be used are already being used by other vessels, the options should be discussed, and the risks should be identified and assessed before proceeding.

When you identify a hazard before something goes wrong...

**it's a Good Catch.**

When you stop an operation before something bad happens...

**it's a Good Catch.**

When the working load of a bollard is identified in advance to ensure that the working load is not exceeded with multiple mooring lines...

**that's a Good Catch, too!**



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