



American
Waterways
Operators



August 4, 2010

U.S. Coast Guard – American Waterways Operators Safety Partnership National Quality Steering Committee

Towing Industry Safety Statistics 1994 – 2009

Established Safety Metrics

For approximately 10 years, the partnership has used three measures to track overall trends in safety and environmental protection. The measures are presented to the National QSC twice a year. During the regular winter meetings, updates on the most recent calendar year are presented. “Normalized” accident rates, for crew fatalities and oil spills, are presented at summer meetings, after waterway usage figures become available from the Corps of Engineers. While not all-encompassing, the measures are considered to be useful indicators, given the non-regulatory scope of the partnership. The safety measures presented in this document are:

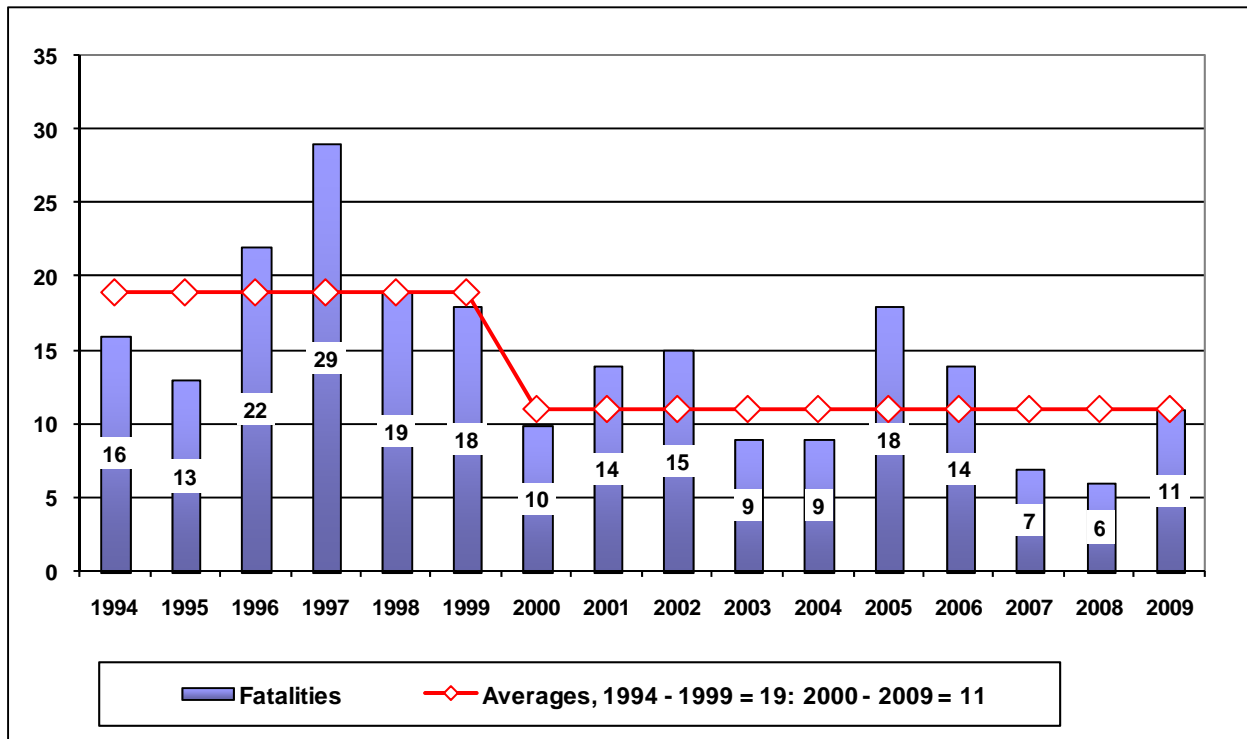
- Crew fatalities per 100,000 towing industry workers.
- Gallons of oil spilled from tank barges per million gallons transported.
- Number of vessel casualties, (overall or by incident severity).

In addition to the “standard measures,” this report includes some statistics on crew member injuries, for calendar years 2006 – 2009.

Crew Fatality Counts

Crew fatalities include all deaths and missing crew members on towing vessels or barges. Deaths due to natural causes, deaths of external parties, shipyard, or shore-side workers are excluded from this measure. Chart 1 shows the annual fatality counts from 1994 – 2009.

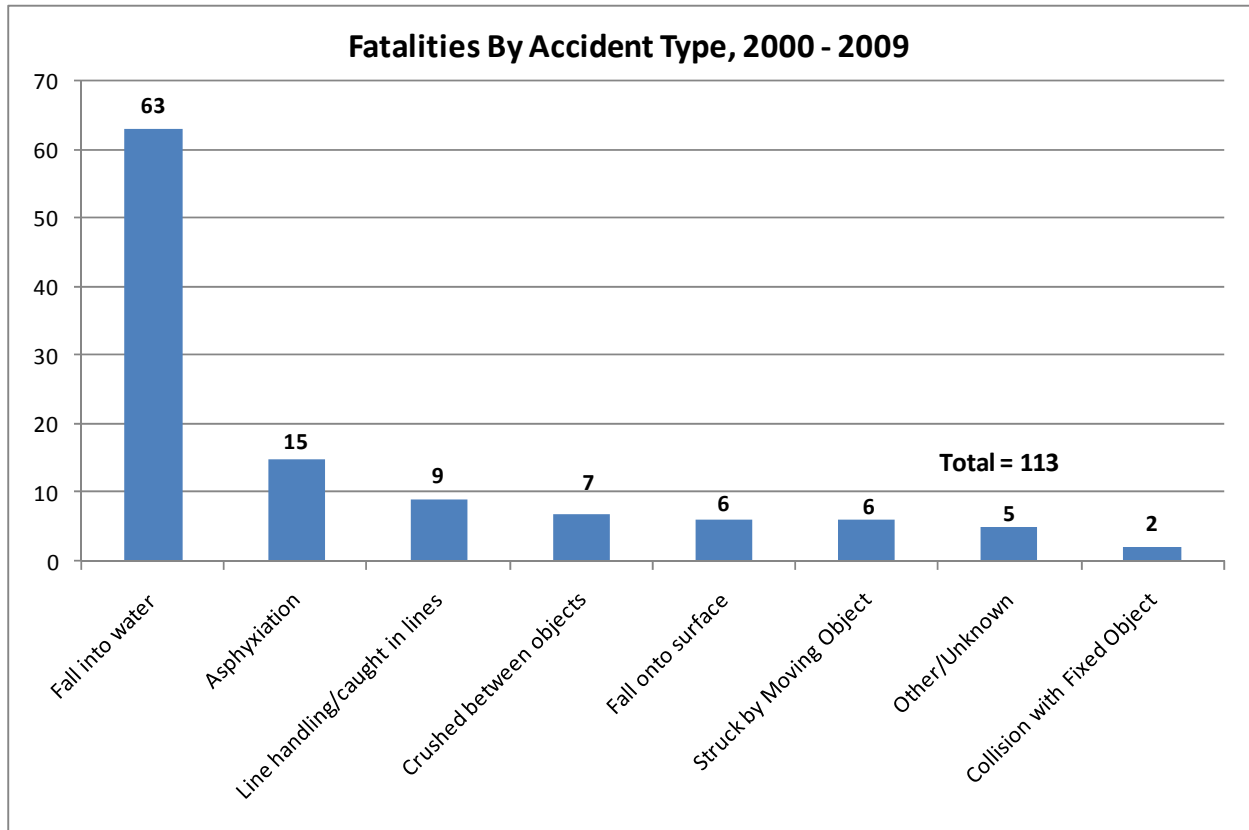
Chart 1. Crew Fatalities 1994-2009



The data show that 2007 and 2008 are record lows. However, the number of fatalities returned to the previous level in 2009. Of the 11 fatalities in 2009, 8 were the result of falling overboard.

For the 10 year period ending in 2009, Chart 2 shows the distribution of fatalities, by accident type. The largest number of fatalities, (63 of 113, or 56%) is attributed to falls overboard. The next largest group of fatalities is asphyxiation, with 13% of the total. Those fatalities resulted from vessel casualties and diving accidents, (i.e. crew members attempting to un-foul propellers).

Chart 2.

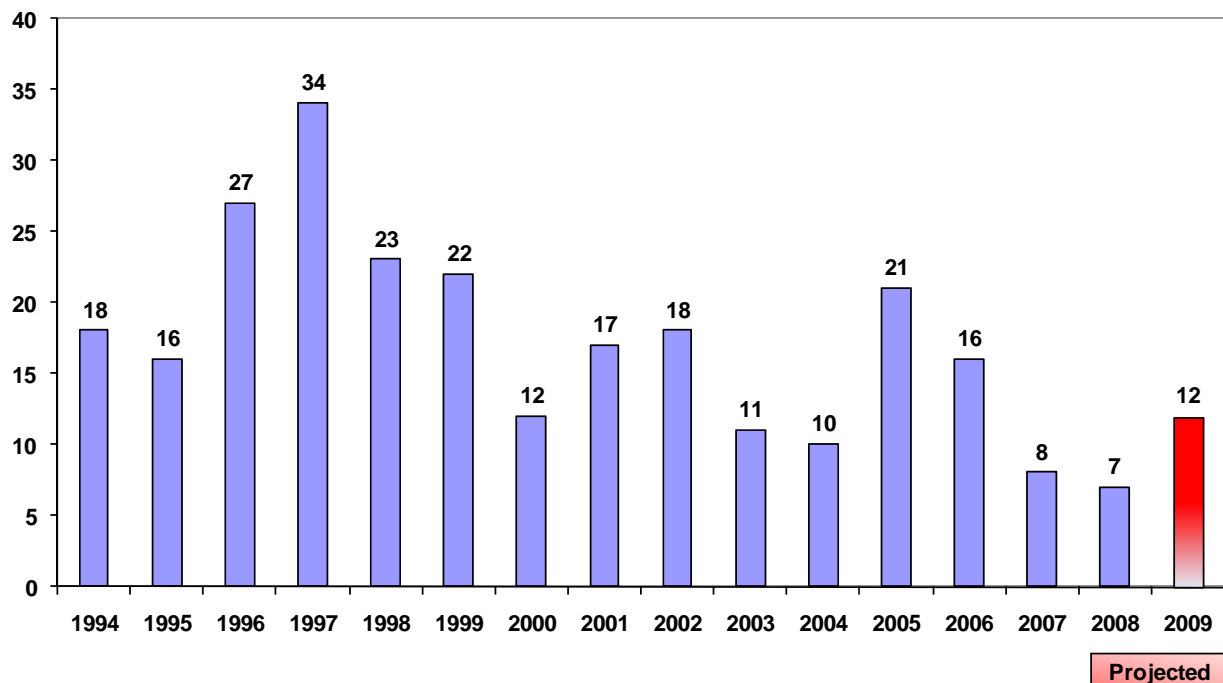


The Crew Fatality Rate

Using the “Mercer Model” that was developed with AWO-funded research, the crew fatality rate is shown on Chart 3. The denominator for this rate is derived from the number of towing vessels in operation, as reported by the U.S. Army, Corps of Engineers. The most recent data is calendar year 2008. The 2009 rate is a projection.

This information can be used in comparisons with other industries. For example, the Bureau of Labor Statistics reports¹ that the fatality rate for all workers, including office workers, is 3.7 per 100,000. Conversely, commercial fishing ranks the highest of all occupations, at 128.2.

Chart 3. Crew Fatalities per 100,000 FTE², 1994 - 2008



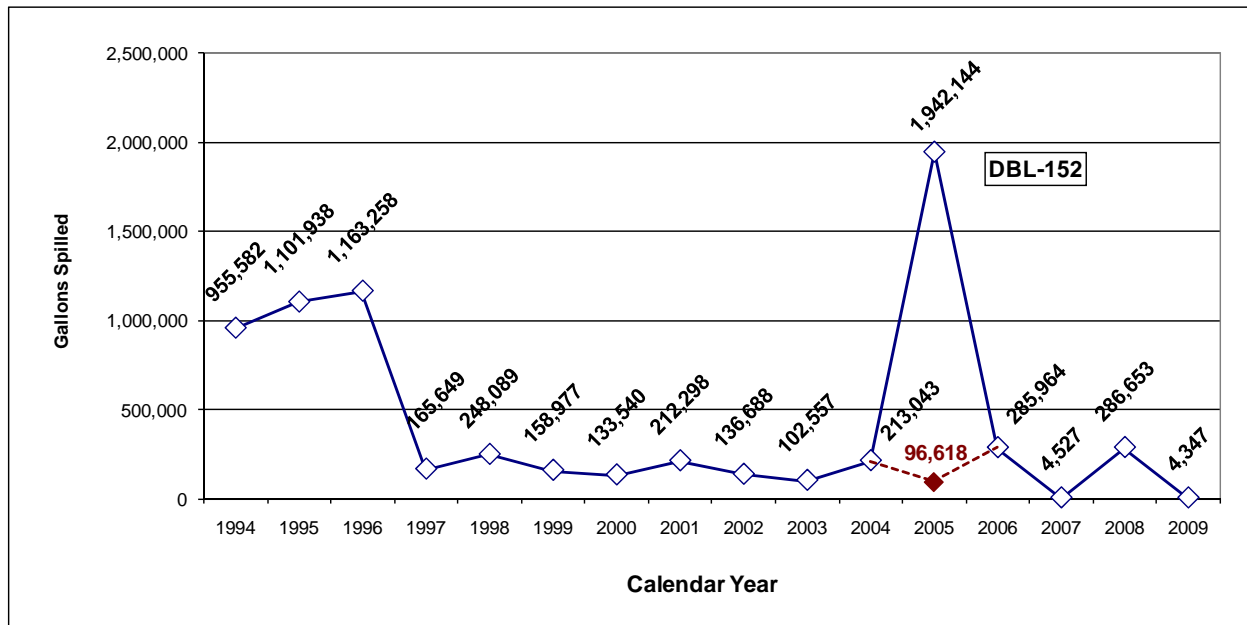
¹ <http://www.bls.gov/iif/oshwc/foi/cfch0007.pdf>, page 19, accessed on 29 June 2010.

² An FTE, or full time employee, is the equivalent of one person working a 40-hour work week.

Oil Spill Volumes

Shown below are the gallons of oil spilled from tank barges. Within the period of the Safety Partnership the highest spill amount, 1.9 million gallons, occurred in 2005. The 2005 spill amount included 1.8 million gallons from the allision of the tank barge DBL-152 with an oil platform that was sunk by Hurricane Rita. The chart also shows this series without the hurricane-related spill as the dashed line. More recently, 2007 and 2009 show the lowest spill amounts from tank barges since 1973, when the Coast Guard recordkeeping began.

Chart 4. Gallons of Oil Spilled from Tank Barges 1994-2009



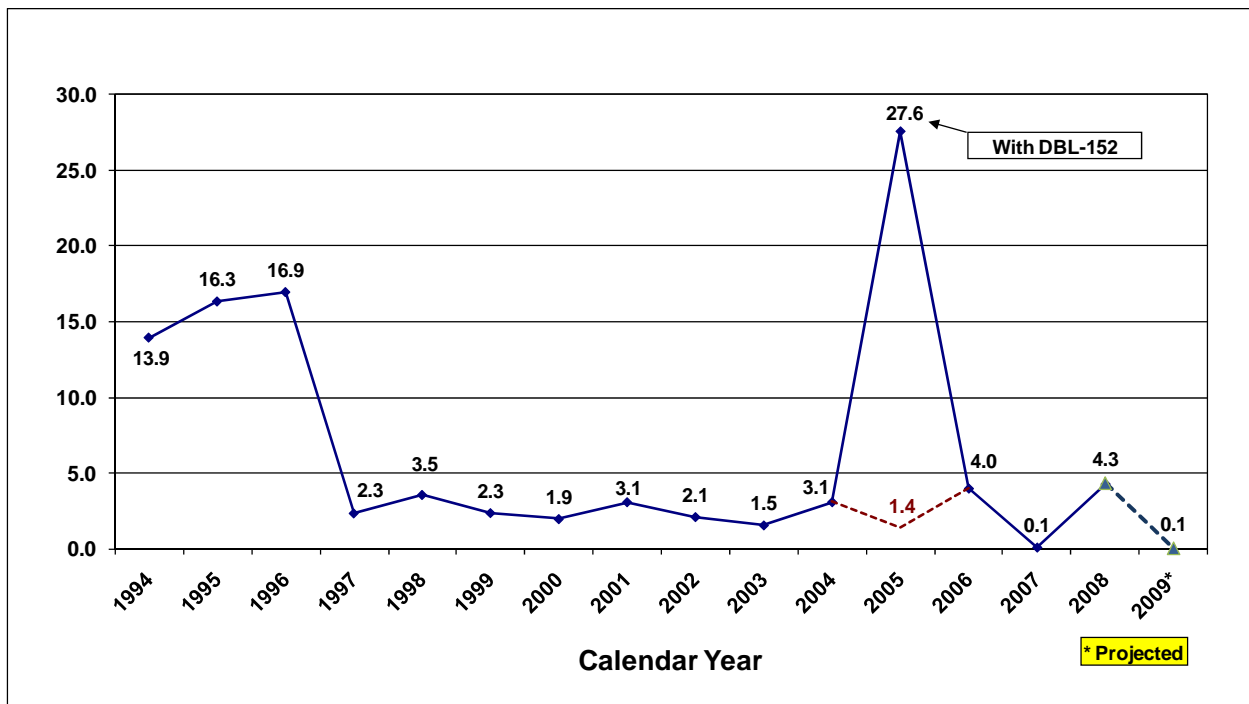
In addition, historic spill data shows that, in any given year, one spill accounts for the majority of the total spill volume. The 2007 and 2009 record lows include no significant incidents. Conversely, nearly all of the oil discharged for 2008 came from the MEL OLIVER - TINTOMARA collision (282,828 gallons).

Oil Spill Rate

The tank barge oil spill rate is calculated using a denominator from the U.S. Army Corps of Engineers publication “*Waterborne Commerce Of The United States,*” Part 5, Table 2-3. The most recent data year of that publication is 2008. The 2009 value is a projection.

For 2008, the Corps of Engineers reported that 246.0 million short tons or approximately 67.5 **billion** gallons of oil was transported by barge on U.S. waterways. That amount represents 73.3% of all domestic oil carriage. When compared to the amount transported, the spill rate for 2008 is 4.3 gallons per million gallons transported. The rate for 2007 and the projected rate for 2009 are record lows of 0.1 gallon spilled per million gallons transported.

Chart 5. Gallons of Oil Spilled From Tank Barges, Per Million Transported

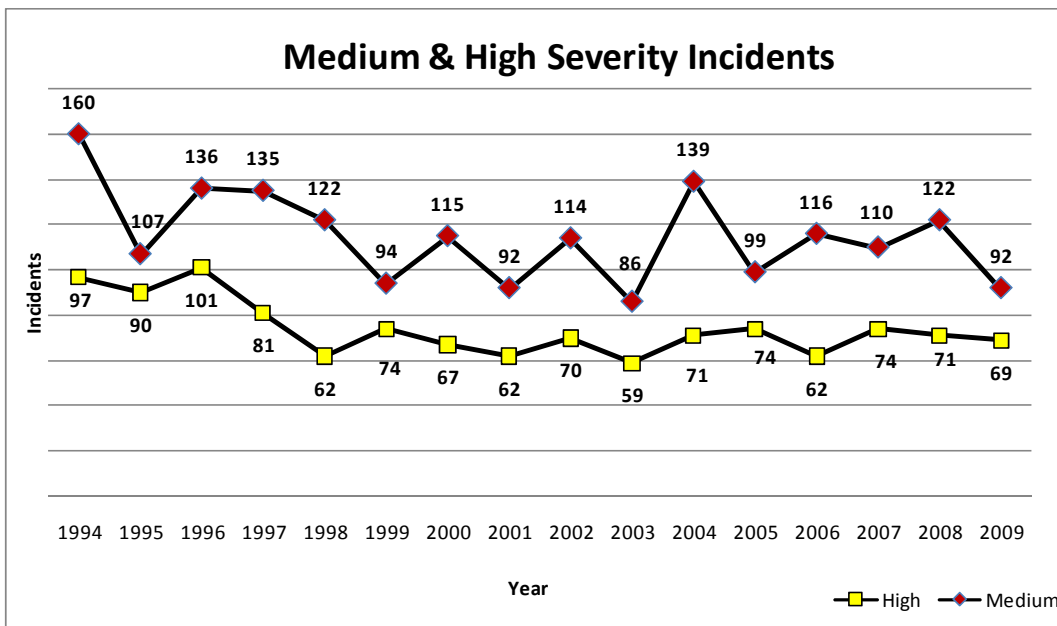
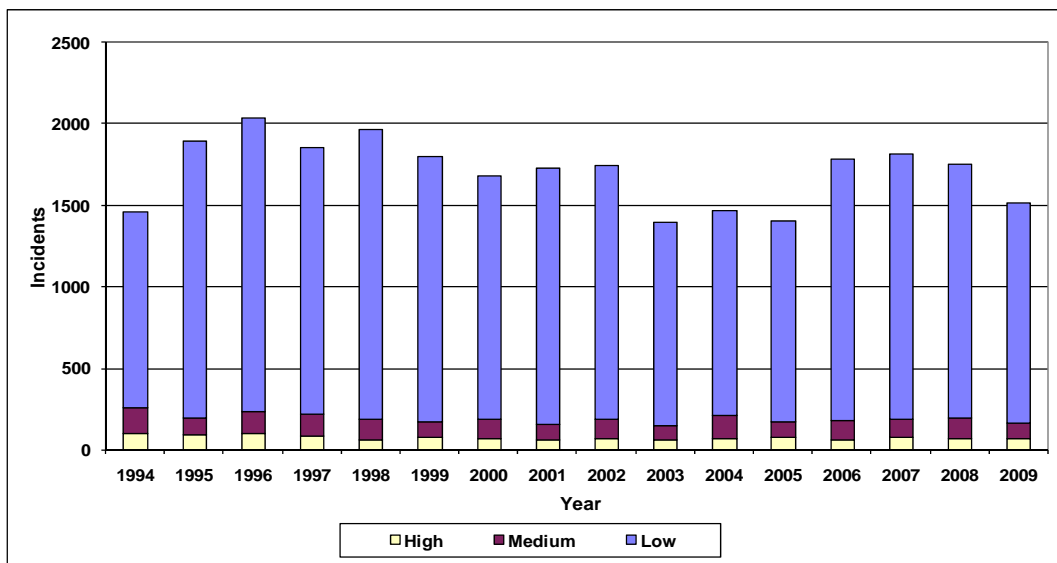


Vessel Incidents

Using a scale that was previously approved by the Safety Partnership, all towing incidents are shown here, by severity. Towing incidents include all reportable casualties, per Coast Guard regulations, that involve any towing vessels or barges. Each incident is counted only once, regardless of the number of vessels involved.

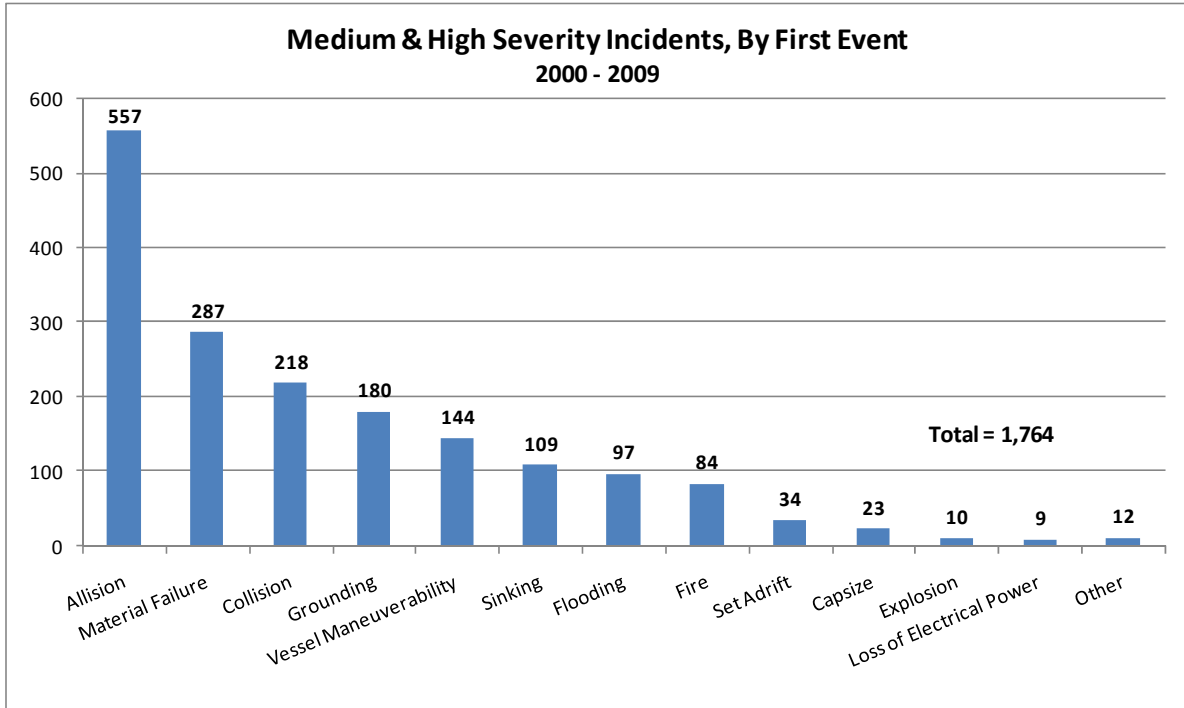
The data shows that, throughout the history of the Safety Partnership, most casualties (~89%) are low severity. Medium and high severity incidents were 7% and 4% of all incidents, respectively. A description of the severity scale is provided at the end of this report.

Chart 6. Vessel Incidents, By Severity



The chart below shows the medium and high severity incidents, by the first reported event.³ One third of all medium & high severity incidents began with an allision.

Chart 7



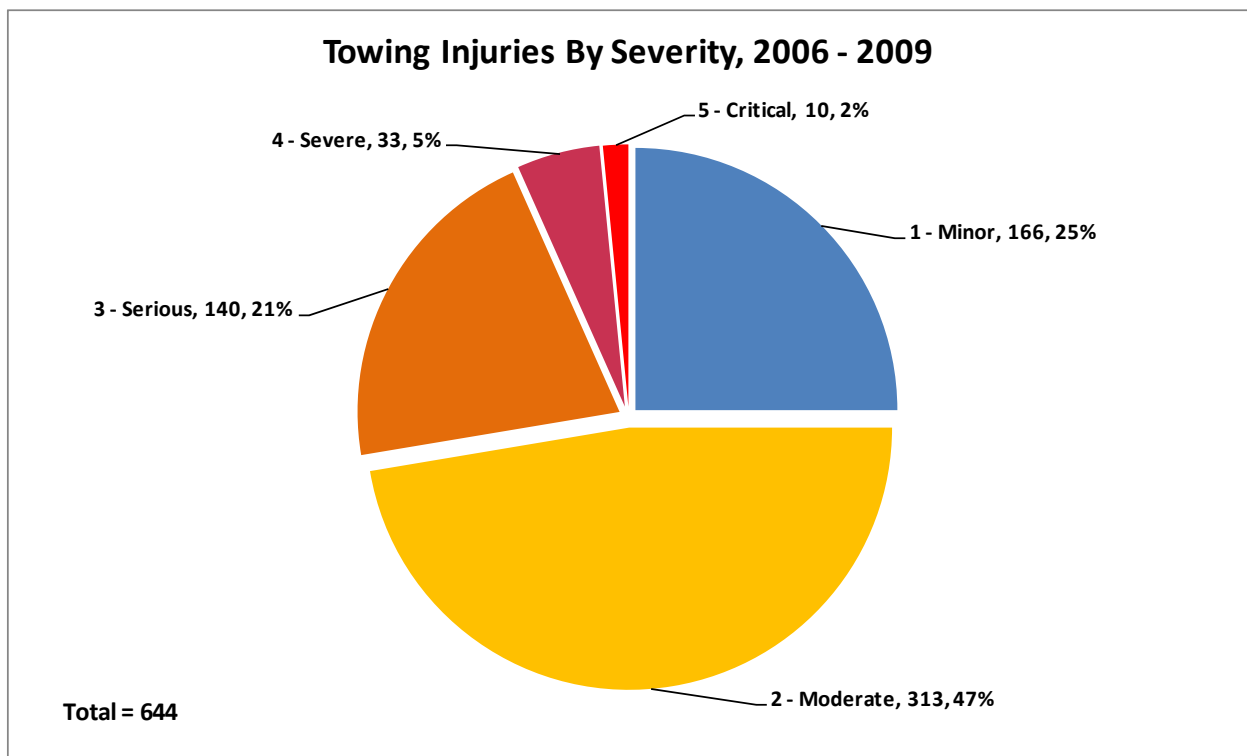
³ The Coast Guard's information system is designed to document marine casualties as a series of events, with corresponding locations, involved vessels and other details.

Crew Member Injuries

In mid-2005, the Coast Guard began collecting injury severity indicators with personnel casualty investigations. This new information will allow better analysis of injury data, because the more serious incidents can be examined separately. A description of the injury severity scale is provided at the end of this report.

Chart 8 summarizes crew member injuries by severity, for calendar years 2006 – 2009. The data shows that most injuries (72%) were minor or moderate in severity, requiring limited amounts of medical treatment.

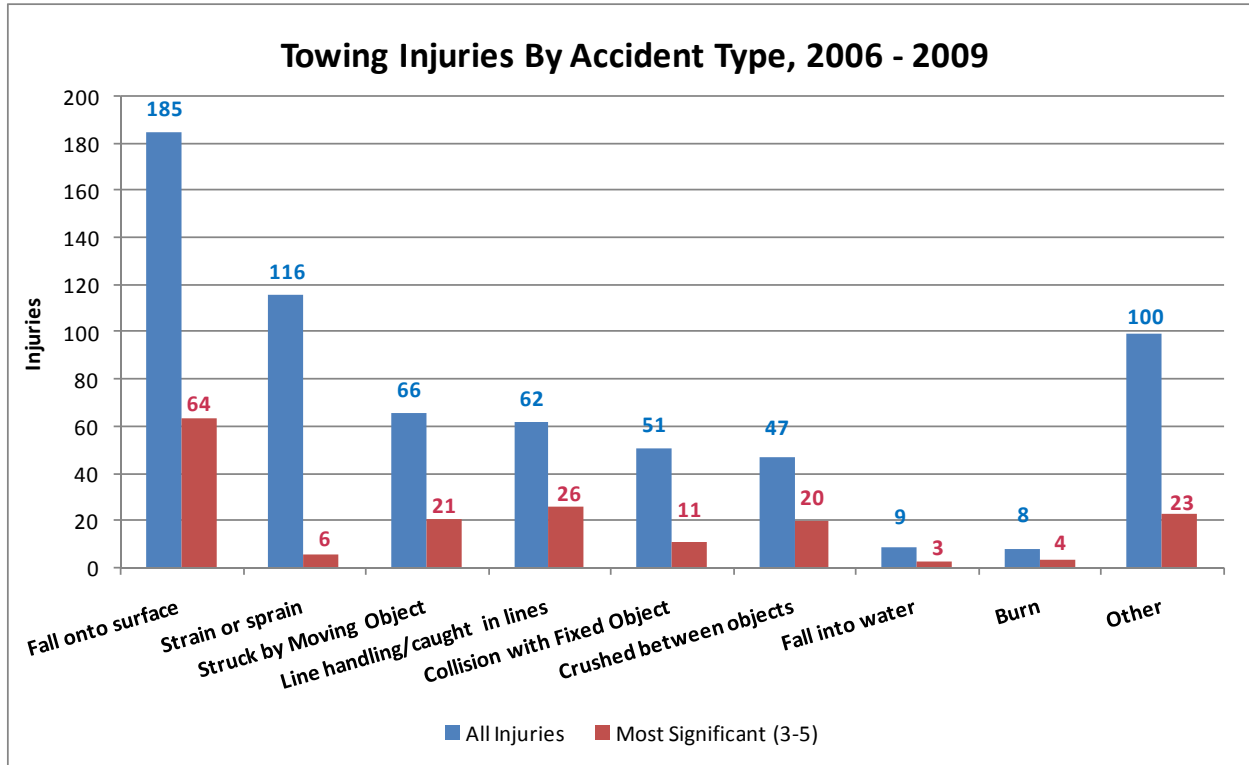
Chart 8. Crew Member Injuries



Injury data may also be grouped by type of accident. Four accident types appear to account for most of the higher severity injuries:

- Fall onto surface,
- Struck by moving object,
- Line handling/caught in lines, and
- Crushed between objects.

Chart 9. Injuries, By Accident Type



Severity Classes for Vessel Casualties

Incident Severity	Description
Low	Damage: \$0 - \$50,000 or not reported No injuries or deaths Pollution: 0 - 10 gallons of oil spilled CG Casualty Class: None/Routine
Medium	Damage: \$50,001-\$250,000 No injuries or deaths Pollution: 11-1000 gallons of oil spilled CG Casualty Class: "Significant"
High	Damage: \$250,001 or more ANY injuries or deaths Pollution: 1,001 or more gallons spilled Casualty Class "Serious" or "Major"

Injury Severity Scale

Injury Severity Scale Description and Examples

Minor The injury is minor or superficial. No professional medical treatment was required.

Examples: Minor/superficial scrapes (abrasions); minor bruises; minor cuts; digit sprain; first degree burn; minor head trauma with headache or dizziness; minor sprain/strain

Moderate The injury exceeds the minor level, but did not result in broken bones (other than fingers, toes or nose), loss of limbs, severe hemorrhaging, muscle, nerve, tendon or internal organ damage. Professional medical treatment may have been required. If so, the person was not hospitalized for more than 48 hours within 5 days of the injury.

Examples: Broken fingers, toes or nose; amputated fingers or toes; degloving of fingers or toes; dislocated joint; severe sprain/strain; second/third degree burns covering 10% or less of body (if face included, move up one category); herniated disc

Serious The injury exceeds the moderate level and requires significant medical/surgical management. The person was not hospitalized for more than 48 hours within 5 days of the injury.

Examples: Broken bones (other than fingers, toes, or nose); partial loss of limb (amputation below elbow/knee); degloving of entire hand/arm or foot/leg; second/third degree burns covering 20-30% of body (if face included, move up one category); bruised organs

Severe The injury exceeds the moderate level and requires significant medical/surgical management. The person was hospitalized for more than 48 hours within 5 days of the injury and, if in intensive care, was in for less than 48 hours.

Examples: Internal hemorrhage; punctured organs; severed blood vessels; second/third degree burns covering 30-40% of body (if face included, move up one category); loss of entire limb (amputation of whole arm/leg)

Critical The injury exceeds the moderate level and requires significant medical/surgical management. The person was hospitalized and in intensive care for more than 48 hours within 5 days of the injury.

Examples: Spinal cord injury; extensive second- or third-degree burns; concussion with severe neurological signs; severe crushing injury; internal hemorrhage; second/third degree burns covering 40% or more of body; severe/multiple organ damage