

Vessel Safety

An analysis of vessel casualties shows that equipment failures are the most common type of casualty, followed closely by vessel maneuverability incidents which are often the result of an equipment failure. Allisions, groundings, fires, and collisions most often occur on uninspected commercial vessels. This is primarily due to the reduced regulatory oversight related to inspections, licensing, and manning for such vessels. Across the board, human factors continue to play a primary role in the causal chains of most vessel incidents.

The Puget Sound zone has a large amount of commercial freight, fishing, and towing traffic, and many of the reported casualties are aboard these vessels. Historically, most are equipment related casualties, remedied before more catastrophic consequences occur.

Passenger Vessels

Inspected passenger vessels make up almost 50% of the fleet of vessels in Puget Sound, carry over 28 million passengers annually, and operate at increasingly higher speeds. Similar to other vessel types, the majority of passenger vessel casualties are equipment failures and associated diminished maneuverability due to those failures. Most are minor in nature and quickly remedied before the incident develops into a more hazardous situation.

Washington State Ferries

A significant subset of passenger vessels, the Washington State Ferry system is a large entity demanding specific attention. WSF operates 29 vessels and carries over 26 million passengers on over 180,000 annual transits. The largest percentage of passenger vessel casualties is related to WSF transits. However, when normalized to the high percentage of WSF ferry transits relative to other vessel traffic, it is clear that the safety record of the WSF system is above average. This is most likely due to a well-established preventative maintenance program, a high quality workforce with relatively low turnover, and a resultant high corporate knowledge factor of various shipboard systems and procedures which collectively act to reduce equipment and human error related issues.

Although the operational record of this organization is very good (potentially indicating a low likelihood of occurrence of a future major casualty), the potential consequences of a casualty given the high passenger exposures indicates significant overall risk and therefore requires that the Coast Guard continue to keep WSF as an area of emphasis.

DUKW Operations

These unique World War II vintage vessels provide a novel small passenger vessel experience but also present some safety challenges since they were originally designed as a military vehicle, not a passenger vessel. The local DUKW fleet of 6 vessels is predicted to increase to 10 over the next couple of years.

Tank Vessels

Though mitigated by a deep and wide waterway, improvements in crew competency, tug escorts and the oversight of VTS and pilots, the inherent hazards of the transportation of a significant volume of oil represent a very high consequence should a major grounding and large-volume oil spill occur. Tank vessel and other deep draft oil spills for the past 3 years have resulted exclusively from cargo operations, rather than the result of groundings or power loss.

Although available data indicates a relatively low probability of a high-volume spill, the overall risk is still significant given the high consequence level. Risk assessment in this area is compounded by the length of the transit to terminal, and the number of transits (more than 6 per day on average)

All things considered, it is clear that MSO Puget Sound must continue to be vigilant in ensuring safe operations and full enforcement of all available pollution prevention regulations and requirements related to tank vessel operations.

Uninspected and Fishing Vessel Safety

Uninspected commercial vessels such as tugs, fishing vessels, and construction/general purpose vessels consistently have the lowest rates of compliance with pollution prevention regulations.

Most significantly, commercial fishing continues to rank at or near the top of the list of most hazardous occupations in the United States. A 1997 U.S. Coast Guard report indicates approximately 42% of maritime industry fatalities occur in the commercial fishing segment. U.S. commercial fishing industry vessel safety standards are lower than for other domestic commercial vessels, and lower than international standards for fishing vessels. However, many fishermen oppose additional regulation because of their concerns about implementation costs.

The safety risk drivers associated with the commercial fishing industry are dynamic and often regional in nature. Different operating conditions, and varying vessel/gear/fishery combinations create different safety problems. The Washington State based commercial fishing fleet's distinct components range from "mom and pop", close to shore catcher vessels, to large factory trawlers which engage in fishing and processing operations hundreds of miles off shore in inclement weather and sea conditions.

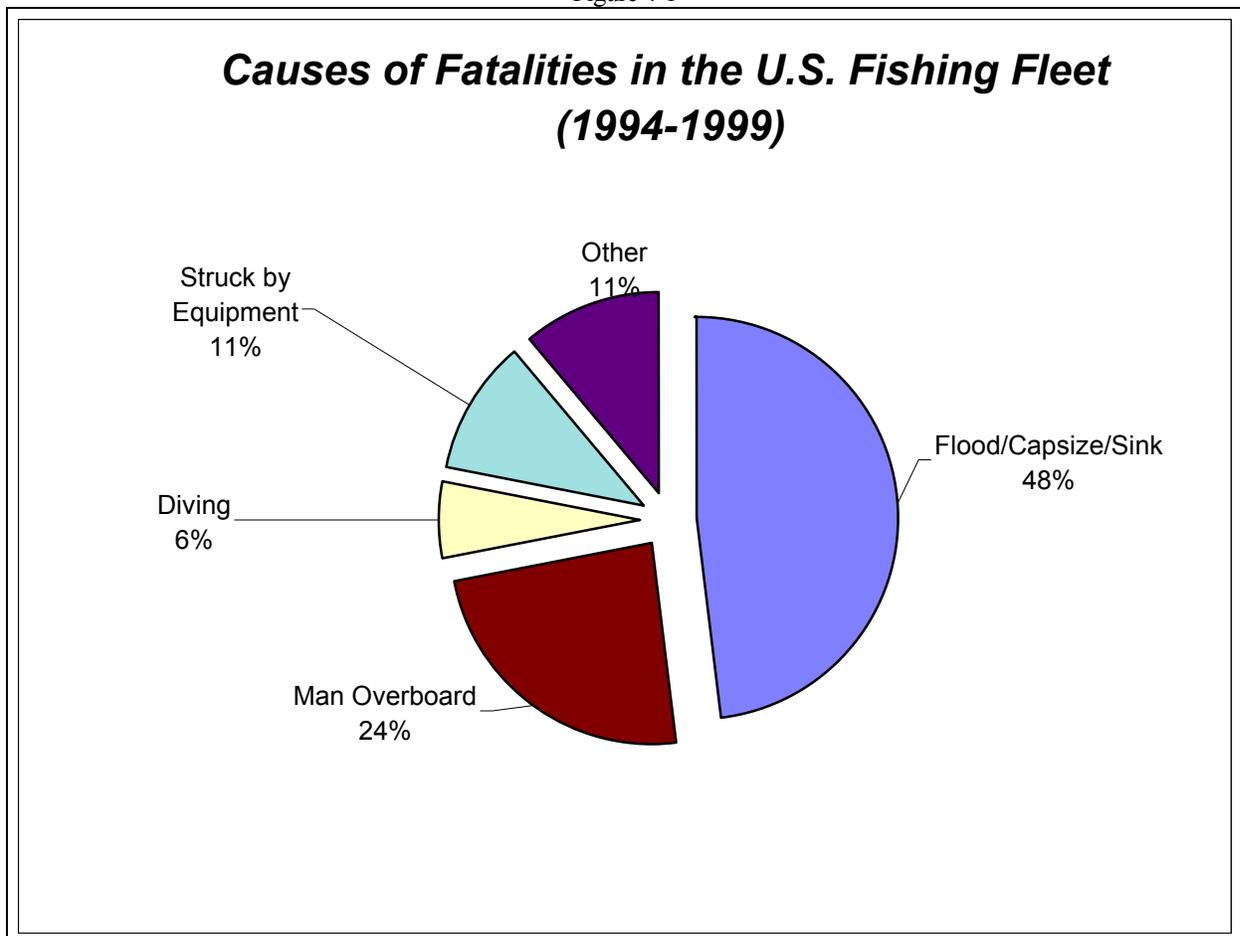
Critical factors considered in assessing risk associated with the Washington State based local and distant water fishing fleet include, but are not limited to:

- Crew competency
- Distance the vessel will operate offshore
- Number of people aboard
- Size of vessel

- Intact stability
- Weather/ Season (fair to extreme)
- Availability of assistance
- Fishery management regime (derby style, quota)
- Nature of work
- Towing nets
- Setting pots
- Open hatches
- Handling heavy equipment on deck
- Variable loading conditions at sea

A 1999 USCG Headquarters analysis of casualty data identified the number one cause of commercial fishing fatalities to be flooding/capsizing/sinking, followed by falling overboard and being struck by equipment. Data for the Pacific Northwest and Alaska is similar.

Figure 4-1



Source: (USCG. 1999. "Analysis of fishing vessel casualties 1994-1998." Washington D.C.: U.S. Coast Guard

Seventy-eight percent of the fishing vessels sustaining serious casualties (fatalities and/or vessel loss) in the 13th and 17th Coast Guard Districts did not have a Commercial Fishing Vessel Safety Examination Decal.

The leading contributing factors to fishing vessel casualties are: (1) inadequate preparation for emergencies, (2) poor vessel and/or safety equipment conditions, and (3) lack of awareness of or ignoring stability issues.

Vessel Security

Considering the number of annual vessel arrivals, variety of vessel types, the vast size of the geographic area of responsibility, and the wide-ranging infrastructure diversity makes it clear that this geographic region presents a unique and tremendous challenge to the Captain of the Port to effectively deter acts of maritime terrorism.

Total deep-draft vessel arrivals tops 3000 vessels annually – equating to approximately 9 arrivals daily to ports throughout the Puget Sound. The types of vessels arriving in the Puget Sound include tugs with barges in tow, container ships, bulk cargo ships, petroleum tankers, chemical tankers, passenger vessels, cruise ships, high speed ferries, auto/passenger ferries, and occasionally liquefied petroleum gas tankers. The length and time required to transit Puget Sound from sea is an additional factor. Transits from sea to terminal are typically at least 100 nautical miles, with a large percentage reaching 120 nautical miles or more to the further southern reaches of the Puget Sound. The wide-ranging infrastructure diversity adds yet another critical element specific to security concerns in the Puget Sound area.

In summary, there is no other west coast port that presents a comparable level of overall diversity and complexity in combating maritime terrorism. As a result, the security challenge to address these varied elements drives the execution of nearly every mission area in Puget Sound.

Vessel Traffic Service

As the sector operator monitors vessel traffic at the VTS, he or she must be attuned to the factors affecting the vessel and the consequences of the combination of factors acting on the vessel and the operator. These factors include the maneuvering characteristics of the vessel, the weather, the effect of the weather on the vessel and the operator's ability to see, the number of people in the pilothouse, and the experience level (both conning vessels and operating in the area) of the person operating the vessel. In addition, the amount of time the vessel operator may have been working (fatigue possibility), the language skills of the operator, whether the person speaking on the radio is actually the person operating the vessel, the ability of the operator to notice subtle changes in aspect of his or her vessel based on visibility, speed of the vessel, and the construction of the pilot house are all items to be aware of and monitored.

Virtually all participant vessels operate within the regulations, allowing the sector operators to quickly identify non-routine situations and intervene before vessels get *in extremis*.

Credentialed Personnel

Reports of positive drug tests on mariners continue and remain relatively unchanged. This is inevitable as the behavior of mariners is but a reflection of societal behavior at large. The USCG investigates illegal drug involvement by credentialed mariners to ensure that mariners serving in safety-sensitive positions are not placing the passengers, crew, cargo, vessel, or themselves in harm's way.

The largest group of non-drug related incident investigations involve negligent vessel operations (e.g. groundings/allisions) and violations of the navigation rules (Rules of the Road). These incidents most often occur within the uninspected vessel fleet.

In support of the USCG's growing homeland security mission, merchant mariners now undergo a rigorous review of their backgrounds when applying for, renewing, or upgrading their credentials. Increased emphasis has been placed on thoroughly screening and investigating all merchant mariners with criminal backgrounds. Mariners failing to fully disclose their criminal histories stand to have their credentials denied at time of application, or be pursued under suspension and/or revocation proceedings for credentials already held.

Port Safety and Security

The MSO missions emphasize port safety and security, including safeguarding ports, harbors, vessels, and waterfront facilities from accidents, negligence, terrorism, and sabotage. Port safety and security are closely related, mutually supportive and are often conducted concurrently in field operations. However, balancing the multi-mission requirements and competing demands on resources requires deliberate risk based decision-making.

Containers and Hazardous Material Inspections

MSO Puget Sound conducts hazardous material container inspections on an almost daily basis in accordance with Commandant policy. Under the policy and procedures set forth in the Marine Safety Manual, containers and portable tanks are inspected for compliance with the Hazardous Materials regulations in 49 CFR 171-180 and the Safety Approval of Cargo Containers in 49 CFR 450-453. As resources permit, random container inspections are also conducted in accordance with Commandant policy to prevent illegal shipments of undeclared hazardous materials.

The risks of carrying explosives by ship are well established, and consequently it is a well-regulated and monitored activity. The COTP Puget Sound carefully reviews each application for permit to handle explosive materials and regularly provides supervisory details to oversee the loading of both commercial and military explosive materials throughout the Puget Sound.

Facility Inspections

Existing regulations for designated waterfront facilities, cruise ship passenger terminals, and oil or bulk hazardous materials facilities address security issues in varying degrees depending on the type

of facility. The U.S. Code of Federal Regulations (CFR) places the primary responsibility for facility physical security on the facility owners and operators, who are required to take all necessary precautions to protect their facilities. Additionally, Title 33 CFR, Part 6 gives the COTP broad authority to ensure the security of the port, including the promulgation of local regulations for the protection and security of waterfront facilities.

In 2002, the COTP Puget Sound conducted multiple assessments of designated waterfront facilities in the Puget Sound area for security discrepancies, evaluating each facility's security requirements based on potential hazards and existing security measures. Evaluation of this information allowed the creation of a comprehensive matrix that describes the facilities by type, physical and procedural security, economic significance, and population density near the facility.