



### 4.3.3 Drowning

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Drowning is death from suffocation, typically associated with swimming, fishing, boating or bridge accidents, or suicide. Every day, about ten people die from unintentional drowning. Of these, two are children aged 14 or younger. Drowning ranks fifth among the leading causes of unintentional injury death in the United States. From 2005-2014, there were an average of 3,536 fatal unintentional drownings (non-boating related) annually in the United States — about 10 deaths per day. An additional 332 people died each year from drowning in boating-related incidents. Drowning rates are particularly high for children ages 1-14. The Centers for Disease Control and Prevention (CDC) estimates that drowning is the second leading cause of injury death (after motor vehicle crashes) among children ages 1-14. (CDC 2016).

Drowning accidents can be categorized as unintentional, suicide, homicide, or undetermined depending on the circumstances (PA DOH, 2004). Unintentional drowning can be a significant hazard in communities with numerous water bodies (e.g. ponds, lakes, rivers, etc.) and extensive outdoor recreational activity. In addition, drowning accidents can occur in swimming pools at private residences as above ground pools such as “kiddie pools” and inflatable pools become more popular.

#### Location and Extent

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Drowning can be a significant hazard in communities with numerous bodies of water (ponds, lakes, rivers, etc.) and extensive outdoor recreational activity. Pike County has been and continues to grow in popularity as a tourist destination. Water related recreational opportunities such as fishing, boating, and swimming are popular among visitors. Some of the most popular tourist destinations in Pike County are the Delaware Water Gap National Recreation Area waterfalls, Lake Wallenpaupack, Pecks Pond (owned partially by the state) in Porter Township, two lakes at Promised Land State Park (Greene Township), and the Delaware River specifically in the Delaware Water Gap National Recreational Area. In addition to natural bodies of water, swimming pools are another location where drownings occur. Many swimming pools are located at residences and at hotels, resorts, and residential communities located throughout Pike County.

One of the most popular tourist destinations in the county is Lake Wallenpaupack where drownings are a frequent occurrence. The Palmyra Township Beach is the only public beach on Lake Wallenpaupack; however, there are numerous other private properties surrounding the lake.

Drownings also have occurred in the Delaware River, where the danger stems from swift currents, deep holes, and sudden drop offs (NPS 2008). Milford Beach is a popular swimming location along the Delaware River and contains a federal boat launch in addition to its sand beach.

#### Range of Magnitude

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By definition, drowning generally results in death. However, nonfatal drownings can cause brain damage that may result in long-term disabilities including memory problems, learning disabilities, and loss of basic nervous system functions. In a typical year, counties in Pennsylvania can range from having 0 to 100 drowning incidents and depend on factors such as the physical environment (access to water bodies) and a combination of social and cultural issues (wanting to learn how to swim and interest in recreational water-related activities).

Drowning is ranked seventh for the leading cause of injury death in Pennsylvania. Across the state, 33-percent of residents who died from drowning were under 20 years of age (PA DOH, 2004). Approximately 76-percent of drowning accidents in Pennsylvania from 2001 to 2005 have been unintentional, another fourteen percent were suicides, eight percent were from undetermined causes, and less than two percent were deemed homicides.



A worst case scenario for drowning occurred in July of 2009 when a man drowned when boating with family and friends in Lake Wallenpaupack. Numerous rescue teams from Pennsylvania, New York, and New Jersey, including the FBI, state police, state Fish & Boat Commission and area volunteer response teams assisted in the search for the body (News Eagle, July 24, 2009). It took a week to recover the body from the water because of cold water temperatures and the nature of the bottom of the lake. It was the second drowning in Lake Wallenpaupack that month.

### Past Occurrence

There is no official federal, state, or county reporting system for drownings; however, the Pennsylvania Department of Health has a report of drowning deaths that occurred in Pike County between 1999 and 2014. Table 4.3.3-1 lists the number of deaths from drowning and submersion in the county. The data does not include information about the water bodies where the drownings occurred.

**Table 4.3.3-1. Incidents of drowning and submersion that have occurred in Pike County**

Years	Number of Deaths
1999	0
2000	0
2001	1
2002	2
2003	0
2004	1
2005	0
2006	3
2007	0
2008	0
2009	3
2010	0
2011	1
2012	0
2013	1
2014	2
<b>TOTAL:</b>	<b>14</b>

Source: PA DOH Enterprise Data Dissemination Informatics Exchange (EDDIE) 2016

According to the National Park Service, between 1980 and 2008 there have been 56 deaths due to drowning in the Upper Delaware River, which stretches from Wayne County to Milford. Twenty nine of those that drowned were swimming or wading and the average age was 28. The National Park Service report does not include the specific locations in the Upper Delaware River where the drownings occurred (Pike County HMP 2012).

Available details regarding drowning incidents that occurred in Pike County are discussed below:





- February 2006 – A boater went missing on the Delaware River in Westfall Township; a search was conducted and the body was recovered.
- April 2008 – A search was conducted on the Delaware River in Lehman Township for two boaters. The report is inconclusive as to the status of the boaters.
- May 2009 - A man’s body was discovered near a dock in Lake Wallenpaupack.
- July 2009 - A mother of two wandered away from a beached boat and died of an accidental drowning in Lake Wallenpaupack.
- September 2009 - A Florida man drowned in Lake Wallenpaupack near the Seeley’s Landing area.
- May 31, 2010 – A 31-year old man drowned while trying to swim across the Delaware River at Milford Beach.
- July 2016 – A man drowned in Westcolang Lake in Lackawaxen Township

**Future Occurrence**

It is impossible to predict when and where drowning may occur; however, given past occurrences of drownings in Pike County the majority have occurred in Lake Wallenpaupack or the Delaware River. During the warm summer months, as activities such as swimming, boating and fishing increase, and as such, so does the likelihood of drowning.

For the 2017 HMP update, the most up-to-date data was collected to calculate the probability of future occurrence of drowning events for Pike County. Information from the 2012 County HMP, the Pennsylvania Department of Health’s Enterprise Data Dissemination Informatics Exchange (EDDIE) system and internet searches were used to identify the number of drought events that occurred between 1950 and 2015. Using these sources ensures the most accurate probability estimates possible. The table below shows these statistics, as well as the annual average number of events and the estimate percent chance of an incident occurring in a given year. Based on these statistics, there is an estimated 94-percent chance of a drowning occurring in any given year in Pike County.

**Table 4.3.2-5. Probability of Future Drowning Events**

Hazard Type	Number of Occurrences Between 1950 and 2015	Rate of Occurrence or Annual Number of Events (average)	Recurrence Interval (in years) (# Years/Number of Events)	Probability of Event in any given year	Percent Chance of occurrence in any given year
Drowning	62	0.95	1.06	0.94	93.9%

Sources: Pike County HMP 2012; EDDIE 2016

Based on past occurrence and the popularity of Pike County as a tourist destination for water-related recreation, the future occurrence of drowning in Pike County can be considered *highly likely* as defined by the Risk Factor Methodology probability criteria (see Table 4.4-1).

**Vulnerability Assessment**

As tourism continues to increase in Pike County and number of visitors grows, drowning is likely to continue without mitigation actions in place. Municipalities that border Lake Wallenpaupack and the Delaware River are more vulnerable to drownings as their residents have easiest access to the water bodies. However, residents from other municipalities and from outside the County also frequent these natural assets.

In 2009, the rules for the Upper Delaware River, from Hancock, NY to Sparrowbush, NY (slightly upstream of Milford Beach) were changed to make wearing life jackets mandatory for people of all ages when river gage





heights at Barryville or Callicoon surpass six feet. This may reduce risk of drowning hazards in the upper river valley Pike County municipalities that border the Delaware River, however, Milford Beach is situated below the area covered by those rules.

According to the Pennsylvania Fish & Boat Commission, all children 12 years of age and younger on all Commonwealth waters must wear a personal flotation device (PFD or life jacket) while underway on any boat 20-feet in length or less and on all canoes and kayaks. All boats must have a U.S. Coast Guard approved wearable PFD on board for each person. In addition, anyone towed behind a boat (regardless of age and activity), all personal watercraft operators and passengers, and sailboarders (wind surfers) must wear a life jacket. Further, in addition to PFDs, boats 16 feet and over must have a throwable device on board (excluding canoes and kayaks) (PA FBC, 2010).

In 2012, the Pennsylvania Fish & Boat Commission mandated that a person shall wear a U.S. Coast Guard-approved PFD during cold weather months (November 1<sup>st</sup> through April 30<sup>th</sup>) while underway or at anchor on boats less than 16 feet in length or any canoe or kayak to increase chance of survival in cold water (PA FBC, 2017).

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