Watercraft Collisions with Bridges in the U.S. and Alabama

Overview: Watercraft do not appear to strike Alabama bridges frequently. A recent incident, a February 1, 2020 barge crash into the Dauphin Island Bridge, closed the bridge for 2 hours but did not result in significant damage or injury. However, the deadliest train wreck in Amtrak's history and the worst rail disaster in the US since 1958 is the result of a barge striking a rail bridge in Big Bayou Canot near Mobile, eight minutes before an Amtrak train travelled over the weakened bridge and into the bayou, killing 47 and injuring 103 (September 22, 1993).

I. Catastrophic collisions (rare)

Collisions of watercraft with bridges that lead to collapse of bridge structure are rare, however they are possible and can lead to loss of lives and significant economic and environmental damages. In the period from 1960 to 2015, there have been 18 bridge catastrophes in the U.S. that occurred due to ship and barge collisions with bridges over navigable waterways[i].

One of the more publicized tragedies in the United States (U.S.) involved the 1993 collapse of a CSX Railroad Bridge across Bayou Canot near **Mobile, Alabama**[ii, iii]. During dense fog, a barge tow became lost and entered a side channel of the Mobile River, where it struck a low-level railroad bridge causing a large displacement of the superstructure. The bridge collapsed a few minutes later when a fully loaded Amtrak passenger train attempted to cross the damaged structure. The collision and subsequent trail derailment costed 47 lives and millions of dollars[iv].

II. "Minor" to "significant" barge and towing vessels collisions with bridges

There have been numerous vessel collision accidents with bridges which caused damage that varied from minor to significant but did not necessarily result in collapse of the structure or loss of life. A United States Coast Guard (USCG) study of towing vessels and barge collisions with bridges located on the U.S. inland waterway system during the 10-year period from 1992 to 2001 revealed that there were 2,692 accidents with bridges[v]. Only 61 of these accidents caused bridge damage in excess of US$500,000 (1,702 caused very minor damage with no repair costs to the bridge), and none resulted in fatalities[vi].

III. U.S. Coast Guard statistics on collisions of recreational vessels with fixed objects (such as dock or bridge) [vii,viii,ix,x,xi]

2018 is the most recent year of available recreational boating statistics reported by the U.S. Coast Guard. Below are included recreational boating statistics for the U.S. and Alabama for the years 2014-2018 for all recreational boating accidents as well as accidents reported as "vessel collision with a fixed object e.g. dock or bridge".

a) U.S.

Collision of watercraft with a fixed object (such as dock and bridge) was the 2nd most common cause of recreational boat accidents in the U.S. for four out of the five years between 2014-2018 (every year, except for 2014). Additionally, for each of these 5 years, rivers were among the bodies of water associated with second-highest rate of boat accidents.

Table 1. U.S. recreational boating statistics: statistics for all accidents and vessel collisions with a fixed object

Year	Total number of recreational boating accidents in the U.S.	Accidents due to vessel collision with a fixed object	Deaths due to recreational boating accidents	Deaths due to vessel collision with a fixed object	Injuries due to recreational boating accidents in the U.S.	Injuries due to vessel collision with a fixed object
2018	4,145	470	633	62	2,511	296
2017	4,291	470	658	63	2,629	327
2016	4,463	565	701	63	2,903	432
2015	4,158	470	626	58	2,613	321
2014	4,064	452	610	51	2,678	355

b) Alabama

The table below presents the data on the total number of recreational boating accidents in Alabama, and economic losses associated with such accidents as well as the number of recreational boating accidents caused by a collision of a vessel with a fixed object (such as dock or bridge). The information on economic damage due to accidents caused by collision of a vessel with a fixed object is not available in the report.

Table 2: Recreational boating accidents in Alabama

Year	Economic losses due to all reported recreational boating accidents in AL	Total year-end number of recreational boating accidents in AL	Recreational boating accidents due to collision with a fixed object in AL
2018	$855,500.00	66	9
2017	$1,023,880.00	70	8
2016	$560,610.00	46	14
2015	$1,137,475	79	12
2014	$672,100	71	7

[i] Knott, Michael, and Winters, Mikele (2018). Ship and barge collisions with bridges over navigable waterways. *PIANC-World Congress Panama City.* [Online]. Accessed on 1 May 2020.

[ii] Ibid

[iii] Voyiadjis, George (2008). Feasibility of tubular fender units for pier protection against vessel collision. *Louisiana State University.* [Online]. Accessed on 1 May 2020.

[iv] Ibid

[v] See note (i)

[vi] Ibid

[vii] U.S. Department of Homeland Security, U.S. Coast Guard (2019). 2018 Recreational Boating Statistics. Office of Auxiliary and Boating Safety. [Online] Accessed on 1 May 2020.

[viii] U.S. Department of Homeland Security, U.S. Coast Guard (2018). 2017 Recreational Boating Statistics. Office of Auxiliary and Boating Safety. [Online] Accessed on 1 May 2020.

[ix] U.S. Department of Homeland Security, U.S. Coast Guard (2017). 2016 Recreational Boating Statistics. Office of Auxiliary and Boating Safety. [Online] Accessed on 1 May 2020.

[x] U.S. Department of Homeland Security, U.S. Coast Guard (2016). 2015 Recreational Boating Statistics. Office of Auxiliary and Boating Safety. [Online] Accessed on 1 May 2020.

[xi] U.S. Department of Homeland Security, U.S. Coast Guard (2015). 2014 Recreational Boating Statistics. Office of Auxiliary and Boating Safety. [Online] Accessed on 1 May 2020.