Vessel Casualty Allision Events Where Insufficent Air Draft Resulted in Overhead Strikes to Bridges, Cables or other Obstructions CY 2003 to Mar 2014

The following are the results of a review of vessel and facility casualties where "Allision" or "Collision" was recorded as one of the events involved in marine casualty. Typically, when an underway vessel makes contact with a stationary object it is referred to as an allision but, from experience sometimes this event is mistakenly entered into the database as a collision (contact between two moving vessels or objects). The database structure requires querying for a bridge having an allision and/or collision event and then joining this to the corresponding vessel data which indicates a vessel bridge strike. The database doesn't contain a specific indicator to identify a bridge strike when air draft is a factor. Therefore, a series of field filters, several specific word searches and reading case narratives are used to identify desired data.

Over the past eleven years there were 16,962 vessel events where an allision or collision occurred. Over the same time period there were 2,961 facility events involved in either an allision or collision. Of those facility events, 1,786 involved a vessel alliding with some part of a bridge. Of these, 205 incidents were identified as meeting criteria of an overhead strike of a bridge, cable or other overhead obstruction by a vessel. All 205 incidents involved a bridge (fixed, swing, lift or draw bridge). There are no records involving vessel strikes to overhead power cables or other overhead obstructions. The table below shows the number of bridge strikes by Coast Guard District per calendar year:

Count of Incidents	CY												
CG District	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**	**2009**	**2010**	**2011**	**2012**	**2013**	**2014**	**Grand Total**
CGD EIGHT	3	15	11	10	6	11	12	10	1	8	8	1	96
CGD ONE	1	5	5	1		3	4	2	4	8	2	2	37
CGD NINE	2	5	4	6	4	3	3	1			2		30
CGD FIVE		1	1	2	3	2	2	1	1				13
CGD SEVEN			1		4	1		1		2	2		11
CGD THIRTEEN		1	2	4	1					1			9
CGD ELEVEN		1	1	2		2	1			1	1		9
Grand Total	6	28	25	25	18	22	22	15	6	20	15	3	**205**

Over the past eleven years overhead bridge strikes account for 1.2% of all vessel allisions. The most overhead bridge strikes occurred in the Eighth Coast Guard District, nearly three times that of any other district. The Eighth District encompasses most western rivers and the central and western gulf coast with very many bridges and a vibrant brown water industry. Waterborne commerce is conducted exclusively by towboats pushing or towing barges on these shallow rivers, canals and waterways. Towing vessels and barges are the most involved in bridge strikes where air draft is a factor. The next table shows the number of allisions by vessel class:

Vessel Class	Count of Incidents
Towing Vessel	66
Barge	59
General Dry Cargo Ship	18
Passenger Ship	15
Fishing Vessel	13
Offshore	12
Tank Ship	9
Bulk Carrier	6
Recreational	4
Ro-Ro Cargo Ship	2
Refrigerated Cargo Ship	1
Grand Total	**205**

The upper mast is the most common part of a vessel involved/damaged in bridge strikes. Barges equipped with or that carry portable cranes not properly stowed and those fitted with mooring spuds not properly adjusted are the most frequent vessel parts making contact or damaged in vessel/bridge allisions.

Vessel Part Contacted/Damaged	Total
Mast	76
Crane	31
Spud	28
Antenna	26
Barge Fittings	21
Wheelhouse	8
Outriggers	8
Stack	3
Cargo	3
Stern Ramp	1
Grand Total	**205**

Of the 205 bridge allisions, 171 events can be attributed to the vessel operations, 27 to bridge operations and 7 to a technical third party (shipyard or contractor). The most common fault or reason that a bridge allision occurs is the vessel's crew loss of situational awareness, attention to detail or tasks in voyage planning that must be accomplished during the transit to ensure safe passage.

Reason/Fault Attributed	Bridge	Third Party	Vessel	Grand Total
Situational Awareness	2	1	145	148
Operator Error	12		14	26
Technical Measurement	4	6	10	20
Failed to Fully Open	6			6
Mechanical Error	3		1	4
Weather			1	1
Grand Total	**27**	**7**	**171**	**205**

Ultimately, 33 CFR 164.80 requires voyage planning to include knowledge of tides and currents and consideration of drafts and vertical clearance for all bridges before getting underway for the intended voyage.

The data for this analysis were compiled from the Coast Guard's Marine Information for Safety and Law Enforcement system (MISLE) Investigation activities and extracted using the Coast Guard Business Intelligence (CGBI) cubes for vessel and facility casualty events on April 24, 2014.