



National Transportation Safety Board
Washington, D.C. 20594

Marine Accident Brief No. DCA 99MM024

**Collision of Two Recreational Motorboats on the
St. Croix River near Bayport, MN
July 3, 1999**

Vessel No. 1: Unnamed recreational vessel, Advantage Victory model, 27' 5"-cabin (cuddy) motorboat, fiberglass, MerCruiser Magnum 454 cubic inch engine, ID No. AV127538B9999, Minnesota Registration No. MN-3064-DD, built in 1999.

Vessel No. 2: Unnamed recreational vessel, Bayliner Arriva model, 22' 8" cabin (cuddy) motorboat, fiberglass, MerCruiser 454 cubic inch engine, ID No. WBLIA26KDA606, Wisconsin Registration No. WS-7793-EJ, built in 1996.

Accident Type: Collision

Location: St. Croix River near Bayport, Minnesota

Date: July 3, 1999

Time: 0125 (local)

Owner: Advantage - Scott Robert Deville, Dresser, Wisconsin
Bayliner - Michael John Flamang, Solon Springs, Wisconsin

Property Damage: Advantage - \$42,000
Bayliner - \$28,900

Injuries: Advantage - 3 deaths
Bayliner - 2 deaths

Complement: Advantage - 3
Bayliner - 2

Accident Synopsis

About 0125 on July 3, 1999, a 27-foot Advantage recreational motorboat (Advantage) with three men on board and a 22-foot Bayliner recreational motorboat (Bayliner) with two men on board collided on the St. Croix River near Bayport, Minnesota. (See figure 1.) No one witnessed the accident; however, the damage path across the top of the Bayliner indicated that the Advantage struck the starboard side of the Bayliner, forward of the windshield, and passed over the motorboat. All five occupants of the two motorboats died as a result of the collision. The three occupants of the Advantage died from drowning. The two occupants of the Bayliner died from blunt force trauma.

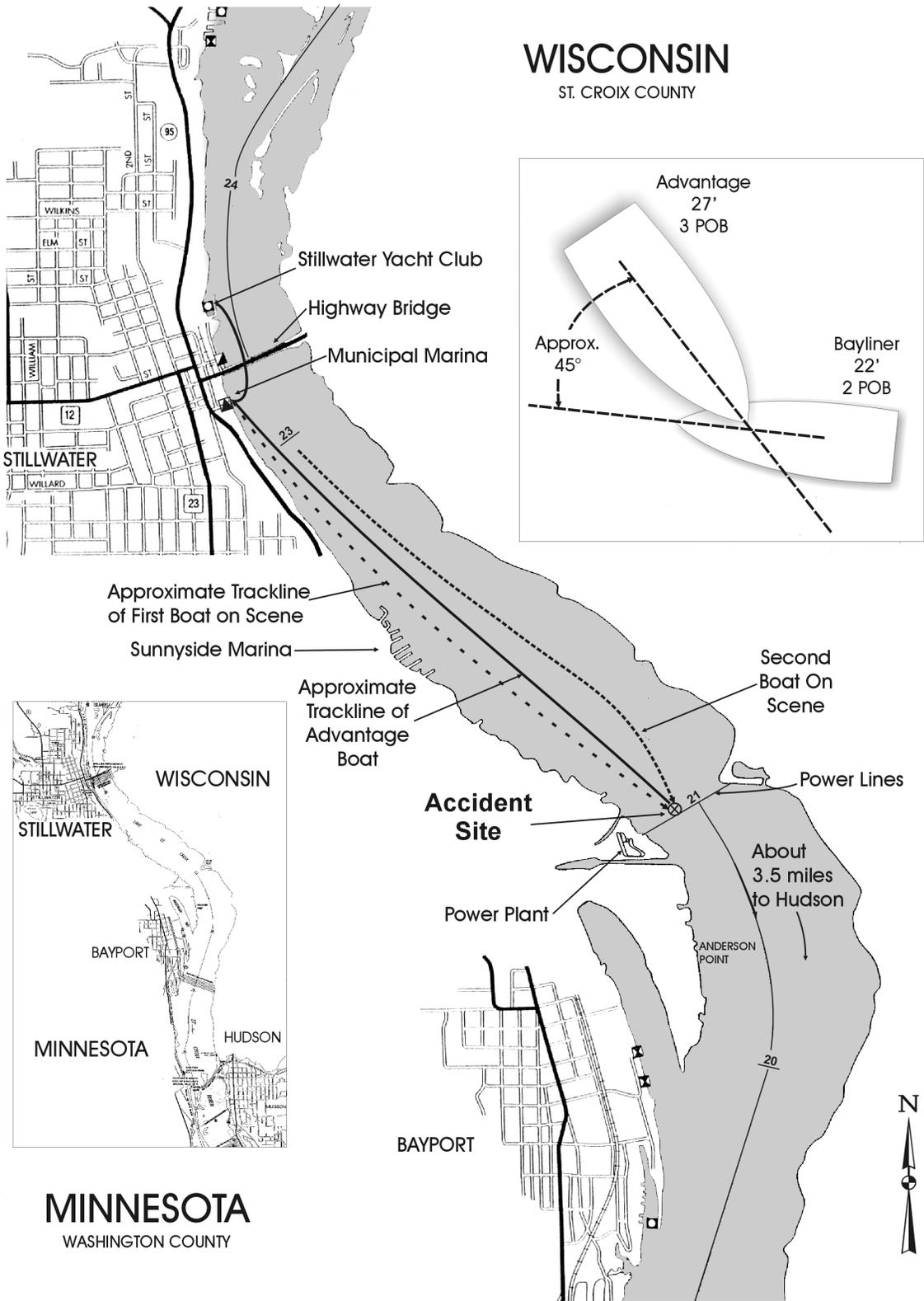


Figure 1. Accident Site

Preaccident Events

Weather conditions

Local weather reports indicated that winds in the area were from the southeast at 5-10 mph, the air temperature was about 75°F, and the water temperature was 75°F. The river current was negligible. According to various witnesses and sources, heavy rain moved northward through the area that night. The accident site reportedly received heavy rain about 20 minutes before the accident. The rain ended at Stillwater, about 2 miles north of the accident site, about 0110. Boaters who departed Stillwater about 10 minutes before the accident stated that they did not encounter rain at the accident site.¹

Movements of the Advantage

The Advantage owner, one of its passengers, and several others had spent the day visiting and drinking on board the boat from about 1600 on July 2 until the motorboat departed the Stillwater Yacht Club marina (mile 23.4) about 0110 on July 3. The Advantage operator shifted from one marina berth to another between 1830 and 1900, finally mooring alongside another boat in a slip near the bar adjacent to the marina. According to witnesses, there were parties on both the Advantage and the boat to which the Advantage was moored, and the people on both boats were consuming beer and mixed drinks. The number of people on the Advantage reportedly varied from two to seven or more. Witnesses estimated that three to seven people were on board when the Advantage left the marina.²

After getting underway, the Advantage operator maneuvered his boat to pass along both sides of a 23-foot Sea Ray cabin cruiser with four people on board. The Advantage operator then proceeded at a high rate of speed under the Stillwater Highway Bridge (mile 23.3). A few minutes later, the Advantage entered the Stillwater Municipal Boat Docks marina (municipal marina), about 1,000 feet downriver from the highway bridge, where the speed of the motorboat caused a wake that disturbed other boaters. Witnesses did not observe any passengers disembarking from the Advantage or offer any other reason that the motorboat might have entered the marina. The Advantage reportedly departed the marina a couple of minutes later and headed downriver, probably arriving at the accident site about 0125. Safety Board investigators could not find any witnesses who saw the Advantage on the river from the time it departed the municipal marina until after the collision.

¹ Washington County Sheriff's Office personnel who arrived 15 minutes after the collision reported the following postaccident conditions: sky, cloudy with light rain; visibility good; and wave height, less than 6 inches.

² The Washington County Sheriff's Office investigation determined the number and names of the three people on board the Advantage. Sheriff's Office personnel also located, at another marina, a truck belonging to one of the Advantage's passengers, with the Advantage owner's boat trailer attached to the truck.

Movements of the Bayliner

A friend of the owner and the passenger on the Bayliner stated that he arrived on another friend's boat at the Stillwater Yacht Club marina from Hudson, Wisconsin, the evening before the accident. He said that he joined his friends from the Bayliner in a bar, where they visited until the bar closed. He did not recall if his friends seemed intoxicated at that time. He said that he made tentative arrangements to meet his friends from the Bayliner later in Hudson, after they had all returned from their boating excursions.

The witness said that when the boat he was riding on departed Stillwater about 0100, on July 3, the Bayliner's owner and the passenger were preparing to get underway. He stated that he saw his friends push the nose of the Bayliner away from dock, and back the boat away from its slip. The witness stated that he could see that the Bayliner's navigation lights—the white light on the stern and the green light on the bow—were illuminated. He said that he did not watch to see whether the Bayliner followed his boat downriver. When the boat he was on reached the vicinity of the power plant near mile 21, the witness said that the boat encountered extremely heavy rain that forced the operator to reduce speed and to wear goggles. According to the witness, the rain stopped by the time the boat he was on reached Hudson, about 0130. Safety Board investigators could not find any witnesses who saw the Bayliner on the river from the time it departed the Stillwater Yacht Club marina until after the collision.

Accident Discovery

First Boat on Scene

Another witness stated that he and three other people left a Stillwater restaurant about 0100 to go to the municipal marina to prepare their two boats for a return trip to Hudson. Because it was raining heavily, they remained near the restaurant entrance about 10 minutes, until the rain stopped, whereupon they walked to the marina. The witness said that while he and his friend were preparing to get their two boats underway, about 0115, he observed a white Advantage boat enter the marina at "excessive speed," causing a wake in the marina's no-wake zone. He said that someone at the marina called to the Advantage operator to "watch" his speed, whereupon the Advantage operator yelled back, "you're talking to the wrong guy, buddy," and then sped out of the marina, heading downriver.

The witness stated that he got his boat underway and proceeded downriver along the Minnesota side. He shined a spotlight on the water to see and avoid any floating debris. As the boat approached the power plant near mile 21, the witness sighted the capsized Advantage and he and his passenger stopped to render assistance. He said that the Advantage engine was not running and he could not see any sign of the vessel's occupants. He recognized the Advantage as being the boat that had entered the municipal marina at excessive speed a few minutes earlier. Moments later, the witness noticed the Bayliner about 100 yards upriver. Upon approaching the Bayliner, the witness observed

that it was extensively damaged and that the two occupants were severely injured and appeared to be dead. He noticed that the Bayliner's engine was not running, but he could hear what sounded like the vessel's bilge pump.

Using his cellular telephone, the witness reported the accident to the Washington County Sheriff's Office.³ About this time, he observed a boat proceeding downriver and used his spotlight to signal that boat's operator. As the boat approached, the witness said that the Advantage first became vertical, bow end up, and then sank into the water.

Second Boat on Scene

A witness on the second boat to arrive on scene stated that he and his girlfriend had joined a friend and his girlfriend aboard the friend's boat—the Sea Ray cabin cruiser—in Hudson during the evening of July 2 for boating and, eventually, for a trip upriver to visit a bar adjacent to the Stillwater Yacht Club marina. The boat with the two couples arrived at the marina about 2300. The witness stated that while walking to the bar, he noticed that the Advantage was tied to another moored boat.

The witness stated that as his party left the bar to go to his friend's boat, at about 0100, he noticed that the Advantage, with three men on board, appeared to be departing the marina. The two couples boarded their boat and got underway for the return trip downriver to Hudson. When the boat approached the central portion of the river, the two men on board started zipping up the plastic cover around the passenger area because it looked like it was going to rain. The witness stated that while they were doing this, the Advantage approached their boat from astern. He was surprised to see the Advantage approaching from astern, as he believed the Advantage had departed the marina about 10 minutes ahead of his boat. The two men believed that the Advantage circled their boat, but the two women stated that the Advantage first pulled up along one side and then came along the other side. One woman recalled that the Advantage first came up along their port side and then pulled up along their starboard side. She stated that the Advantage did not appear to be operating in a reckless manner and that it appeared to her that the Advantage's occupants were trying to see who was on the boat. The Advantage, according to the witness, then sped downriver past the bridge, whereupon he lost sight of it. The owner of the Sea Ray then drove under the bridge and proceeded downriver along the center of the river.

Several minutes later, as they were approaching the power plant near mile 21, the witness and the boat owner observed someone on the Minnesota side of the river waving a light, and the owner altered course to investigate. Upon approaching the Minnesota side of the river, the four occupants observed a severely damaged boat nearby. The boater waving the light told them that he had already notified the Sheriff's office using his cellular phone. Upon learning that one of the vessels involved in the accident had sunk, both of the men on the Sea Ray entered the water to see if they could find any victims, but found none. One of the men went aboard the Bayliner and determined that both

³ The Sheriff's Office dispatcher logged the call at 0129.

occupants were dead. The two men secured the Bayliner to their boat and awaited the arrival of officers from the Sheriff's Office.

About 0143 Sheriff's Office personnel arrived on scene and took charge of the damaged Bayliner and the two deceased occupants. The vessel was lifted out of the water using a boat lift at the nearby Sunnyside Marina, placed on a Sheriff's Office boat trailer, and then secured in a locked boat storage facility at the marina until the local medical examiner took custody of the deceased.

Recovery Operations

On July 3, 1999, divers recovered the Advantage, which was found in a vertical orientation with the its stern in the mud. While searching for the three occupants of the Advantage, divers found the fiberglass cover of the Bayliner's cuddy cabin nearly intact.

The first body of one of the men from the Advantage was found on the bottom of the river during the afternoon of July 4. A second body was found floating on the Wisconsin side of the river on July 5. The third body was found on the river bottom not far from the first body during the afternoon of July 5.

Postaccident Drug and Alcohol Testing

Postaccident drug and alcohol tests were negative for drugs, but revealed that all occupants of the two boats had high blood alcohol concentration (BAC) levels, as indicated below.

ADVANTAGE

owner	0.249
passengers	0.197 and 0.127

BAYLINER

owner	0.220
passenger	0.177

Minnesota State law defines a BAC of 0.10 percent as being legally intoxicated. A boater convicted of operating a boat while intoxicated can be fined, and, while there is no requirement for the operator of a recreational boat to have a license, a court may prohibit a person convicted of operating while intoxicated from piloting a recreational boat. Similarly, a conviction for driving a highway vehicle when intoxicated can result in a court order that prohibits operation of snowmobiles and boats.

Effects of Alcohol Use in Recreational Boating⁴

Behavioral research indicates that certain sensory functions and the ability to respond adequately to situations encountered in recreational boating can be affected by consumption of even small amounts of alcohol. BACs ranging from as low as 0.01 to 0.04 percent (roughly equivalent to two beers) can degrade a persons' ability to do the following:

1. Discern faint lights or objects at night,
2. Notice objects just outside the direct line of sight,
3. Respond to a constantly changing stimulus, and
4. Select a response based on the nature of the stimulus.

Highly qualified boat operators begin to suffer measurable impairment at BAC levels of 0.035 percent. It takes longer to process information, such as recognizing whether a potentially dangerous situation is developing with another vessel and then deciding how to avoid an accident. At such BAC levels a person's nocturnal vision will be more affected by glare from lights including boat navigation lights, shore lights, and even moonlight.

At BAC levels of 0.05 to 0.06 percent a person typically senses elation, becomes more talkative, and experiences increased self-confidence. Judgment is also slightly impaired. At BACs of 0.07 to 0.08 percent, a person might exhibit rambling speech, increased self-confidence, decreased inhibitions, and impaired sensory responses. At BACs of 0.09 to 0.10 percent a person might become emotional and excited. There might also be a further increase in self-confidence and a decrease in inhibitions, as well as a likely impairment of muscular coordination.

At BAC levels of 0.15 percent there will be definite impairment of balance and movement, a significant decrease in inhibition and an increase in self-confidence. Judgment and the ability to make rational decisions will be also be significantly degraded, which can lead to unacceptable risk taking. At BACs of 0.20 percent there will be considerable impairment of balance and the ability to control body movements. A person will normally exhibit slurred speech, staggering, and an inability to focus (in some cases, double vision). Individuals will likely also be incapable of safely and effectively conducting tasks such as operating machinery, driving vehicles, or operating boats.

⁴ A. James McKnight, Gordon S. Smith, Paul R. Marques, and James E. Lange, *The Effects of Alcohol Upon Human Functioning in Recreational Boating*, National Public Services Research Institute (Landover, MD: December 29, 1994).

Boater Information

According to a family member, the Advantage owner had many years of boating experience, including operating the 18-foot family boat. He had been employed as an Advantage boat salesman for 2 years. A fellow salesman stated that he had been on demonstration rides with the owner when the owner operated 32- and 34-foot Advantage models at speeds up to 65 mph. A representative of Advantage Boats at the factory headquarters at Lake Havasu, Arizona, stated that the owner had handled boats very well during factory training, which included 2-3 hours of operational time per model. The factory representative added that the owner received such training 2 years in a row. The factory representative had also worked many boat shows with the owner.

The Bayliner owner had stored his boat in dry-stack storage⁵ at the Stillwater Yacht Club marina for the past 2 years. The dry-stack manager stated that the owner used the Bayliner nearly every weekend and kept it in good condition. The manager added that the owner was agreeable, paid his rental fees on time, and normally appeared friendly and calm. The Bayliner owner's drivers license had been revoked for driving under the influence and was not in force at the time of the accident.

Other Minnesota State Laws

Minnesota presently has no license requirement for operating a recreational boat; however, the State requires that operators take boating safety education courses. Minnesota State law prohibits water-skiing from 1 hour after sunset until sunrise, effectively prohibiting this activity during the hours of darkness. (All other States have similar prohibitions against water skiing at night.) Operation of personal watercraft, for example, JET SKIS®, is prohibited between one hour before sunset and 0930, effectively barring operation during darkness and hours devoted to sleep. (All other States, except Alabama and Oregon, have similar prohibitions against operating personal watercraft at night.) There are no legal restrictions on the nighttime operation of recreational boats like the Advantage and the Bayliner.

The section of the St. Croix River upriver from Stillwater, from mile 24 to Taylor's Falls dam at about mile 52, is a slow speed zone where motorboat operation must be "at a leisurely speed less than planing speed, whereby the wake or wash created by the motorboat is minimal." From mile 24 downriver there are some 8 no-wake zones, where boating speed must be slow enough to prevent wakes; otherwise there are no speed limits on this section of the river. In the area of the accident there were no speed restrictions in place.

⁵ Boats are kept in specially designed racks inside a large building and are lifted into and out of the designated rack by a forklift and then lowered into and out of the water by a boatlift.

Postaccident Boat Examination

A group comprised of a Sheriff's Office representatives, Minnesota Highway Patrol investigators, a Coast Guard investigator, and a Safety Board marine engineer examined the two boats at a Washington County storage facility and found unopened and empty beer cans on the Bayliner and a few empty beer cans on the Advantage. Sheriff's Office deputies examined both boats using a trained narcotics detection dog and found no illicit drugs or any indication of illicit drugs on either vessel.

The Safety Board investigator measured the angle of the damage path across the Bayliner at approximately 45° on the starboard bow. (See figure 2.) The fixed fiberglass deck over the cuddy cabin of the Bayliner was knocked off by collision. Minnesota Highway Patrol investigators conducted a laser survey of the Bayliner, which was used in a computer analysis to determine the angle of the damage path. The analysis showed that the Advantage's bow struck the Bayliner on its starboard side forward, and then passed over the motorboat on a path about 43° to 45° to that vessels centerline axis, and that the Advantage probably rotated to the left as it passed over the Bayliner. (See figure 3.)



Figure 2. Bayliner, postaccident



Figure 3. Advantage, postaccident

When divers recovered the Advantage, its throttle was in the full speed position. The Advantage was capable of reaching speeds of 60 mph. The Bayliner's gearshift lever was in the forward position and the throttle was in the idle position. Also, the throttle cable at the engine was against the idle screw, which conforms to the setting of the throttle lever. However, the Bayliner's control console with the speed controls was severely damaged, and it was not possible to determine what, if any, effect the boat's operator or the collision impact had on the engine controls. The Bayliner's damage path is consistent with substantial forward movement, and the Safety Board calculated that, at impact, the Bayliner was traveling between 18 and 35 mph; the Advantage's estimated speed was 50-60 mph.⁶

Probable Cause

The National Transportation Safety Board determines that the probable cause of the collision between the Advantage and Bayliner recreational vessels was alcohol impairment, which led the two boat operators to indulge in high speed operations at night, and which impaired their ability to determine the movements of other vessels and to take appropriate action to avoid a collision.

Adopted: May 9, 2001

⁶ A representative of Advantage Boats stated that the 27-foot Advantage Victory boat, powered by a 454 cu. in. MerCruiser Magnum engine could reach 60 mph in approximately 1.5 minutes.