



## MARINE INVESTIGATION REPORT

M09W0064



COLLISION

BETWEEN

UNITED STATES FISHING RESEARCH VESSEL *VELERO IV*

AND

SMALL FISHING VESSEL *SILVER CHALLENGER II*  
QUEEN CHARLOTTE STRAIT, BRITISH COLUMBIA

08 APRIL 2009

The Transportation Safety Board of Canada (TSB) investigated this occurrence for the purpose of advancing transportation safety. It is not the function of the Board to assign fault or determine civil or criminal liability.

## Marine Investigation Report

### Collision

United States Fishing Research Vessel *Velero IV*  
and  
Small Fishing Vessel *Silver Challenger II*  
Queen Charlotte Strait, British Columbia  
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### *Summary*

At approximately 0111 on 08 April 2009, the fishing research vessel *Velero IV* and the fishing vessel *Silver Challenger II* collided east of the Numas Islands in Queen Charlotte Strait, British Columbia. Both vessels sustained substantial damage but were able to return to Port Hardy, British Columbia. One person received major injuries and was taken to hospital.

## *Factual Information*

### *Particulars of the Vessels*

Name of vessel	<i>Velero IV</i>	<i>Silver Challenger II</i>
Official Number	IMO 7738503	811875
Port of Registry	Seattle, Washington	not registered <sup>1</sup>
Flag	United States (U.S.)	not registered
Type	Fishing Research	Fishing
Gross Tonnage <sup>2</sup>	198	37.97
Length	33.5 metres (m)	12.65 m
Draught	3.96 m	2.07 m
Built	1948, San Diego, California	1989, Duncan, British Columbia
Propulsion	Atlas-Imperial diesel engine, 441 kW, single fixed-pitch propeller	Diesel engine, 430 BHP, single fixed-pitch propeller
Cargo	nil	nil
Crew	4	1 (and two friends)
Owner	Velero IV Charters, LLC	Private owner, NiNilchik, Alaska

<sup>1</sup> The *Silver Challenger II*'s Canadian registration was cancelled on 25 March 2009. The vessel was registered as U.S. fishing vessel *Guidance* on 17 April 2009. At the time of the occurrence, the vessel had neither a Canadian nor a U.S. registration.

<sup>2</sup> Units of measurement in this report conform to International Maritime Organization (IMO) standards or, where there is no such standard, are expressed in the International System of Units.

## *Description of the Vessels*

The *Velero IV* is a U.S.-registered fishing research vessel (see Photo 1) of welded steel construction with accommodation for 12 persons. The vessel is powered by a direct-drive diesel engine. The wheelhouse is equipped with navigation and communications equipment including radar, depth sounder, very high frequency (VHF) radiotelephones, two autopilots, an automatic identification system (AIS), a chart plotter, and a global positioning system (GPS). Fitted atop the vessel's deckhouse are three 1000-watt quartz floodlights and a spotlight. From the seated conning position on the bridge, visibility is obstructed in some areas to the stern and on the port bow directly below the line of sight of the vessel's superstructure. The vessel also packs salmon and herring during the fishing season.



**Photo 1.** *Velero IV*

The *Silver Challenger II* is a small fishing vessel (see Photo 2) of closed construction with a welded aluminum hull and deckhouse. The deckhouse is located forward of amidships and contains the wheelhouse, the galley, accommodation, the engine room entrance, and stairs to the wheelhouse. The wheelhouse is equipped with a centreline steering station and navigation and communications equipment including radar, depth sounder, VHF radios, an autopilot, a chart plotter, and a GPS. The steering station offers an all-round view. It is not equipped with an AIS, nor is this required.



**Photo 2.** *Silver Challenger II*

## *History of the Voyage*

On 06 April 2009 at 1130<sup>3</sup> the *Velero IV* left Metlakatla, Alaska, bound for Seattle, Washington. On board were the master, mate, engineer, and a cook. The master and the mate established a rotating watch schedule of six hours on/six hours off. After the first evening, the master and mate found this rotation to be too long and agreed to change the evening watches to four on/four off. On April 07, the master relieved the mate of his watch at 2100.

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<sup>3</sup> All times in this report are Pacific daylight savings time (Coordinated Universal Time minus seven hours).

At 2328, the vessel reported to Marine Communications and Traffic Services (MCTS) on VHF 71 that the vessel was at the calling-in point <sup>4</sup> at Jeannette Islands, British Columbia (B.C.), which is at the northeast entrance to Queen Charlotte Strait. The vessel was on autopilot and was making 9.5 knots. As the vessel proceeded toward the Numas Islands, B.C., the master noticed the navigational lights of an approaching vessel.

On 06 April 2009 at 1745, the *Silver Challenger II* left Bellingham, Washington, on a voyage to Homer, Alaska. On board were the master and two friends. <sup>5</sup> The voyage to Homer was to have taken the *Silver Challenger II* more than seven days to complete. In order to get some rest, the master established a routine with the friends standing watch alone during those portions of the trip when he did not need to be on the bridge. To this end, he provided periodic instructions to the friends on watchkeeping duties, practices and procedures, the use and capabilities of the electronic equipment, and display interpretation. The friends were also instructed to check the engine room hourly. On the morning of April 07, the *Silver Challenger II* anchored in Menzies Bay, B.C., to await slack tide in Seymour Narrows. The master and friends rested at this time. At 1530, the voyage resumed westward through Seymour Narrows and into Johnstone Strait, B.C. The master was on watch, with the vessel on autopilot and making eight knots. At 2100, the friend relieved the master of his watch; his primary duty was to maintain the vessel on the plotter track as set by the master.

At about 0000 on 08 April 2009, the friend left the wheelhouse unattended to check the engine room. He discovered that an inverter was not functioning correctly. The friend then went to awaken the master for his midnight watch and returned to the wheelhouse. A few minutes later, the master entered the wheelhouse. Both men discussed the inverter and verified the vessel's position relative to its intended course. At about this time, the master and the friend noticed lights in the distance. They determined these to be the mast, port, and starboard navigation lights of a vessel, which appeared to be off the starboard bow. The master then proceeded to the engine room, leaving the friend in the wheelhouse.

When the master returned to the wheelhouse, he consulted engine room manuals. At approximately 0055, he returned to the engine room, leaving the friend on watch.

At 0108, the fishing vessel *Nicole Joy* reported to MCTS in Comox, B.C., on VHF Channel 71 that it was passing Pulteney Point, B.C., <sup>6</sup> approximately 9.5 nautical miles (nm) south of the *Velero IV*. Seconds later, the master of the *Velero IV* focused his attention on the navigation lights of an approaching vessel. In an attempt to identify the approaching vessel, the master of the *Velero IV* looked at the AIS; <sup>7</sup> which indicated that the nearest vessel was the *Nicole Joy*.

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<sup>4</sup> Under the *Vessel Traffic Services Zones Regulations*, fishing vessels that are 24 m or more in length and greater than 150 tons gross tonnage (such as the *Velero IV*) must participate in the vessel traffic system (VTS). As required, the vessel participated in and maintained radio watch on the designated VHF frequency.

<sup>5</sup> The master had assigned duties to both friends. Only one of them, however, figures in this report.

<sup>6</sup> When passing Pulteney Point, which is located on the southwest tip of Malcolm Island, B.C., the *Nicole Joy* would not have been visible to the *Velero IV*.

<sup>7</sup> The AIS screen displays the vessel name, bearing, and range only for vessels that carry AIS.

At about 0109, the *Silver Challenger II*'s chart plotter indicated that the vessel had altered course approximately 15° to port. Shortly afterward, the master of the *Velero IV* continued to observe both port and starboard navigation lights of the *Silver Challenger II* and so altered course 5° to starboard. The master of the *Velero IV*, assuming the approaching vessel was the *Nicole Joy*, called to warn the *Nicole Joy* on VHF channel 71. There was no response. When the master realized a collision was imminent, he again called to warn the *Nicole Joy* on channel 71 and altered the vessel's course to starboard using the autopilot.<sup>8</sup> The master had also turned on the floodlights,<sup>9</sup> the glare of which reportedly blinded the friend in the wheelhouse of the *Silver Challenger II*. The master also put the engine full astern. This, however, caused the vessel to be filled with exhaust.<sup>10</sup> By this time, the *Silver Challenger II*'s chart plotter indicated an alteration of approximately 36° further to port towards the *Velero IV*.

At 0111, the *Velero IV* and *Silver Challenger II* collided .7 nm east of the Numas Islands in position 50° 45.82' N, 127° 03.15' W (see Appendix A). The impact caused the friend on watch on the *Silver Challenger II* to fall, sustain injuries, and to lose consciousness. When the master returned to the wheelhouse, he found the friend on the floor and the autopilot in standby mode.

Shortly after the collision, the master of the *Velero IV* called MCTS Comox to report that it had been hit by the *Nicole Joy* and was on fire. At 0114, the Comox Coast Guard Radio broadcast a mayday relay on VHF channel 16. The broadcast was heard by the master of the *Silver Challenger II*, who corrected the identification of the vessels involved. MCTS Comox dispatched the Canadian Coast Guard Cutter *Cape Sutil* to the scene. Later, the master of the *Velero IV* confirmed that it was not the vessel *Nicole Joy* that was involved in the collision, but rather a small fishing vessel. He also reported that the *Velero IV* was not on fire.

At 0214, the *Cape Sutil* arrived on scene and a rescue response team assessed both vessels and those on board. Shortly afterwards, the *Velero IV* and *Silver Challenger II* made their way to Port Hardy, B.C., to assess the damage and attend to the friend's injuries.

### *Damage to the Vessels*

The *Velero IV* sustained damage to the port side shell plating amidships in the area above and below the waterline, as well as damage to the steel cap/wood trim of the bulwarks near the port bow.

The *Silver Challenger II* sustained damage to the starboard portion of the deckhouse and starboard upper deck, causing it to lose watertight integrity in that area. The master made repairs in Port Hardy to the satisfaction of Transport Canada before being allowed to continue the voyage.

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<sup>8</sup> This, however, was limited by the degree of the pre-set rudder angle.

<sup>9</sup> The three floodlights are arranged to illuminate starboard forward quarter, port forward quarter, and directly in front of the vessel.

<sup>10</sup> Putting the engine control of the direct-drive engine into reverse before the engine had stopped, only reversed the cam shaft, which reversed the flow direction of the intakes and exhausts, causing exhaust gases to be vented into the engine room.

## *Weather*

The marine forecast for Queen Charlotte Strait at the time of the occurrence was for northwest winds of 10 to 20 knots. Local observations at the time of the occurrence were light winds and clear visibility.

## *Personnel Certification and Experience*

The master of the *Velero IV* was licensed by the United States Coast Guard (USCG) as master of a vessel not exceeding 100 gross registered tons (domestic tonnage) upon near coastal waters. He also held an endorsement letter certifying him as master of a vessel not exceeding 200 GT (gross tonnage) upon near coastal waters. His certification was valid until April 2013. He had over 30 years of experience in the commercial fishing industry.

The mate on the *Velero IV* was licensed by the USCG as master of a vessel not exceeding 100 gross registered tons. He had over 10 years of fishing experience.

The master of the *Silver Challenger II* was licensed by the USCG as a master of a vessel not exceeding 1600 gross registered tons (domestic tonnage), 3000 gross tons (ITC<sup>11</sup> tonnage) upon oceans. His certification was valid until February 2014. He had 20 years of experience in the commercial fishing industry and 15 years of experience on tug and barge operations.

The two friends of the master had been invited to assist with the voyage. Neither friend on the *Silver Challenger II* had any commercial maritime experience, nor did they have any marine training/certification. U.S. regulations do not require personnel on vessels of this size to have any marine certification.

## *Radio Communications*

Under the *Vessel Traffic Services Zones Regulations*, fishing vessel participation in the MCTS is compulsory for vessels 24 m or more in length and greater than 150 tons, gross tonnage. The *Velero IV* therefore participated in and maintained radio watch on the designated VHF frequency. It also maintained a listening watch on the emergency channel (16).

As a small fishing vessel of less than 24 m in length, the *Silver Challenger II* was not required to participate in MCTS; it did not maintain a radio watch on the designated frequency, nor was this required. However, earlier in the voyage, the *Silver Challenger II* had been monitoring MCTS Victoria, and it maintained a listening watch on channel 16 throughout the voyage.

## *Injuries*

The friend on the *Silver Challenger II* sustained injuries that required hospitalization.

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<sup>11</sup> International Convention on Tonnage Measurement of Ships, 1969

## *Analysis*

### *Watchkeeping Practices and Collision Avoidance*

Navigating personnel are required to employ sound navigational practices aboard their respective vessels. Such practices include making one's intentions clear to any nearby vessels, and maintaining a constant awareness of prevailing circumstances so as to be able to accurately gauge a risk of collision with another vessel and to take appropriate action in accordance with the *Collision Regulations*.<sup>12</sup> To this end, a proper lookout must be maintained at all times and by all available means. This includes but is not limited to sight, hearing, radar, and radio communication.

In this occurrence, the use of radar, for example, would have provided information on the approaching vessel's speed, distance, and bearing, as well as the closest point of approach. Such information would have allowed the crew to evaluate whether the vessel posed a risk of collision. Neither vessel, however, did this.

Establishing early radio communications is another means to provide crews with relevant information, allowing an approaching vessel's intent to be identified in time for any corrective action. In this case, however, it was not until the two vessels were about two cables apart, or 46 seconds prior to the collision, that the master of the *Velero IV* made his first radio call to warn the approaching *Silver Challenger II* (which he had mistaken for the *Nicole Joy*). Although both vessels were monitoring channel 16, the *Velero IV*'s master made his calls on VHF channel 71, a channel not required to be monitored by small vessels and one that was not being monitored by the *Silver Challenger II*. Furthermore, cross checking the AIS information with the bearing of the approaching vessel would have indicated that it was not the *Nicole Joy*. As such, there was no indication whether or not the approaching vessel was participating in the vessel traffic system (VTS) reporting scheme and monitoring VHF channel 71.

The master of the *Velero IV* also placed an emphasis on visual navigation, even though it was a night passage, which increases the difficulty of estimating distances.<sup>13</sup> After observing the running lights of the *Silver Challenger II*, he concluded that the vessels would be passing port to port. Then, after noticing that the *Silver Challenger II* had altered to port and appeared to be closing in, he responded by altering five degrees to starboard, so as to maintain a port-to-port passing. Small course alterations, however, may not be readily apparent to other vessels, whether observing visually or by radar.

An additional means of making one's intentions clear is the use of sound or other emergency signals. In this case, however, neither vessel used any. Although the master of the *Velero IV* did turn on floodlights in the last minute before the collision, the only effect was to make it difficult for the friend on the *Silver Challenger II* to see.

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<sup>12</sup> *Collision Regulations*, Schedule 1, International Regulations for Preventing Collisions at Sea, 1972, Rules 5, 7, 8, and 14 to 17.

<sup>13</sup> Estimating distances at night can also result in a false perception of increased distance.



Had the vessels involved in this occurrence used all available means to either contact the approaching vessel or make their intentions known, it is likely that one or both could have taken timely and corrective action. This, however, was not done.

### *Training and Competency*

It is important that those who take the bridge watch possess the necessary knowledge, training, and experience to safely perform the duties of their role. In this occurrence, the *Silver Challenger II*'s master decided to use someone without the necessary knowledge, training, or experience to stand a watch. Consequently, when the friend on the *Silver Challenger II* continued to observe the running lights of the approaching *Velero IV* off the starboard bow, he expected a starboard-to-starboard passing. This, however, was contrary to standard procedure,<sup>14</sup> in which vessels meeting on near reciprocal courses and posing a risk of collision are to alter to starboard for a port-to-port meeting. As a result, when the friend turned to port, he placed his vessel directly ahead of the *Velero IV*.

Therefore, given his lack of training, knowledge, and experience, he did not recognize the risk of collision, or the need to take effective avoidance action.

### *Watch and Rest Schedules*

Ensuring that watchkeepers are well-rested before their watch makes good sense. Although it was not a factor in this occurrence, the watch/rest schedule for the *Velero IV*'s master and mate was conducive to fatigue. The four hours on/four hours off schedule does not readily provide adequate opportunities to obtain quality restorative sleep. On average, a person needs about eight hours of sleep, preferably obtained during one sleep period, per day. A person obtaining less than the required amount of sleep develops a sleep debt, resulting in performance degradation and errors due to lack of attention, alertness, and vigilance.

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<sup>14</sup> *Collision Regulations, Schedule 1, International Regulations for Preventing Collisions at Sea, 1972, Rule 14.*

## *Findings as to Causes and Contributing Factors*

1. The friend on the *Silver Challenger II* did not have the necessary knowledge, training, or experience to recognize the risk of collision or to take effective avoidance action.
2. Because the vessels were meeting on near-reciprocal courses, standard procedure is for both vessels to alter course to starboard; however, the *Silver Challenger II* altered progressively to port, placing it directly ahead of the *Velero IV*.
3. Neither vessel made its intentions known to the other in a timely manner to arrange a safe passage.
4. Neither vessel used all available means to avert the collision.

## *Findings as to Risk*

1. Without the necessary knowledge and training, those who are permitted to take the bridge watch may unknowingly compromise the safety of their own and other vessels.
2. Work/rest schedules that do not provide for sufficient restorative sleep are likely to lead to fatigue, performance degradation, and errors due to lack of attention, alertness, and vigilance.

*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board authorized the release of this report on 23 February 2010.*

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# Appendix A – Area of the Occurrence

