Transportation Safety Board of Canada

Bureau de la sécurité des transports du Canada

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 Occurrence Report

# Capsizing

# of the Open Fishing Vessel CFV #132145 off Green Island Bonavista Bay, Newfoundland 05 July 1993

# Report Number M93N0001



## *Synopsis*

On 05 July 1993, the 5.5-metre open fishing vessel CFV #132145 capsized when struck broadside by a wave as a lobster trap was being reset. The three occupants, who were not wearing lifejackets or personal flotation devices (PFDs), were thrown into the water. After the owner/operator had assisted his son and grandson on to the overturned boat, he lost consciousness, was washed off the boat, and disappeared. The two men stayed with the boat, which drifted to an island where they huddled in a rock crevice until rescued the next morning.

The Board determined that the boat capsized when she was struck broadside by a breaking sea, the dynamic forces of which she was unable to withstand because of the unequal distribution of weight on board.

Ce rapport est également disponible en français.

# *Table of Contents*

# 1.0 *Factual Information*

## 1.1 *Particulars of the Vessel*

| | N/A |
|---|---|
| CFV # | 132145 |
| Home Port | Wesleyville, Newfoundland |
| Type | Wooden open fishing boat |
| Gross Tons[1] | +/- 1 |
| Length Overall | 5.5 m |
| Breadth | 1.82 m |
| Depth | 0.95 m |
| Built | 1991, Glovertown, Newfoundland |
| Propulsion | 20 HP[2] outboard motor |
| Owner | Raymond Howell Wesleyville, Newfoundland |

Open boat CFV #132145 is a well-constructed wooden boat typical of those used in the Newfoundland fishery.

## 1.2 *History of the Voyage*

At about 1500[3], 05 July 1993, three fishermen departed Wesleyville, Newfoundland, in CFV #132145. It was their intention to haul and relocate several traps from less productive areas near Green Island, Newfoundland, to an area near Flowers Island, Newfoundland.[4]

The fishermen had hauled and reset about 150 of their 200 licensed traps earlier that day. Four traps were on board, ready to be relocated. A fifth trap had just been reset about 30 to 40 m off the south-west side of Green Island. Two of the fishermen were standing on the lee side. At slow throttle, the boat was manoeuvred to continue to the next trap but was struck broadside on the weather side by a sudden large breaking wave. The boat capsized.

The three men were thrown into the water. All crew members were wearing normal clothing under oil clothes. No one wore a lifejacket or other form of personal flotation device (PFD), nor were there any carried on board. None of the crew members could swim.

The owner/operator assisted the two other crew members on to the bottom of the capsized boat. All three adjusted their positions on the capsized boat to keep her steady, but, soon after, the owner/operator lost consciousness and was washed off by a wave. He disappeared beneath the surface before the others could help him.

Over the next five hours, the two survivors continued to shift positions about the keel of the capsized boat as she

1 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 (SI) of units.

2 See Glossary for all abbreviations and acronyms.

3 All times are NDT (Coordinated Universal Time (UTC) minus two and a half hours) unless otherwise stated.

4 See Appendix A for a sketch of the area.

drifted in a south-westerly direction. A piece of rope that had been secured in the boat and an oar floated free. The rope assisted the survivors in staying on the boat, and the oar helped them keep the boat from drifting broadside to the seas.

On several occasions during their ordeal, the two crew members heard boats passing in the distance, but they had no means of summoning help.

At about 2000, just as a heavy fog began to set in, the boat drifted near some rocks, and the two men struggled ashore on Swain Island, Newfoundland. They found no shelter on the small island nor any material to start a fire. During the night, rain persisted. Weak, wet and cold, they crawled into a rock crevice.

In the early morning of 06 July, the survivors heard boats passing in the distance and realized the search for them was concentrated in the Flowers Island area. Hypothermia and the bruises and abrasions they had sustained during their ordeal had sapped their strength. By 1100, they had nearly given up hope, when they heard and then saw a boat. They managed to stand up, wave and shout, and they were rescued.

## 1.3 *Injuries to Persons*

As a result of this occurrence, the owner/operator lost his life. His body was recovered near Green Island by Royal Canadian Mounted Police (RCMP) divers at 1222 on 06 July 1993. The cause of death was determined by autopsy to be drowning due to asphyxiation caused by accidental submersion in sea water.

The other two crew members, who were rescued some 20 hours after the occurrence, suffered abrasions, bruises and hypothermia which necessitated 10 days of hospitalization.

## 1.4 *Damage*

The boat was towed to the Marine Service Centre at Wesleyville, Newfoundland, and, on examination, was found undamaged. The outboard motor was damaged by sea water.

## 1.5 *Vessel Certification*

The boat was not required to be inspected by the Ship Safety Branch of the Canadian Coast Guard (CCG) and had not been so inspected.

As a registered commercial fishing vessel, the boat was required to comply with the life-saving and fire-fighting equipment provisions of the Small Fishing Vessel Inspection Regulations (SFVIR). Part II of the SFVIR requires, inter alia, that approved lifejackets be carried for each person on board.

## 1.6 *Crew Certification and Experience*

The three crew members were professional, experienced, licensed open boat fishermen. None of them held a Certificate of Competency. No such certificate is required to operate a boat of this size.

## 1.7 Weather

Weather conditions reported during the day were south-east winds at 10 to 15 knots (kn), misty conditions with fog patches, and a moderate sea swell of one metre. The area forecast from Environment Canada's Newfoundland Weather Centre at 0300, Monday, 05 July 1993, called for easterly winds at 20 to 25 kn, becoming northerly at 15 to 20 kn early in the evening, and continuing northerly at 15 to 20 kn on Tuesday. Visibility was forecast as fair to poor in showers and fog patches, and little temperature change was predicted.

On 05 July, having been out earlier in the day, the crew members were aware of the weather and sea conditions. At the time, an air temperature of 8°C and a sea water temperature of 5°C were recorded. Winds recorded in the area ranged from easterly at 15 kn at 1000 to easterly at 25 kn at 1600. A swing to northerly winds at 15 kn was recorded at 1830, and, at 2130, winds were down to 10 kn.

## 1.8 Safety Equipment and Survival Aspects

Appendix B shows the predicted survival time of an average adult wearing a standard lifejacket and light clothing in water of different temperatures. The graph shows that such a person, if continuously immersed in water of 5°C, could expect to survive for about one and a half hours before succumbing to hypothermia.

## 1.9 Vessel Construction and Stability

No stability calculation had been carried out for this type of boat, nor is any required by regulation.

There is no record or report of poor stability or sea-keeping qualities for this type of boat.

Because of the inherent buoyancy of her construction material (wood) and any air trapped on capsizing, a boat of this type can, in certain circumstances, remain afloat, capsized, for indefinite periods.

## 1.10 Search Effort

As the men had not returned to their homes by 1900, concern grew. At 2100, they were reported missing to the RCMP. The initial search began in heavy fog on the evening of 05 July 1993. Since the overdue boat had been reported fishing around Flowers Island, a radar scan was made of that area. As it was believed that the fishermen may have taken refuge in one of the cabins on the island, a check was made; however, there was no sign that they had been there.

The Search and Rescue Branch of the CCG was notified of the occurrence at midnight. A full-scale search was initiated at 0012 on 06 July. Canadian Marine Rescue Auxiliary (CMRA) and CCG resources were tasked. A group of local small open boats started searching at daybreak. The search initially concentrated on the Flowers Island area and expanded from there.

At about 1100, an open boat passing near Swain Island saw the two survivors on shore waving and shouting and rescued them. Swain Island is about 3.5 nautical miles (M) to the west of Flowers Island and about 0.75 M south-west of Green Island.

# 2.0 *Analysis*

## 2.1 *Introduction*

This analysis focuses on the cause of overturning and the reasons two of the crew members survived.

## 2.2 *Capsizing*

Immediately before the capsizing, two of the fishermen were standing on the lee side, resetting a trap. The attempt to manoeuvre alongside the next lobster trap positioned the boat broadside to a large oncoming wave, and the unequal distribution of the weight in the boat aggravated the effect of the roll induced by the wave and caused the boat to capsize.

## 2.3 *Survival Aspects*

All three men quickly gained the bottom of the capsized boat and were able to hold on. The owner/operator appeared to lose consciousness shortly thereafter and was washed away from the capsized boat. Having assisted the other men on to the capsized hull, he would have been semi-exhausted. The owner/operator quickly disappeared below the surface. As neither his son nor his grandson could swim, and since neither was wearing a lifejacket or PFD, they could do nothing to assist him.

There are several reasons the two men survived. They succeeded in their efforts to distribute their weight in such a way that it kept the capsized boat steady and prevented her from righting herself. The reason they did this was that, if the boat had righted herself, she may have sunk from the weight of the water, crew and equipment on board. The men would thus have been left in the water without any form of support.

Although the crew members were on the bottom of the capsized boat for about five hours before reaching shore, they were not continuously immersed in the frigid water. The rate of body heat loss was therefore lessened. In addition, their almost continuous movement on the bottom of the overturned boat and the use of the oar helped generate some body heat.

At times, both felt they would not survive, but panic attacks were limited by their concern for each other. The fact that one man realized that the drifting boat would eventually take them near shore also helped keep panic at bay.

Once ashore on Swain Island, although there was no shelter or material to start a fire, the fishermen obtained what shelter they could in a rock crevice. By huddling together and keeping each other awake, they limited body heat loss and the effects of hypothermia.

Had the owner/operator been wearing a lifejacket or PFD, he may have remained afloat long enough to be rescued and may have survived. A lifejacket or PFD can protect the body and assist in the retention of body heat. Further, the colour of these devices would have made all the crew members more visible to rescuers.

# 3.0 Conclusions

## 3.1 Findings

1. The boat capsized when her transverse stability was overcome by the combined effects of the dynamic forces imposed by the breaking sea taken broadside and the unequal distribution of weight on board.

2. None of the three fishermen, who were non- swimmers, was wearing a lifejacket or personal flotation device (PFD), nor was any such device carried on board.

3. The owner/operator, who was swept off the capsized boat, had lost consciousness. The others could do nothing to assist him, and, without a lifejacket or PFD to support him, the owner/operator quickly sank.

4. The positive attitude and the actions of the remaining fishermen contributed to their survival.

## 3.2 Causes

The boat capsized when she was struck broadside by a breaking sea, the dynamic forces of which she was unable to withstand because of the unequal distribution of weight on board.

# 4.0 *Safety Action*

## 4.1 *Action Taken*

### 4.1.1 *Survival Equipment*

Following its investigation into the sinking of the "STRAITS PRIDE II" on 17 December 1990 (TSB report #M90N5017), the Board issued several recommendations regarding small fishing vessels. Pertaining to life-saving equipment, the Board recommended that:

> The Department of Transport expedite its revision of the Small Fishing Vessel Safety Regulations which will require the carriage of anti-exposure worksuits or survival suits by fishermen.
>
> (M92-07, issued March 1993)

To date, the Canadian Coast Guard's (CCG) attempts to make the carriage requirement mandatory have been unsuccessful. However, the proposed revisions to the Small Fishing Vessel Safety Regulations have been agreed to by the fishing industry and the CCG, and anti-exposure worksuits are provided as alternative equipment. The CCG continues to actively promote the voluntary carriage and wearing of worksuits.

In 1993, the CCG produced a video entitled "A Matter of Minutes" to promote the benefits of a newly designed commercial fisherman anti-exposure worksuit. The CCG also distributed

100 such worksuits to fishermen, who are members of the Canadian Marine Rescue Auxiliary (CMRA), for evaluation. The Board will monitor the effectiveness of such initiatives with a view to assessing the need for further safety action on this issue.

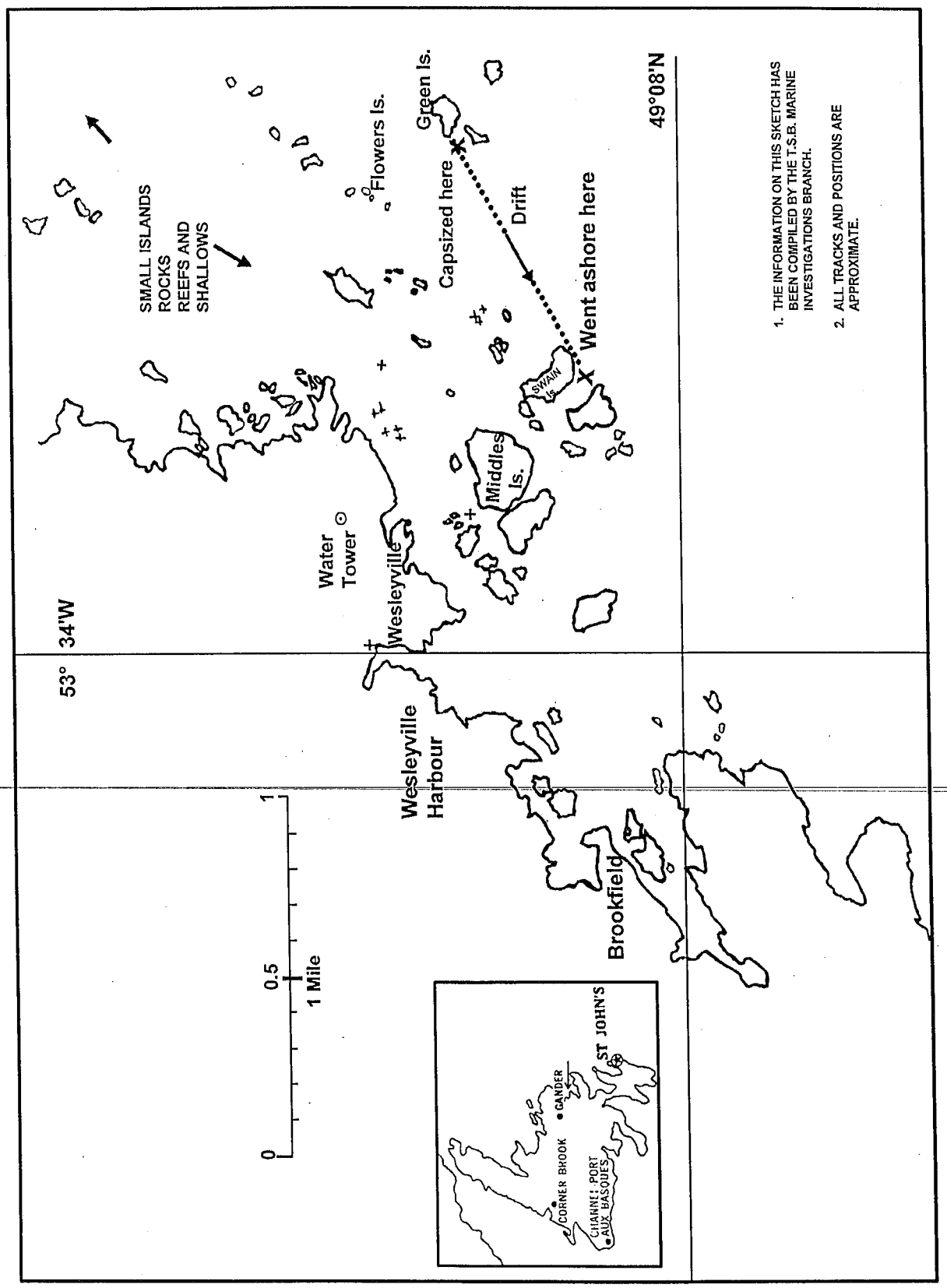
### 4.1.2 *Open Fishing Boat Safety Study*

In view of the large number of open boats similar to the accident vessel (e.g. CFV # 083866, TSB Report #M92N5018) and in view of continuing occurrences involving such open fishing boats, the TSB initiated a safety study on the swamping and capsizing of small open fibreglass commercial fishing boats (16 to 23 feet in length). The study's objective is to identify safety deficiencies pertaining to, inter alia, stability, the practices for loading and load distribution, and the carriage of life-saving and communication equipment.

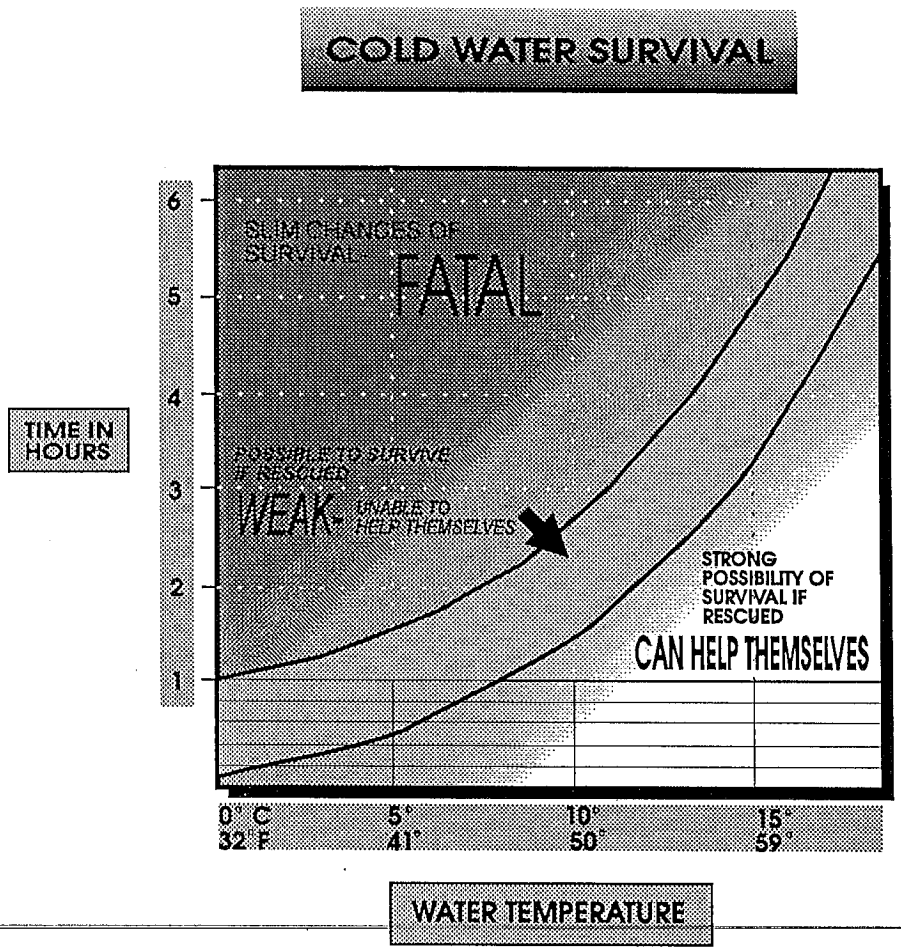
Upon completion of the study, the Board will issue appropriate safety recommendations.

*This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson, John W. Stants, and members Gerald E. Bennett, Zita Brunet, the Hon. Wilfred R. DuPont and Hugh MacNeil, authorized the release of this report on 08 March 1995.*

# *Appendix A - Area of Occurrence*



# *Appendix B - Cold Water Survival Graph*




The above graph shows average predicted survival times of average, adult humans in water of different temperatures. The figures are based on experimental cooling of average men and women who were holding still in ocean water and wearing a standard lifejacket and light clothing. The graph shows, for example, that predicted survival time is about 2½-3 hours in water of 10°C(50°F). Predicted survival time is increased by extra body fat and decreased by small body size. Although women generally possess slightly more fat than men they cool slightly faster due to their usually small body size. However, for comparable sizes, the man will cool faster.

**"COLD WATER SURVIVAL"**
**CANADIAN RED CROSS**

# *Appendix C - Glossary*

| | |
|---|---|
| C | Celsius |
| CCG | Canadian Coast Guard |
| CFV | Canadian fishing vessel |
| CMRA | Canadian Marine Rescue Auxiliary |
| HP | horsepower |
| IMO | International Maritime Organization |
| kn | knot(s): nautical mile(s) per hour |
| m | metre(s) |
| M | nautical mile(s) |
| NDT | Newfoundland daylight time |
| PFD | personal flotation device |
| RCMP | Royal Canadian Mounted Police |
| SI | International System (of units) |
| SFVIR | Small Fishing Vessel Inspection Regulations |
| TSB | Transportation Safety Board of Canada |
| UTC | Coordinated Universal Time |
| ° | degree(s) |