

MARINE OCCURRENCE REPORT

M95W0187

COLLISION

BETWEEN THE FISHING VESSEL
"ROXANA GLEN"
AND THE TUG-BARGE UNIT
"ARCTIC TAGLU"/"LINK 100"
FRASER RIVER, BRITISH COLUMBIA
31 OCTOBER 1995



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

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and the Tug-Barge Unit

"ARCTIC TAGLU"/"LINK 100"

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Synopsis

On the morning of 31 October 1995, the tug "ARCTIC TAGLU," pushing the loaded barge "LINK 100," was inbound from Swartz Bay, B.C., to her berth in the Fraser River. The wooden fishing vessel "ROXANA GLEN," participating in the salmon fishery opening, was engaged in repositioning the nets off Steveston Island, B.C. In daylight and in calm and clear weather, the "LINK 100" and the "ROXANA GLEN" were involved in a collision. The lone operator of the fishing vessel, who was thrown overboard, subsequently was rescued by another fishing vessel. He suffered minor injuries. The "ROXANA GLEN" was a constructive total loss; the "LINK 100" sustained superficial damage.

The Board determined that the "ARCTIC TAGLU"/"LINK 100" and the "ROXANA GLEN" were involved in a collision because the integrated tug-barge unit was transiting the Fraser River at an unsafe speed and the "ROXANA GLEN" was setting nets in the centre of the navigable channel. The fact that neither vessel maintained an efficient and proper look-out contributed to the accident.

Ce rapport est également disponible en français.

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1.0 *Factual Information*

1.1 *Particulars of the Vessels*

	“ARCTIC TAGLU”	“LINK 100”
Official Number	368381	810465
Port of Registry	Edmonton, Alberta	Vancouver, B.C.
Flag	Canada	Canada
Type	Pusher tug	Barge
Gross Tons	394	2,240
Length	31.1 m	111.25 m
Breadth	10.39 m	17.98 m
Draught	Forward: 4.00 m (approx.) Aft: 4.00 m (approx.)	Forward: 2.00 m (approx.) Aft: 2.00 m (approx.)
Crew	5	Nil
Built	1976, North Vancouver, B.C.	1957, Portland, USA
Propulsion	Twin fixed-pitch screws in Kort nozzles driven by twin diesels generating 2,250 BHP	Non-self-propelled
Owners	Sea-Link Marine Services Ltd., New Westminster, B.C.	Sea-Link Marine Services Ltd., New Westminster, B.C.

¹ See Glossary for all abbreviations and acronyms.

² 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.

	"ROXANA GLEN"
CFV Number	22148
Home Port	Steveston, B.C.
Flag	Canada
Type	Fishing vessel—gillnetter
Length	10.06 m
Draught	Forward: 1.2 m (approx.) Aft: 1.6 m (approx.)
Crew	1
Propulsion	Volvo diesel engine developing 165 BHP, driving a single fixed-pitch propeller
Owner	Chuong Quoc Pham, Vancouver, B.C.

1.1.1 Description of the Vessels

"ARCTIC TAGLU"

The "ARCTIC TAGLU" is a coastal tug that is used in the pushing mode in her present employ. She has a flat-nosed pusher bow. The navigation bridge has an open layout with wide windows giving an unobstructed view. There are four conning positions in the wheel-house: one on each side, one on the centre line forward and one aft facing the vessel's stern.

"LINK 100"

The "LINK 100" is a flat-topped barge designed to carry deck cargo in the form of roll-on/roll-off trailers serving dedicated terminals in the Fraser River and on Vancouver Island (B.C.). The barge is fitted with two directional thrusters forward, which are controlled from the wheel-house of the tug. A 13-m notch, within which the "ARCTIC TAGLU" fits, is located at the stern of the barge, allowing the tug and the barge to operate as an integrated unit. Two hydraulic connections secure the tug in the notch, and a system of blocks, wires and winches secures the tug to arrest any relative swing between the two vessels. The combination operates at a service speed of 11 knots (kn). No manoeuvring characteristics are available for the combination.

"ROXANA GLEN"

The "ROXANA GLEN" was a small gillnet fishing vessel. The hull was constructed of plywood over cedar framing, and the exterior of the hull and house was covered in fibreglass. The deck was covered with 30 mm planking for protection.

The interior of the hull consisted of the forecabin with bunks and closet, the engine compartment directly below the wheel-house, a fish hold located aft of amidships, and a small steering gear compartment in the stern of the vessel.

1.2 History of the Voyage

“ARCTIC TAGLU”/“LINK 100”

The integrated tug-barge unit (ITB) “ARCTIC TAGLU”/“LINK 100” departed Swartz Bay on Vancouver Island in the early morning hours on 31 October 1995. The loaded ITB was en route to its new berth on the Vancouver lower mainland at the Tilbury Island terminals in the Fraser River.

At 0740, while checking in with Marine Communications and Traffic Services (MCTS), the “ARCTIC TAGLU” was informed for the first time of a gillnet fishery opening in the Fraser River. The ITB entered the south arm of the Fraser River, and the autopilot was switched to hand-steering. The vessel passed Sandheads, B.C., at 0745. The bridge was crewed by the first mate, who had the conduct of the vessel and was engaged in steering, and by the deck-hand, who was maintaining a look-out. The master was informed of the fishery opening and was requested to be present on the bridge due to the increasing number of fishing vessels that were being encountered. He arrived on the bridge shortly thereafter; the vessel was around buoy S4.

At about 0803 off buoy S10, the mate reduced speed to the minimum setting on the throttle. At approximately 0810, the master took over the conduct of the vessel from the mate, reportedly in the vicinity of buoy S14, at which time the mate noted the vessel's speed on the Global Positioning System (GPS) to be 2.5 kn. The mate and the deck-hand remained on the bridge and maintained a look-out as the vessel was approaching a heavy concentration of fishing vessels and nets. The mate made SÉCURITÉ broadcasts frequently on channel 78A of the very high frequency (VHF) radiotelephone (R/T) requesting fishing vessels to keep clear and repeatedly sounded warning signals on the whistle.

On taking over the con of the vessel, the master increased the vessel's speed and reportedly adjusted it several times. Off Steveston Island, near buoys S16 and S17, the bridge personnel aboard the ITB observed two gillnetters fishing near the centre of the channel, headed in a southerly direction at slow speed. As the ITB navigated through an area in which vessels were fishing, the crew initially saw the two vessels ahead, but lost sight of them prior to the collision as the unit drew closer to the vessels.

The ITB narrowly missed one of the two vessels, the “RG X”, which was fishing in the centre of the navigable channel, but it was involved in a collision with the other vessel, the “ROXANA GLEN”, at 0817.

¹ All times are PST (coordinated universal time (UTC) minus eight hours) unless otherwise stated.

No one on the “ARCTIC TAGLU” saw the impact, but shortly after the collision, the deck-hand saw the “ROXANA GLEN” drifting by the port side of the “LINK 100” and he informed the master and the mate. The master reportedly went astern on the engines a few seconds before the impact.

“ROXANA GLEN”

The “ROXANA GLEN” was participating in the salmon fishery opening in the Fraser River on 31 October. At 0800, the lone operator commenced setting the 200-fathom-long net off Steveston Island from the north end of the river toward its centre in proximity to another fishing vessel, the “RG X”. He was positioned at the stern, thereby leaving the navigation equipment unattended.

The nets of the two fishing vessels were close to each other, and the operator of the “ROXANA GLEN” started heaving in the net to reposition it. When some 40 fathoms of the net of the “ROXANA GLEN” had been hove in, the operator of the adjacent “RG X” heard the whistle of the “ARCTIC TAGLU” and he started picking up his net. He used his engine to get out of the way of the ITB. Reportedly, the two vessels passed within a metre of each other as the “RG X” backed up on the port side of the ITB.

The operator of the “ROXANA GLEN” was unaware of the presence of the approaching ITB. He heard neither the warning signals sounded by the “ARCTIC TAGLU” nor her SÉCURITÉ broadcast.

He first observed the ITB when it was about 15 m from his vessel and collision was imminent; the fishing vessel was hampered by her net. The ITB and the “ROXANA GLEN” were involved in a collision when the bow of the “LINK 100” came in contact with the starboard midship accommodation and wheel-house of the “ROXANA GLEN”. The angle of impact was about 90 degrees. The operator, who was at the stern of the vessel heaving in the net, was thrown overboard by the force of the impact.

1.2.1 Events Following the Occurrence

The ITB informed MCTS of the collision and remained on scene until the operator of the “ROXANA GLEN” was rescued by the “RG X”. The ITB then proceeded on its voyage to the Tilbury Island terminal, arriving there at 1024.

The fisheries patrol vessel “ATLIN POST” towed the “ROXANA GLEN” out of the navigable channel.

Reportedly, the ITB narrowly avoided two collisions with other fishing vessels. It also damaged an unspecified number of gill nets while transiting the Fraser River.

Royal Canadian Mounted Police (RCMP) officers boarded the ITB shortly after it docked. They spoke to the master and did not find any sign of impairment. No test for drugs or alcohol was conducted.

1.3 Injuries to Persons

The operator of the “ROXANA GLEN” was suffering from mild hypothermia when rescued.

1.4 *Damage to the Vessels*

“ARCTIC TAGLU”/“LINK 100”

The flat rectangular bow of the “LINK 100” sustained some scratch marks at the point of impact.

“ROXANA GLEN”

The fishing vessel was extensively damaged. The starboard side was stove in, in way of the engine compartment. The deck and the hull on the starboard side were opened up over a length of approximately 1.5 m. The wheel-house was dismantled from the deck and pushed sideways. The vessel was declared a constructive total loss. Some fuel escaped; however, no significant pollution was reported.

1.5 *Certification*

1.5.1 *Vessel Certification*

“ARCTIC TAGLU”/“LINK 100”

The “ARCTIC TAGLU” was in possession of a valid Ship Inspection Certificate (SIC 17) issued for a tug to operate as a non-convention, non-passenger vessel not beyond Home Trade Class III limits. As stipulated on the certificate and at the time of the occurrence, the “ARCTIC TAGLU” was operating as a Home Trade Class III shift boat restricted to Strait of Georgia and adjacent waters, with a minimum crew of four to comply with the hours of rest provision of the *Safe Manning Regulations*.

No SIC had been issued for the “LINK 100”, nor is one required by regulations.

“ROXANA GLEN”

Being less than 15 gross registered tons (GRT), the fishing vessel was not required to be, nor was she, inspected by Transport Canada Marine Safety (TCMS).

1.5.2 *Personnel Certification and History*

“ARCTIC TAGLU”/“LINK 100”

The master held a Master Mariner Certificate of Competency issued in 1981 and endorsed in 1988 to meet the provisions of the International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW). He had extensive deep sea experience, and had served as master of the “ARCTIC TAGLU” for the last six years in the coastal waters off the west coast of Canada. He had no recent experience on the Fraser River, and this was his first trip there since the ITB had previously traded into Vancouver Harbour.

The mate held a Certificate of Competency as a Master of a Home Trade Steamship of less than 350 GRT with the STCW endorsement. He had worked for another tugboat company for four years and with Vessel Traffic Services. He had been employed by the owners of the “ARCTIC TAGLU” for the last six years as mate/relief master. He had some prior experience on the Fraser River but none in the recent past.

“ROXANA GLEN”

The operator of the “ROXANA GLEN” had been operating fishing boats for four years. He held no marine qualification nor is any required by regulations.

1.6 Weather and Tidal Information

On the morning of the occurrence, the weather was calm and clear with light variable winds.

In the months of October and November, the tidal currents in the Fraser River are at their yearly lows. The following times of high and low water and the corresponding heights were extracted from the *Canadian Tide and Current Tables*, for Steveston on 31 October 1995:

Low Water: 0450	Height: 1.1 m above chart datum
High Water: 1210	Height: 3.6 m above chart datum

At 0817, the time of the occurrence, the ITB was experiencing a weak flood tide, but the tide was not a factor in the occurrence.

1.7 Radio Communications

The only pertinent radio communication before the collision was recorded at 0740, when the “ARCTIC TAGLU” was informed by MCTS about the 0800 gillnet opening in the river.

1.7.1 Regulatory Requirement

Under the regulations made pursuant to the *Canada Shipping Act*, all radio equipment must be initially examined and the station licenced upon installation and thereafter inspected annually. As well, the personnel operating radio equipment must be certificated. However, under the Board of Steamship Inspections Ruling No. 5076 dated 01 October 1991, the VHF R/T set aboard the “ROXANA GLEN” (which was less than 15 GRT and less than 20 m long) was not required to be examined on a periodic basis under any formal compulsory inspection program.

² *Sailing Directions, British Columbia Coast (South Portion)*, Volume 1.

³ *Ship Station Radio Regulations* applicable at the time of the occurrence.

Records indicate that the radio station aboard the “ROXANA GLEN” was not licenced nor did the operator hold a Radiotelephone Operator’s Restricted Certificate (Maritime), (RORC), to operate the VHF R/T. At the time of the occurrence, the requirements for obtaining a radio operator’s certificate included passing of an oral and practical examination to demonstrate, among other things, the capability to transmit and receive correctly by phone. The possession of the certificate would demonstrate an individual’s ability to communicate safety-related information in one of the two official languages of Canada. The operator was not fluent in English and lacked knowledge of basic radio operating procedures and practices.

1.7.2 VHF R/T Designated Frequency Monitoring

Radio Information Circular 13 entitled “Table of Transmitting Frequencies for the Band 156-174 MHz in the Maritime Mobile Service” dated 01 February 1992, issued by Industry Canada, establishes the use of VHF R/T channels in Canadian waters. Channel 78A has been designated inter-ship, ship-shore and commercial correspondence primarily on the East Coast and Pacific Coast of Canada. While six frequencies have been designated specifically for commercial fishing (vessels’) use on the East Coast, no such channel has been designated for the Pacific Coast. No reference is made to any of these frequencies in the appropriate publications entitled *Radio Aids to Marine Navigation* (RAMN); the appropriate RAMN publication is required to be carried aboard all vessels. This publication is the primary source of

communication information for all commercial vessels, especially foreign-flag vessels. The MCTS and the MCTS centres have the capabilities to, and do, monitor the local working frequency on an “as-needed” basis, but on this occasion, channel 78A was not monitored.

In 1995, the Canadian Coast Guard (CCG) issued an Advisory Notice to commercial ships and fishing vessels using the inside passage waters of B.C. The advisory included the following:

- All commercial vessels transiting an open fishing ground are to monitor VHF R/T channel 78A and broadcast their intended track at half-hour intervals while transiting the fishing grounds.
- Commercial fishing vessels transiting fishing grounds are to set a course through the centre of the navigable channel.
- When circumstances allow and taking into consideration regulatory requirements, fishing vessels engaged in a fishery are to leave the centre of any channel clear for the unobstructed passage of other vessels.

The VHF R/T aboard the “ROXANA GLEN” was set on channel 78A, and channel 16 was not monitored.

1.7.3 Command of the English Language

The Board has previously expressed concern about the lack of proficiency in either of Canada’s two official languages (English or French) within the Vietnamese fishing community on the West coast of Canada. The Board believes that the safe navigation and operation of fishing vessels in Canadian waters require that the crew of every fishing vessel possess an effective working capability for unambiguous two-way communication. To this end, the Board suggested that the crews of fishing vessels demonstrate a minimum level of language proficiency before being issued radio certification or being granted a fishing licence. Although not a factor in this occurrence, the lack of language proficiency continues to be a source of concern to the Board.

1.7.4 Language Training Program

In order to assist recent immigrants to Canada in learning to communicate in one of the country’s two official languages, the Department of Citizenship and Immigration operates a program entitled “Language Instruction for Newcomers to Canada”. The program, intended to

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TSB Report No. M91W1075 on the “FLYING FISHER”.

provide basic language instruction in one of Canada's two official languages, is offered free of charge. The operator of the "ROXANA GLEN" had attended this five-month course, in English. Nonetheless, at the time of the investigation, he indicated that he could not communicate in English.

1.8 Recommendations Stemming from Fishing Vessel Safety Study

In 1987, a Coast Guard Working Group published its report entitled *A Coast Guard study into fishing vessel safety*. Recommendation 37 of this report read, in part:

. . . DFO [Department of Fisheries and Oceans] . . . issue fishing licences only upon receipt of a Safety Equipment Check List signed by the operator.

The recommendation was not implemented because, under the *Fisheries Act*, vessel safety could not be considered as a reason for refusing to issue a fishing licence. However following this recommendation, the application for a fishing licence had attached a safety equipment check list, including information on VHF (station) licence and operator's radiotelephone certification, which was to be filled, signed and returned with the (licence) application. This information was passed to the then Ship Safety Branch of the CCG (now TCMS), for information and follow-up. Reportedly, there were problems associated with the transfer of information and the same was therefore discontinued.

Recommendation 5 of *A Coast Guard study into fishing vessel safety* read, in part:

The Department of Fisheries . . . ensure [that] fishing vessel safety is an explicit consideration in the development of the appropriate legislation and /or regulations.

The aforementioned recommendation was not fully implemented.

The study into fishing vessel safety was published several years ago, but safety continues to be a major problem in the fishing industry, and the safety-related issues have been highlighted in a number of TSB reports. The occurrence report on the sinking of the "CAPE ASPY" (TSB Report No. M93M0004) drew the attention of the then Minister of the DFO. In his response to that report in 1994, the Minister acknowledged the need for safety to be a consideration in the development of regulations. Reportedly, conservation policies take into consideration safety of fishing vessels. However, no linkage to safety is made in either the legislation or the regulations. Furthermore, there are a number of regulations administered by DFO that are at variance with the safety regulations administered by TC.

1.9 *Navigational Equipment*

“ARCTIC TAGLU”

The wheel-house was fitted with two operational radars, a VHF R/T, a GPS, and an autopilot, among other equipment. All navigational instruments in use were working satisfactorily. A chart of the Fraser River was on board, but except for the position of the collision, no other position of the ITB had been plotted or marked on the chart for this transit; the vessel was operating in pilotage mode within the confined waters of the river.

The main engines were on bridge control, and both steering pumps were operating at the time of the occurrence.

“LINK 100”

The barge was equipped with a video camera at the bow, linked to a video monitor in the wheel-house of the “ARCTIC TAGLU”. This equipment is primarily used to assist in berthing and does not provide a field of vision ahead to serve as an aid to navigation or for collision avoidance.

“ROXANA GLEN”

The fishing vessel was equipped with a radar, a VHF R/T, a magnetic compass, and an echo-sounder, which were located in the wheel-house and operational. The vessel was not equipped with VHF relay speakers on the after work deck.

Controls for the propulsion and steering were in two locations: one in the wheel-house and the other on the starboard afterdeck.

1.10 *Conduct of Vessels*

According to the *International Regulations for Preventing Collisions at Sea* (COLREGS), the conduct of vessels should be governed so that:

- i) “Every vessel shall . . . proceed at a safe speed” having due regard “to the prevailing circumstances.” In determining a safe speed, consideration must be given to, among others, “traffic density including concentrations of fishing vessels . . . stopping distance . . . and the proximity of navigational hazards.”
- ii) “Every vessel shall . . . determine if risk of collision exists” and “if there is any doubt, such risk shall be deemed to exist.”
- iii) “Every vessel shall at all times maintain a proper look-out by . . . all available means . . . to make a full appraisal of . . . the risk of collision.”

- iv) “Any action taken to avoid collision shall . . . be positive . . . and with due regard to the observance of good seamanship”, and “if necessary . . . allow more time to assess the situation.”
- v) “A vessel engaged in fishing shall not impede the passage of any other vessel navigating within a narrow channel.”
- vi) When in doubt as to the actions of another vessel, “the vessel in doubt shall immediately indicate such doubt by giving at least five short and rapid blasts on the whistle.”

Fraser River Harbour Commission (FRHC) By-Laws / Fisheries Act

On the Fraser River, the COLREGS apply to all navigation except where otherwise provided for in the *Fraser River Harbour Commission (FRHC) By-Laws*. The by-laws state that “no person shall in the harbour negligently, or otherwise . . . endanger or unduly obstruct navigation” [s. 27(1)] and a gillnet vessel . . . “shall, upon receiving a signal of four blasts of the whistle of any other vessel, move in order to allow the passage of the other vessel.” [s. 82(2)]

The *Fisheries Act* states that “nets shall not be set so that they obstruct navigation of vessels and that no vessel shall destroy nets which have been set lawfully [s. 24] . . . not less than two-thirds of the width of main channel shall be left open.” [s. 26(1)]

The salmon fishermen operating in the Fraser River are regularly reminded of the requirement under section 24 of the *Fisheries Act*. Difficulties are experienced in its enforcement in that the process of summary conviction is very cumbersome and the likelihood of conviction slim. The DFO has an Enforcement Directorate, whose mandate is primarily the conservation and preservation of resources. The DFO Fishery Officers, who are peace officers and empowered to enforce legislation, have for several years (decades) tolerated the obstruction of navigable channels. Fishing vessels impeding the safe passage of commercial shipping continues to be a problem.

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Fisheries Act, s. 50 applies.

1.10.1 Royal Canadian Mounted Police (RCMP) Marine Services

The RCMP Marine Services provide equipment and personnel for enforcement in the marine environment. They respond to calls for assistance from the regulatory bodies. Methods for establishing contact are in place and known to all. On the day of the occurrence, the RCMP Patrol Vessel "LINDSAY" was unmanned and secured alongside the wharf at Annacis Island. While the RCMP Richmond Division attended to the "ARCTIC TAGLU," the marine division of RCMP was not made aware of the occurrence.

1.11 Speed of the ITB

According to the master of the "ARCTIC TAGLU," the ITB was proceeding at various speeds with the maximum speed being 7 kn, and in the vicinity of buoy S14, where a heavy concentration of fishing vessels was encountered, the vessel's speed was 3.5 to 4.5 kn. However, witness accounts indicate that the ITB was proceeding at a speed in excess of 8.5 kn just before the collision with the "ROXANA GLEN."

The "ARTIST'S LIFE," a vessel belonging to the Canadian Lifeboat Institution, observed the ITB cutting through nets and barely missing striking some fishing vessels. The "ARTIST'S LIFE," which followed the ITB, was doing 8.5 kn and lagging behind the ITB.

Times of the ITB passing various points in the river as reported by crew members and other witnesses are as follows:

0745 Sandheads
0803 Buoy S10
0810 Buoy S14
0817 Collision

1.12 Forward Visibility and Look-out

On a post-occurrence voyage, a TSB investigator sailed on the ITB when it carried a load similar to that on the day of the occurrence. It was established that the top of the road trailers on the "LINK 100" was at the same level as the bridge deck level of the "ARCTIC TAGLU" and that the visibility ahead was obscured to a distance of about 2.23 cables at sea level. With the "LINK 100" in the loaded condition, the bow of the barge cannot be seen from the wheel-house of the "ARCTIC TAGLU," but no look-out was posted forward on the barge.

1.13 Fishery Openings in the Fraser River

The period for fish openings in the fall fishery in the Fraser River is from October 15 to December 20, and the target species, predominantly chum salmon, are fished by gill nets.

On 27 October 1995 a meeting chaired by the Area Manager of the DFO was held where only representatives of the fishing industry were present.

After a harvestable abundance was determined, a Variation Order, which is the legal document to open a fishery, was prepared and signed by the Fishery Officer by the end of the week preceding the fishery's opening.

A notice to fishermen, including information on the fishing area and the time of opening and closing, was then prepared. Such notices are faxed to the industry. Recorded information on openings is also available on a 24-hour basis by dialling a toll-free number at the DFO Vancouver office.

There are 3,584 eligible gillnetters, and approximately 250 to 450 of them participate in any one opening, which may last from 10 to 12 hours. Vessels entering the area of an opening are informed by MCTS; the "ARCTIC TAGLU" was so informed.

1.14 Hours of Work and Rest Practices

The crew joined the "ARCTIC TAGLU" at about 2100 on 30 October after nine days off duty. When on board, the crew members worked for 12 hours followed by 12 hours of rest.

When on duty, the crew members were required to keep cargo and sea watches during the night when the ITB loaded and made a round-trip voyage between the Fraser River and Swartz Bay on Vancouver Island. In the daytime, the ITB was secured to its berth in the Fraser River, and this was the period of rest for the crew. Being residents of the lower mainland, most of the crew preferred to go home to rest.

During the shift work, the master and the mate relieved each other as required. There was no fixed watch schedule.

1.15 Additional Safety Issues

Although not a contributing factor in this occurrence, the investigation revealed that there was a practice on board of leaving a non-qualified deck-hand in charge of the vessel in the Strait of Georgia while the master and the mate freshened up or had a meal.

2.0 *Analysis*

2.1 *Speed of the Integrated Tug-Barge Unit*

During the transit up the Fraser River, the ITB ran over a number of gill nets and was involved in near-collision situations with other fishing vessels.

Between Sandheads at 0745 and the position of the collision off Steveston Island at 0817, the ITB travelled a distance of 5.07 nautical miles, giving an average speed of 9.54 kn; this despite the fact that the vessel proceeded at reduced speed for some seven minutes (between 0803 and 0810) having reached a low speed of 2.5 kn. While the position and time are inexact, the ITB's average speed outside of the speed reduction period would still be considered unsafe in the prevailing circumstances.

Given the heavy concentration of fishing vessels in the vicinity, some of which were within the confines of the channel, prudence dictates that the vessel's reduction in speed should have been maintained. Instead, the vessel's speed was increased to near-full throttle off buoy S14 while approaching concentrations of fishing vessels; the ITB struck the "ROXANA GLEN" with great impact and could not be stopped in the available distance. Hence, the speed at which the ITB was proceeding before the collision was unsafe.

2.2 *Look-out*

"ARCTIC TAGLU"/"LINK 100"

As the video equipment on the ITB does not provide a field of vision ahead, it does not lessen the need to post a look-out forward. The ITB was transiting an area of dense traffic and, despite the limited forward visibility, it proceeded at a considerable speed without posting a look-out forward, contrary to the dictates of good seamanship. Following the collision, a look-out was posted forward.

Although the master was aware of the presence of fishing vessels in the area, the vessel's speed was not reduced in sufficient time to avert a collision. Thus, the information available to the master was not used to advantage in making a full and proper assessment of the situation. Hence, the "ARCTIC TAGLU" did not maintain an efficient and proper look-out.

“ROXANA GLEN”

As the lone operator of the “ROXANA GLEN” was attending to his nets from the afterdeck, he was not monitoring the radar or the VHF R/T (there was no VHF relay speaker on the work deck), nor was he maintaining a proper look-out. The operator was preoccupied with fishing operations; he did not hear the warning signals sounded by the “ARCTIC TAGLU” and he was not aware of the approaching ITB.

Although the bridges of small fishing vessels are often left unattended during fishing operations (due to their small complement), there is no regulatory requirement for VHF R/T relay speakers to be fitted on the work deck. Recognizing the need for such a speaker, some fishing vessel owners/operators have had one installed on their work deck to ensure that they receive important safety messages.

2.3 Maritime Mobile Frequencies—Designation for Fishing Vessel Communication

Channel 78A is recommended for inter-ship communication (between commercial and fishing vessels) when commercial ships are transiting an open fishing ground (in the inside passage waters of B.C.), but this information is not contained in RAMN publications. The absence of frequency information in the RAMN publications limits commercial vessels, especially foreign-flag vessels, to using channel 16 as the only means of establishing (verbal) communication with fishing vessels. However, monitoring of channel 16 is given a low priority by fishing vessel operators. The absence of this information in the RAMN is not considered to have contributed to this occurrence.

2.4 Non-enforcement of Regulations

Obstruction of the Navigable Channel by Fishermen

The DFO, TC Marine Safety, and the Fraser River Harbour Commission require that the navigable channel not be obstructed by fishing activities. The Fraser Harbour Master’s office has a limited number of small vessels; however, they were not used to keep the channel clear. The RCMP patrol vessel “LINDSAY” was not involved in patrol duties on the day of the occurrence, nor had it received any request for assistance from the Fishery Officers. While the RCMP Richmond Division attended to the “ARCTIC TAGLU”, the marine division of RCMP was not made aware of the occurrence; the current policy does not require the former to notify the latter. This would suggest that there may be a lack of coordination between the different divisions in the RCMP.

While section 24 of the *Fisheries Act* requires that fishing activity not impede safe navigation of vessels, section 26 permits one-third of the width of the navigable channel to be used for fishing activity. The COLREGS and the FRHC by-laws complement each other, but the *Fisheries Act* appears to be at variance. The COLREGS permit special rules to be made by appropriate harbour authorities.

As the DFO fisheries officers monitor fishing activity, they are best positioned to enforce the requirements of the *Fisheries Act* and could seek assistance from the RCMP, if deemed necessary. In this instance, the fisheries officers did not enforce the requirement, nor was assistance sought from RCMP Marine Services.

Because fisheries on the Fraser River are an important part of the B.C. economy, it would appear that some latitude is applied to participants who conduct themselves in a seaman-like manner. This is reflected in the FRHC by-laws, in that they provide for signals to cause fishing vessels to move to allow other vessels to pass. In any event, the fact that obstruction of the channel has been tolerated for years makes enforcement difficult.

Difficulties are experienced in enforcing section 24 of the *Fisheries Act*. Because the process of summary conviction is very cumbersome and the criminal justice system views these convictions as “regulatory offences,” the likelihood of convictions is slim. Hence, the *Contraventions Act* passed by Parliament in 1992 and amended on 29 May 1996, was designed to make these types of offences easier to address. However, to avail themselves of the ease of enforcement afforded by the *Contraventions Act*, departments have to ensure that the provisions of their legislation are designated as a contravention by regulations to be covered by the Act. At the time of publication of this report, a number of departments have availed themselves of this enforcement tool, but the DFO has not.

VHF R/T

A number of small fishing vessels carry VHF R/T equipment, but neither the equipment nor the personnel operating it are certificated. Investigation into occurrences has revealed that personnel operating the equipment were not familiar with it, nor with the mandatory requirements, nor with the proper procedures to operate the equipment. It was determined that in some instances the personnel operating the equipment did not possess a working knowledge of either of Canada’s official languages, and consequently could not use the equipment effectively to enhance safety.

⁶

Rule 1 (b) of the COLREGS apply.

Communication skills are integral to the safe operation of vessels. In order to decrease the risks that arise from a lack of communication skills, consideration should be given to requiring that all applicants for an RORC possess proficient communication skills to operate in their region of choice. Furthermore, as fishing licences are issued on an annual basis, the system could be used as a vehicle to ensure that fishing vessels fitted with VHF R/T have appropriately qualified personnel to operate the radio station.

Despite enforcement efforts by regulatory authorities, it is estimated that some 10 per cent of small fishing vessels do not have their stations inspected nor are their operators certificated. Some of these vessels operate from smaller ports and remote areas across Canada. In this instance, the unsafe situation went undetected for some four years, to the detriment of vessel and personal safety. Given that the operator, although rescued within minutes of his immersion in the water, was suffering from mild hypothermia, it was fortuitous that help was at hand.

2.5 Attempts at Educating Fishermen

Recognizing the need to educate Vietnamese-speaking fishermen in the safe operation of their vessels, the Vietnamese Fishermen's Association publishes a newsletter entitled *New Wave* in the Vietnamese language. The subjects covered include: rules of the road, safe navigation principles, radio communication procedures, and stability. Nonetheless, the operator of the "ROXANA GLEN" was not aware of radio procedures and practices. This suggests that the education program may not be reaching its intended audience.

2.5.1 New Initiatives to Educate Fishermen

Over the years, the safe operation of fishing vessels has been, and remains, a concern of the Board. A number of recommendations respecting certification (e.g., Marine Emergency Duties (MED) training, safety equipment training, and safety equipment carriage requirements), have been made to TCMS/DFO/ Human Resources Development Canada (HRDC). Provincial labour ministries in conjunction with federal departments including TCMS and DFO are taking new initiatives to "professionalize" the fishing industry. The initiatives being considered include a record of sea service, an apprenticeship program to train new fishermen and a diploma course in "Professional Fishing."

2.6 Safety Meeting Between Marine Interests

In June 1995 representatives of the CCG, the Fisheries Council of British Columbia, the British Columbia Coast Pilots, and the shipping industry met to discuss safety issues concerning fishing vessels and commercial ships. Subsequently, publicity was given via an advisory notice for fishing vessel operators to monitor the proper channels on VHF radio and to comply with the COLREGS, and for commercial ships to monitor channel 78A while transiting an open fishing ground.

Lack of knowledge of English has been a barrier in communications between many of the Vietnamese-speaking fishermen and the remainder of the marine industry. It is also clear that Vietnamese-speaking fishermen are not attending group discussions such as the Fraser Rivers Group and other panels that endeavour to address safety issues.

3.0 *Conclusions*

3.1 *Findings*

1. The “ARCTIC TAGLU”/“LINK 100” was proceeding for the first time to its new terminal on the Fraser River.
2. The “ARCTIC TAGLU” was proceeding at an unsafe speed given the heavy concentration of fishing vessels in the vicinity.
3. The forward visibility from the “ARCTIC TAGLU” was partially obscured, and no look-out was posted forward on the barge.
4. The lone operator of the “ROXANA GLEN” was setting nets in the centre of the navigable channel in the Fraser River.
5. There was no very high frequency (VHF) relay speaker to monitor radio communications from the work deck of the “ROXANA GLEN.”
6. Neither the warning signals sounded by the “ARCTIC TAGLU” nor her SÉCURITÉ broadcast were heard aboard the “ROXANA GLEN.”
7. Neither vessel maintained an efficient and proper look-out.
8. The operator of the “ROXANA GLEN” did not hold a Radiotelephone Operator’s Restricted Certificate (RORC) nor did he have working knowledge of English.
9. Communication skills are not a pre-requisite for the issuance of a radio operator’s certificate, nor are they a pre-requisite for the issuance of a fishing licence.
10. The operator of the “ROXANA GLEN” did not avail himself of safety education materials that are published by government agencies and by the Vietnamese Fishermen’s Association.
11. The safety of a vessel is not a condition of licence under the *Fisheries Act*.
12. It is difficult to enforce the provision against obstruction of a navigational channel and this practice by local fishermen has been tolerated for years.
13. The Department of Fisheries and Oceans (DFO) has not availed itself of the ease of enforcement afforded by the *Contraventions Act*.

3.2 *Causes*

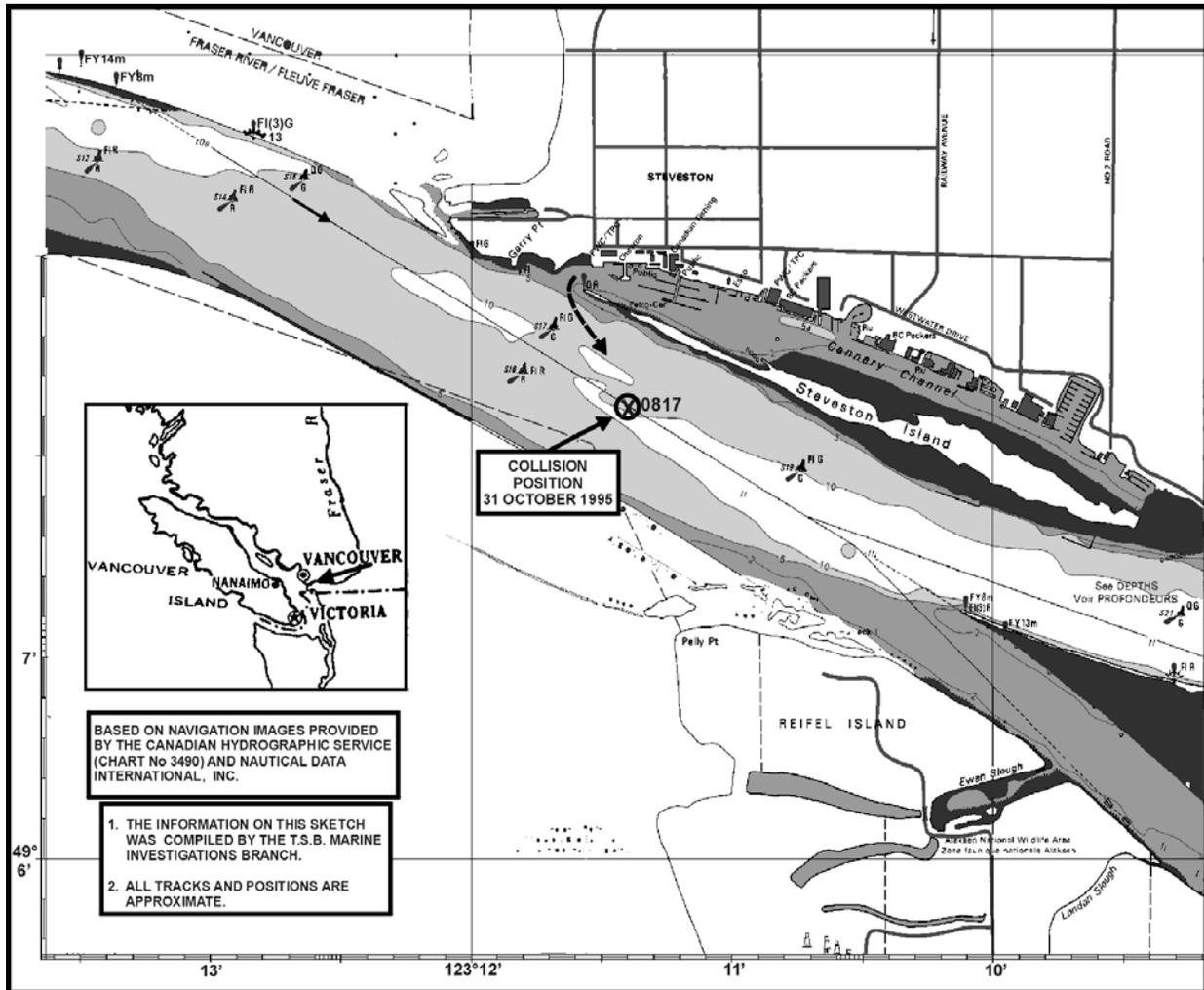
The “ARCTIC TAGLU”/“LINK 100” and the “ROXANA GLEN” were involved in a collision because the integrated tug-barge unit was transiting the Fraser River at an unsafe speed and the “ROXANA GLEN” was setting nets in the centre of the navigable channel. The fact that neither vessel maintained an efficient and proper look-out contributed to the accident.

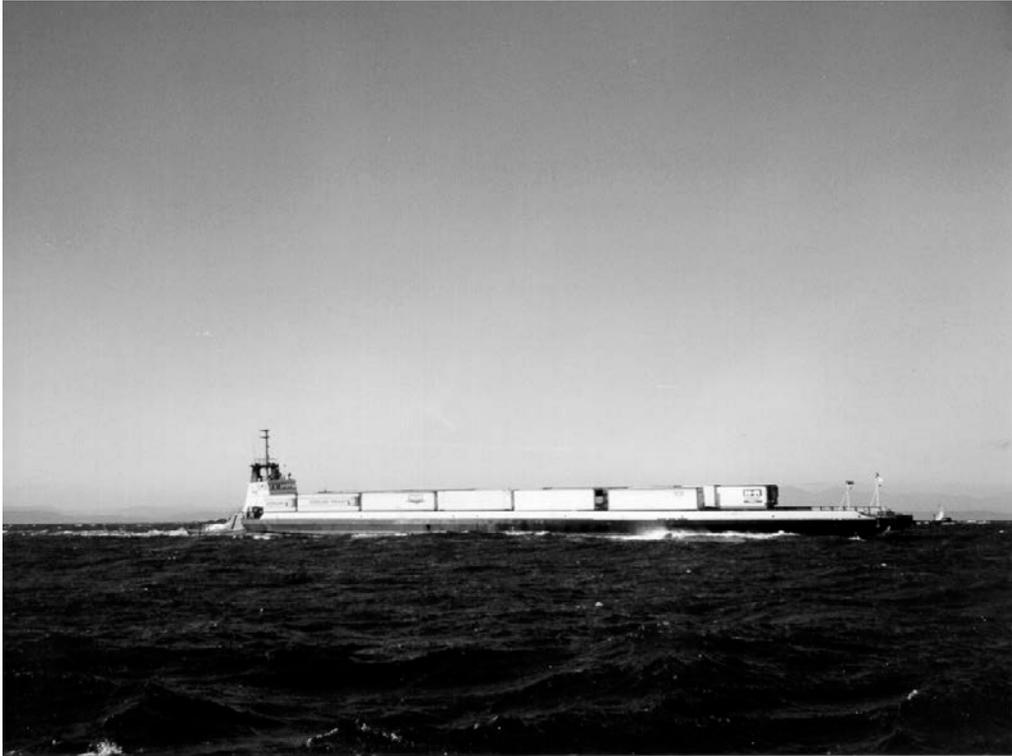
4.0 *Safety Action*

The Board has no marine safety recommendations to issue at this time.

This report concludes the Transportation Safety Board's investigation into this occurrence. Consequently, the Board, consisting of Chairperson Benoît Bouchard, and members Maurice Harquail, Charles Simpson and W.A. Tadros, authorized the release of this report on 26 August 1998.

Appendix A - Sketch of the Occurrence Area





Appendix B - Photographs



Appendix C - Glossary

A	aft
B.C.	British Columbia
BHP	brake horsepower
CCG	Canadian Coast Guard
CFV	Canadian Fishing Vessel
COLREGS	International Regulations for Preventing Collisions at Sea
DFO	Department of Fisheries and Oceans
F	forward
FRHC	Fraser River Harbour Commission
GPS	Global Positioning System
HRDC	Human Resources Development Canada
GRT	gross registered tons
IMO	International Maritime Organization
ITB	integrated tug-barge unit
kW	kilowatt
m	metre
MCTS	Marine Communication and Traffic Services
MED	Marine Emergency Duties
MHz	megahertz
mm	millimetre
PST	Pacific standard time
RAMN	Radio Aids to Marine Navigation
RCMP	Royal Canadian Mounted Police
RORC	radiotelephone operator's restricted certificate
R/T	radiotelephone
SI	International System (of units)
SIC	Ship Inspection Certificate
STCW	International Convention on Standards of Training, Certification and Watchkeeping for Seafarers
TC	Transport Canada
TCMS	Transport Canada Marine Safety
TSB	Transportation Safety Board of Canada
U.S.A.	United States of America
UTC	coordinated universal time
VHF	very high frequency