

The Bahamas
Maritime Authority

Marine Safety Investigation Report

into a collision between BGP Prospector and
an unnamed fishing boat resulting in the loss
of one life on 5 April 2022



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Bahamas Maritime Authority
120 Old Broad Street
LONDON
EC2N 1AR
United Kingdom

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1. Summary

Due to restrictions imposed as a result of the coronavirus pandemic, the BMA investigation team could not travel to the vessel to gather evidence and conduct interviews. Therefore, this investigation was conducted following the hierarchy of controls recognised by IMO Circular Letter No.4204/Add.16 establishing effective safety control measures and reducing the risk to personnel. The evidence, including the witness testimonies and images used for the purpose of this investigation, was collated via online interviews and provided by the representative of the management company.

Despite numerous attempts to establish contact with various authorities within Suriname, no cooperation was received and testimonies from the survivors were not provided.

What happened

On the evening of 5 April 2022, the Bahamas flagged survey vessel, BGP Prospector, was restricted in its ability to manoeuvre conducting seismic survey off the coast of Suriname, when it encountered two small, unmarked wooden fishing vessels.

At around 20:02 following continued requests made by the BGP Prospector's chase vessel for the fishing boats to recover their nets and vacate the area, the survey array's wide tow rope made contact with one of the fishing boats, capsizing it and throwing its occupants into the water. Of the six occupants on board the fishing boat, five were later recovered, the sixth member was not recovered and is presumed drowned.

Why it happened

There is no doubt that each vessel was aware of the presence of the other but it is apparent that the fishing boat was unclear of the size of the towed array and that a risk of collision existed, until the very last moment.

When urged to move by a chase vessel, the fishing boat was reluctant to cut its nets as it was fishing without a permit and therefore would not have been compensated for loss of equipment.

What can we learn

Vessels operating in waters where artisanal fishing takes place, should not assume that fishing crews will be aware of defined areas of operation including prohibited zones, or what types of operations are taking place, and should therefore factor this in when conducting navigational risk assessments.

2. Factual Information

BGP Prospector

Vessel Type	Research vessel	Flag	Bahamas	
Owner	Prospector PTE Ltd.	Manager	Hilong Geophysical Co. Ltd	
Classification Society	DNV GL	Gross/Net Tonnage	10,732/3,220	
Built	2011, Ulsan, Rep. of South Korea	Propulsion	Rolls Royce Marine AS -Diesel 4623 HP	
IMO No.	Callsign	Length overall	Breadth	Moulded Depth
9545986	C6YF5	89.45m	24.0m	9.0m
Last BMA Inspection		Last PSC Inspection		
Point Lisas, Trinidad and Tobago, 08 March 2022. No deficiencies		Valletta, Malta, 17 May 2021. No deficiencies		



Image courtesy of Fleet Mon

National Energy Explorer

Vessel Type	Crew Supply vessel	Flag	Trinidad and Tobago	
Owner	Trinidad and Tobago Energy	Manager	Trinidad and Tobago Energy	
Classification Society	Lloyd's Register	Gross/Net Tonnage	454/ 136	
Built	2014	Propulsion	Caterpillar Diesel 3512C TA	
IMO No.	Callsign	Length overall	Breadth	Moulded Depth
9689275	9YME	53.25m	10.10m	4.7m



Image courtesy of Baltic Shipping

Unnamed fishing boat

Vessel Type	Large flat bottom dory-type wooden gill netter	Flag	Guyana (unregistered)	
Built	Unknown	Propulsion	Diesel inboard/ 4 stroke petrol 40 HP outboard	
IMO No.	Callsign	Length overall	Breadth	Moulded Depth
N/A	N/A	12-15m	≤ 2m	≤ 1m



Typical Guyana gill netter: Image courtesy of The Guyana Chronicle

Crew details

Rank/Role on board	Master	Chief Officer	2 nd Officer	Duty Chief Navigator	Master (National Energy Explorer)
Qualification	Master II/I	Master II/I	OOW	Chief Navigator	Master II/II
Certification Authority	Poland	Poland	Philippines	BGP	Honduras
Nationality	Polish	Polish	Filipino	Australian	Trinidadian
Age	56	44	45	50	29
Time in rank	14 years	8 years	10 years	15 years	6 years
Time on board	10 months	3 years	1 year	11 years	3 months

Environmental Conditions

Wind Direction	Wind Force	Wave Height	Swell Height	Precipitation / Sky	Visibility Range	Light Conditions
NE	4	1.5 m	2 m	Partly cloudy	7 nm	Dark

Voyage Details – BGP Prospector

Departure Port	Paramaribo, Suriname	Arrival Port	At sea - surveying
Time of departure	N/A	Estimated time of arrival	N/A
Voyage duration	9-month survey	Voyage distance	N/A
Cargo	Acoustic-trawl seismic survey equipment	POB	BGP Prospector – 59 NE Explorer – 8 Fishing vessel – 6
Stage of passage	On passage- restricted in ability to manoeuvre	Traffic density	Medium – fishing boats

Narrative

On 5 April 2022, the Bahamas flagged survey vessel, BGP Prospector (BGPP) was in its sixth month of seismic survey work off the coast of Suriname. Its acoustic-trawl seismic survey equipment (comprising of six inner air gun acoustic transceivers ahead of ten streamers fitted with additional transceivers) spanned 1100 metres wide and stretched 9000 metres behind the vessel.

With the survey gear deployed, the BGPP was restricted in its ability manoeuvre: the vessel was required to maintain a minimum speed of 5 knots to ensure separation of the streamers and the safe working load of the tow rope limited manoeuvres to a maximum 5°/minute rate of turn. Due to these limitations, BGPP required a minimum 5NM closest point of approach (CPA).

The survey operation involved three vessels: the BGPP, the National Energy Explorer (NEE) which functioned as a chase vessel, and the Moonrise G, which acted in a support function - conducting replenishments at sea and assisting with the tow as required.

During the day, Moonrise G, had transferred supplies and fuel to BGPP. During the transfer, BGPP's survey equipment remained deployed.

At 18:00 BGPP had completed the replenishment at sea, was in survey mode and manoeuvring to the start of its next survey line, when the chief officer handed over the navigational watch to the second officer and retired to their cabin for the evening.

At 18:18 the second officer noticed two faint targets on the radar screen, ahead of the vessel at a distance of 8NM, with a CPA significantly less than the 5NM required. On closer inspection, the second officer observed that the vessels were not displaying any vessel automatic identification, nor were any navigation lights or signals visible through the use of binoculars.

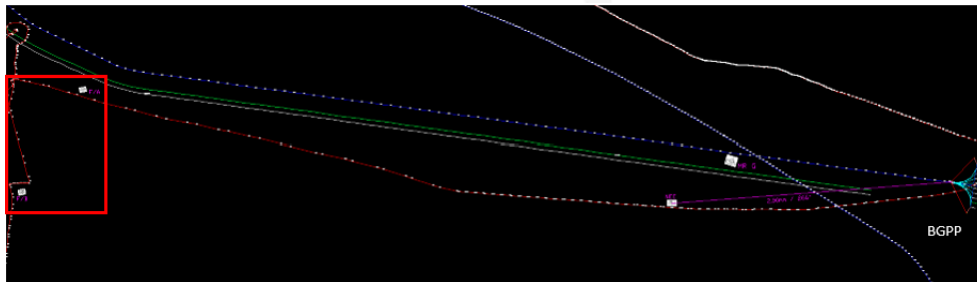


Figure 1. Targets spotted on radar (from BGPP Orca survey system)

At 18:20 the second officer made contact with the National Energy Explorer (NEE) and requested that they make their way to the fishing vessels, and request that they depart the area (appendix 3).

The NEE made its way to the first of the two vessels which were identified as small wooden hull fishing boats. Fishing boat A (FBA) and fishing boat B (FBB) were some distance apart from each other. NEE made its way to FBA which was in a more northerly position and closest to the BGPP's forecasted track.

On approaching FBA the crew of the NEE made attempts to communicate with the fishing crew, however with no one on board speaking the regional creole dialect, communication relied solely on hand gestures and broken Spanish to try and convey the need for FBA to vacate the area. Following several attempts, NEE understood that

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FBA would recover its nets and move away and at 18:25 the duty officer on board the NEE contacted the BGPP to notify them that FBA would be moving out of the way.

Shortly after, the second officer asked NEE to make its way to FBB and ask them to move to the south as there CPA was less than 5NM.

A few minutes later at 18:30, the NEE contacted the BGPP to inform them that they had managed to make contact with the use of very high frequency (VHF) radio, and FBB had agreed to move south.

On receiving confirmation, the second officer requested the NEE to remain in position and continue to monitor the movements of both fishing boats to ensure they were making attempts to remain clear of BGPP, for the next 30 minutes NEE made further visits to FBA and FBB to encourage them to move.

At 19:05, the NEE was in a continued dialogue with FBB when the second officer on board the BGPP informed them that no movement was detected on their radar of FBA and asked the NEE to intervene. The second officer then contacted the stand-by vessel, Moonrise G, to attend to FBB.

At 19:10, the BGPP informed the NEE, that it was now 2.5 NM and closing in on the position of FBA, to which the NEE replied that FBA were still in the process of recovering their nets.

At 19:41 (1 hour 23 minutes after first sighting), due to the slow progress of recovery by the fishing boats to haul in and recover their nets and equipment, the second officer radioed down to the chief navigator (who had control of the vessel in the instrument room) requesting an alteration of course - 30 degrees to starboard (from 280° to 310°) with a minimum five degrees per minute rate of turn. The turn was executed in seismic track, within the safe limits for the equipment being towed.

At 19:44 the second officer called the master to the bridge.

At 19:50 after assessing the situation, the master ordered another forty degrees turn to starboard and to increase the turn rate an additional five degrees per minute (appendix 3).

At 20:00 the NEE was instructed by the BGPP to move clear as they were in danger of colliding with the survey array (appendix 2). During this period of time, the BGPP had used its search lights to illuminate the wide tow rope, as well as sounding the ships horn, in order to bring attention to FBA that they were in imminent danger.

At 20:02 FBA collided with the wide tow rope, capsizing and throwing its occupants into the water.

Shortly after FBA capsized, the general emergency alarms were sounded onboard the NEE, and the crew were placed on standby, preparing the fast rescue boat (FRB) in the event it was required to launch.

The BGPP was informed by the NEE, that FBA had made contact with the tow rope, capsized and sank, to which the master immediately sounded the general emergency alarms and readied FRB for deployment.

The BGPP requested the NEE to maintain position at the site of the collision and keep a look out for any persons or activity in the water. Additional crew on board the BGPP were assigned with binoculars and flash lights to assist with the search for persons in the water. The Moonrise G was requested to assist with the search and rescue.

At 20:16 the BGPP launched its FRB with the chief officer, bosun and an able bodied seafarer on board, and once clear of the tow rope, made their way to the site of the collision. They then transmitted a distress call on MF/HF and Inmarsat C.

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At 20:31 a nearby fishing trawler picked up the transmission and offered assistance, and was advised by the BGPP to remain south. Shortly after making the distress call, a confirmation was received from Gris-Nez Inmarsat-C Land Earth Station acknowledging the distress call.

At 20:38 crew on board the NEE reported hearing voices in the water, but were unable to locate the position from where it was coming from. The NEE reported this to the BGPP, who contacted the FRB and requested that they proceed towards the NEE, and to the last known position of where the voices were heard.

At 20:40 Suriname Coastguard received a call about the incident and readied a vessel with divers on board to assist with the search and rescue.

At 20:42 the NEE located five persons sitting on top of a large insulated cooler box, and this information was relayed to the FRB, who made their way to the location and recovered then three minutes later, they were then transferred to the NEE where it was identified that there was still another member of the fishing crew missing, as FBA had been crewed with six persons.

The FRB and Moonrise G proceeded to the position where the crew were rescued, to continue the search for the missing person.

Suriname Coast Guard did not deploy assets to carry out a search and rescue.

At 21:10 the Moonrise G reported seeing fishing nets, most likely from the capsized fishing boat, and was advised by the BGPP to remain within the proximity of the nets until daylight, and resume its search pattern for the missing person.

At 22:10 the NEE was instructed to escort the FRB back to the BGPP, and was later securely recovered back on board at 22:50.

The crew on board the BGPP continued monitoring the scene until 01:30 the following morning, and later that day after extensive searches, a decision was taken to call off the search for the missing person, presumed drowned. Over the course of the casualty/rescue BGPP sent four updates to MRCC in Paramaribo but received no replies.

Surveying

The BGPP was contracted to carry out seismic survey work on behalf of Staatsolie, the Suriname State owned oil exploration major. The survey area, sixty kilometres off the coast of Suriname, bordered Guyana to the west. This survey formed part of an extended programme of acoustic seismic exploratory operations between 24 October 2021 through to the end of August 2022. A Notice to Mariners (NTM) regarding the planned activity off the coast of Suriname had been issued by the Suriname Government in advance of works commencing. (Appendix 1)

The acoustic-trawl seismic survey equipment being used comprised two wide tow ropes spanning 1100 metres in total, which were attached to barovanes positioned at the outermost part of the rig. The survey array comprised six inner airgun acoustic transceivers, which captured digital imagery of sound waves bouncing back up from the seabed to the transducers, allowing the seabed to be mapped in a three dimensional image.

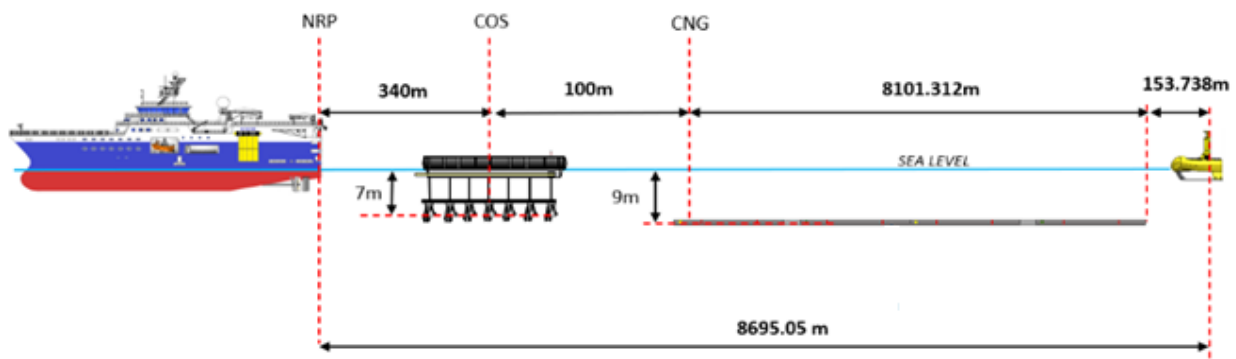


Figure 2. Cross- section of survey array

These sat ahead of ten streamers with further airgun acoustic transceivers mounted, which stretched 9000 metres behind the vessel. This allowed the vessel to survey and map large areas of the seabed in a single pass. Due to the width and length of the equipment being towed the BGPP operated as a vessel restricted in its ability to manoeuvre and required a minimum 5 NM Closest Point of Approach (CPA) (figure 2).

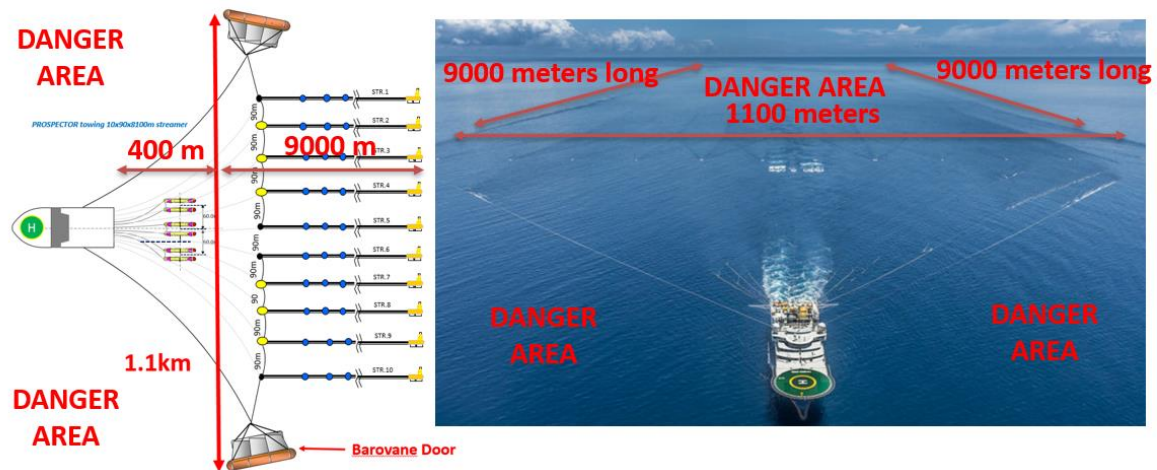


Figure 3. Danger areas – BGPP survey array

Fishing

Fishing plays a vital part of the local economy of Suriname and neighbouring Guyana (to the west) and French Guiana (to the east). In Suriname, the Department of Agriculture, Livestock and Fisheries (LVV) manages the cost and distribution of fishing permits and appoints Fisheries Liaison Officers (FLO) to provide monitoring and management of their national fishing quotas, whilst protecting the exploitation of its own natural aquatic resources by illegal fishing activity.

In order to effectively manage this, FLO will often travel with operators to monitor, record and where necessary intercept those fishing illegally or in protected areas. The FLO will also attend survey vessels to monitor the affects that the acoustic seismic surveying places on the marine life and its surrounding eco system.

Companies conducting survey or exploration within Suriname waters are required to notify LVV of their intentions and planned activities by issuing regular updates to any changes of areas including their block co-

ordinates, distances to keep clear, designated safety and danger areas as well as the duration of their project. These formed the basis of a notice to mariners (NtM) to be distributed to those operating in Surinamese waters.

At the time of the collision, the BGPP was operating within a survey block that had communicated by the NtM (below) and shared locally using flyers (appendix 2).

```
WESTERN NORTH ATLANTIC.  
GUYANA.  
1. SURVEY OPERATIONS IN PROGRESS UNTIL 31 AUG  
  BY M/V GEO SERVICE 1, M/V NATIONAL ENERGY EXPLORER,  
  AND M/V BCP PROSPECTOR TOWING 8000 METER LONG CABLE  
  IN AREA BOUND BY  
  07-00.01N 056-40.30W, 06-59.98N 056-34.18W,  
  06-58.90N 056-34.76W, 06-46.79N 056-40.93W,  
  06-35.63N 056-46.67W, 06-32.42N 056-48.99W,  
  06-24.75N 056-53.65W, 06-24.75N 057-00.42W,  
  06-44.00N 056-49.10W, 06-50.86N 056-49.10W,  
  06-50.85N 056-44.90W.  
  WIDE BERTH REQUESTED.  
2. CANCEL THIS MSG 01001Z SEP 22.  
  
132011Z JUL 2022 OFFSHORE GUYANA 126/22 131945Z JUL 22.
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Figure 4. NAVAREA warning: co-ordinates of BGPP operational area

From the start of the survey in October 2021 to the date of the collision, BGPP (through its management company) had issued six NtM, which were communicated via the Ministry of Public Works, Maritime Administration Department (Appendix 2) NtM service, detailing areas and demarcated zones of operation as well as dates of when it would commence.

3. Analysis

The purpose of the analysis is to determine the contributory causes and circumstances of the casualty as a basis for making recommendations to prevent similar casualties occurring in the future.

Collision avoidance

Both vessels were required to comply with International Rules for the Prevention of Collisions at Sea (1974, as amended).

Responsibilities between vessels:

Due to the size of its survey array and the resultant impact on manoeuvrability, BGPP was considered to be restricted in its ability to manoeuvre:

Rule 3 (g) – General definitions

The term "vessel restricted in her ability to manoeuvre" means a vessel which from the nature of her work is restricted in her ability to manoeuvre as required by these Rules and is therefore unable to keep out of the way of another vessel. The term "vessels restricted in their ability to manoeuvre" shall include but not be limited to:

(ii) a vessel engaged in dredging, surveying or underwater operations;

(vi) a vessel engaged in a towing operation such as severely restricts the towing vessel and her tow in their ability to deviate from their course

As such, FBA, as vessel engaged in fishing and underway, was required to keep out of the way of BGPP:

Rule 18 (c) – Responsibilities between vessels

A vessel engaged in fishing when underway shall, so far as possible, keep out of the way of:

(ii) a vessel restricted in her ability to manoeuvre.

Despite the pressure applied by NEE, FBA did not take sufficient avoiding action.

When it became apparent to BGPP that a collision with FBA could not be avoided by the action of FBA alone, it was required to take action:

Rule 17 – Action by stand-on vessel

(a) (i) Where one of two vessels is to keep out of the way the other shall keep her course and speed. (ii) The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules.

(b) When, from any cause, the vessel required to keep her course and speed finds herself so close that collision cannot be avoided by the action of the give-way vessel alone, she shall take such action as will best aid to avoid collision.

(c) A power-driven vessel which takes action in a crossing situation in accordance with sub-paragraph (a) (ii) of this Rule to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on her own port side.

(d) This Rule does not relieve the give-way vessel of her obligation to keep out of the way.

BGPP's action to avoid collision was limited to an alteration of course. This was [at least partly] informed by the restrictions imposed by the survey array: slowing down from its set operational speed would have resulted in damage and potential loss of equipment. Additionally, a reduction in speed alone would not have increased the CPA and would have proven difficult to observe by fishing boat A.

Rule 8 (c) - (Action to avoid collision)

If there is sufficient sea-room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.

BGPP's rate of alteration of course was also informed by the restrictions imposed by the survey array – the second officer's initial course alteration request was conducted at the operational restriction of 5°/minute – a faster rate of turn was considered a risk of overloading the wide tow rope. When the master arrived on the bridge he assessed that the alteration was not sufficient to avoid collision and requested a further 5°/minute but this was still proved insufficient.

There is no doubt that each vessel was aware of the presence of the other. But it is apparent that FBA was unclear on the size of the towed array and that risk of collision existed, until the very last moment.

BGP Prospector SMS

Within the company's safety management system (SMS), guidance on Bridge Safe Navigation detailed responsibilities of the OOW, including maintaining proper lookout, safety of navigation, minimum CPA distance and actions to avoid close quarters situations.

However, the guidance offered did not differentiate between what was required when navigating as a powered driven vessel and when restricted in its ability to manoeuvre. For example, the SMS specified a minimum CPA of 1NM but the survey operation required 5NM. No consideration was given to the role of the chase and support vessels or constraints imposed on speed and rate of turn by the survey array.

No guidance was provided on when to call the master when minimum CPA was not achievable or time to CPA limits for taking action to avoid collision.

Artisanal fishing

The majority of artisanal fishing boats in Guyana are hand line boats, more widely known as gill netters. These boats are typically of wooden construction of up to fifteen meters in length, propelled by either an inboard diesel engine or outboard motor. They comprise a central open deck where nets are stored and a catch box which can hold up to five tons of ice in order to preserve their catch for up to ten days at sea. Basic essentials such as food and water are carried for the duration of the trip.



Figure 5. Typical Guyanese Gill net fishing boat (L) and section of Gill net (R)

The gill nets are set near the seabed with a span of up to five hundred metres, supported every 50-100 metres by a buoy with crew responsible for two buoys each. Fishing boat A, with six crew, was fishing with a net of several hundred meters in length.

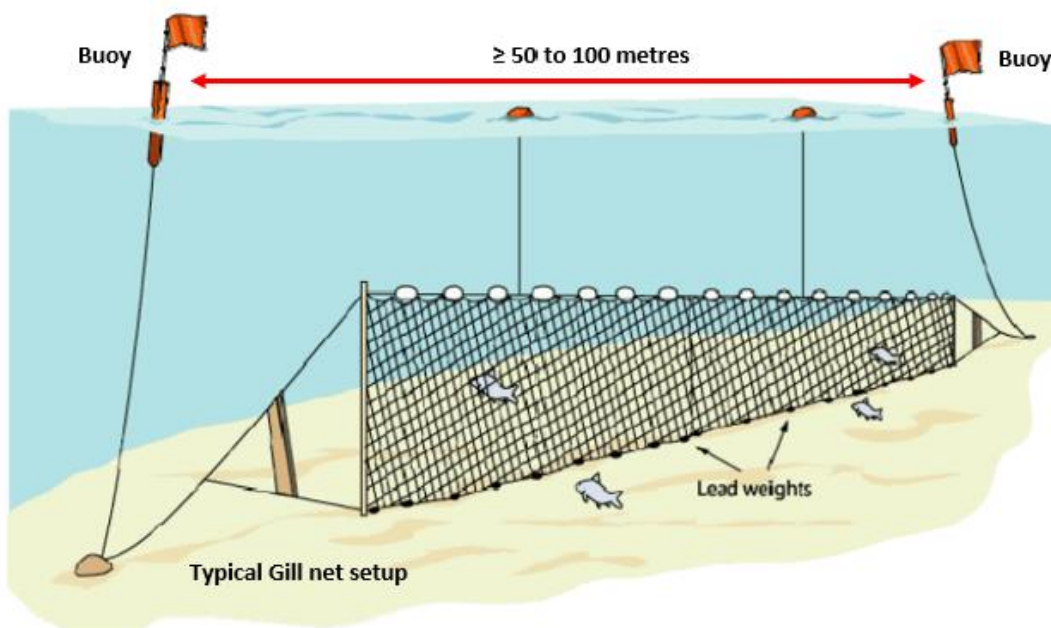


Figure 6. Typical Gill net setup

Fishing boat A, like the majority of gill netters, was not equipped with winches or net recovery equipment meaning that, once it was requested to move, it needed to recover its nets, along with the weight of any fish caught, all by hand.

As well as being commercially unadvantageous, recovering the nets would have been slow and labour intensive, especially considering the choppy conditions. The time required was a factor in why fishing boat A was unable to depart the scene sooner - the time required to complete the task of recovery was greater than the time it had to vacate the area so as to avoid a collision.

Artisanal fishing and safety

The International Convention for the Safety of Life at Sea (SOLAS), 1974 regulations specifies minimum standards for the construction, equipment and operation of ships.

Apart from Chapter V (Navigation), SOLAS does not apply to fishing vessels, wooden ships of primitive build and ships not propelled by mechanical means,

Local fishing boats in Suriname, as well as neighbouring countries are solely reliant on local area knowledge to navigate and operate, and are not required under local or international law to be equipped with a minimum level of equipment, such as navigation lights, aids to navigation, radio and safety equipment.

Thus leaving out most of the artisanal fishing fleet in the developing countries such as Suriname, Guyana and French Guiana. Therefore, artisanal fishing boats such as FBA and FBB operate with little or no safety equipment or aids to navigation while offshore, reducing survivability, in the event of a collision or capsizing, highlighted by the fact that the survivors were recovered clinging to a catch box.

Regional co-operation with regards the sharing of NtM's and other shipping information is distributed among larger operators and commercial fishing companies in Suriname and Guyana, however this information is not filtered down to artisanal fishing crews. Therefore, the risk to artisanal fishing crews increases when operating in areas where unknown risks are present.

In light of the fact that many artisanal fishing boats are ill equipped, and without equipment necessary to operate out at sea safely, issuing a NtM to monitor or track any given co-ordinates, would have been of little use to fishing vessels without the means to adequately plot and track their position in relation to the areas to avoid.

Fishery liaison officers (FLO) and compensation

LVV encourage all operators to adhere to the regional and legal regulations regarding the protection of its fish stock and provides opportunities for those wishing to fish in waters off Suriname, by making fishing permits available to artisanal fishing crews. However, the costs to register a boat and to acquire a permit to fish in Suriname waters exceeds the average landed quota paid, driving many in the fishing community to fish without a valid permit, both in Suriname and neighbouring countries.

Although fishing is regulated in Suriname and Guyana, much of the activity is not effectively monitored, nor are its regulations enforced. Limited patrol boats with FLO's on board, and an increase in in fishing activity without permits or registered boats makes identifying and tracking them more difficult, thereby increasing the risk of un-permitted boats coming into contact with larger vessels.

Due to operational limitations and resource constraints, these regulations and permits go unmonitored or undetected. Although local and regional fishing by-laws are active, they are not enforced

LVV will issue NTM in advance of activities and the FLO will ensure that this is shared and communicated with the local fishing community via local press and newspaper releases within Suriname, however this information is not shared with neighbouring countries, thereby increasing the risk to artisanal fishing boats entering Suriname waters unaware of the dangers.

Registered artisanal fishing boats with a valid permit who are requested to cut their nets to avoid collision with another vessel, or are caught fishing in a prohibited zone, are eligible for compensation for the loss of their equipment from LVV upon submission of an application through the FLO office.

FBA and FBB fishing without the required permits would not have been eligible for any form of compensation, if detained or requested to cut their nets, so the decision to recover their equipment in order to continue fishing at a future date, was also a factor in why FBA did not vacate the area sooner when requested by NEE.



4. Conclusions

- An unnamed fishing boat sunk after colliding with the wide tow rope, making up part of BGP Prospector's survey array.
 - Of the fishing boat's six crew, five were rescued having used a catch box as a floatation device. A sixth member of the crew was not recovered and is presumed drowned.
 - The fishing boat was not registered, equipped with any safety or radio equipment and did not have the appropriate permits to fish in the area.
 - Despite repeated requests from a chase vessel, the fishing boat was reluctant to cut its nets as it was fishing without a permit: it therefore would not have been compensated for loss of equipment.
 - The fishing boat was unclear of the size of the towed array and that a risk of collision existed, until the very last moment.
 - Suriname Coast Guard, had been informed of the casualty, however did not deploy to assist with the search and rescue.
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5. Actions taken.

Hilong Geophysical Ltd (Agents) of Prospector Pte Ltd has:

- Created a vessel specific “Fishing Boat Avoidance Checklist” which incorporated changes to their TCPA and CPA operational limits, that will be utilised by the duty officer when on watch in areas with a high concentration of artisanal and other fishing operations.
-

6. Recommendations

Suriname Ministry of Agriculture, Livestock and Fishery (Ministerie van Landbouw, Veeteelt en Visserij) are recommended to:

- Ensure that FLO's are conversant with local Creole dialects when operating on contractor vessels so that communication can be easily relayed to artisanal fishing crews when requested to vacate an area.

Suriname MRCC are recommended to:

- Ensure that transmissions broadcast by vessels are acknowledged and a receipt forwarded to the vessel.
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7. Glossary and Definitions

AB	Able Bodied Seafarer
Airgun	Airguns consist of a chamber which holds compressed air and a release mechanism which attempts to instantaneously release the compressed air into the surrounding water as a bubble
Artisanal	A craft or profession, especially one requiring manual skill
Barovane	A device to divert the front end of a streamer attached to an acoustic-trawl arrangement away from the tow point
BGPP	BGP Prospector surveying vessel
CPA	Closest Point of Approach
°	Degrees (For positioning any location on Earth uses latitude and longitude coordinates. These are measured using decimal degrees or degrees/minutes/seconds.
Danger area	Danger area is the triangulated area demarcated between the bow of the vessel and the outermost part of the barovane affixed to the wide tow rope.
FBA	Fishing Boat A
FBB	Fishing Boat B
FLO	Fisheries Liaison Officer
FRB	Fast Rescue Boat
GMDSS	The Global Maritime Distress and Safety System (GMDSS) is a worldwide system for automated emergency signal communication for ships at sea developed by the United Nations' International Maritime Organization (IMO)
Inmarsat C	Inmarsat-C is a two-way, packet data service operated by the telecommunications company Inmarsat which operates between mobile earth stations and land earth stations.
HF	High Frequency
LVV	Ministerie van Landbouw, Veeteelt en Visserij (Ministry of Agriculture, Livestock and Fishery)
MF	Medium Frequency
MRCC	Maritime Rescue Coordination Centre
NEE	Northern Energy Explorer chaser vessel
NM	Nautical Mile
NTM	Notice to Mariners are the primary means for disseminating information concerning aids to navigation, hazards to navigation, and other items of marine information of interest to mariners.
OOW	Officer of the Watch
Safe operational area	The safe operational area extends outside 5 NM ahead of the vessel and 1 NM either side of the trawl gear and 7 NM aft of the equipment
Transceiver	A device comprised of both transmitter and a receiver
Transducer	A device to convert electrical power to acoustic power and vice versa
VHF	Very High Frequency

Appendices

Appendix 1 Notice to Mariners No.53 – Survey Operations for Offshore Guyana

MINISTRY OF PUBLIC WORKS
MARITIME ADMINISTRATION DEPARTMENT
NOTICE TO MARINERS

No. 53 (2022) Guyana

OFF SHORE GUYANA

CGG Services (US) Inc., will continue 3-D Seismic operations beyond Guyana's Eastern Offshore Maritime boundary, with occasional ingress into the **Corentyne Block** of the Guyana's Exclusive Economic Zone.

This exercise is scheduled to conclude on **March 01, 2022**, and will incorporate the use of the undermentioned vessels, which will display the international signal for vessels engaged in such activities:

- **MV BCP Prospector**
- **MV Geo Service 1**
- **MV National Energy Explorer**

The survey area is situated approximately 18 nautical miles (33.3 kilometers) from the Coast of Guyana, and covers an area of 246.3 square nautical miles (844.8 square kilometers), bounded by the following coordinates:

No.	Latitude (N)	Longitude (W)	Remarks
1	07° 00'.007	056° 40'.295	WGS84 (Zone 21)
2	06° 59'.982	056° 34'.178	WGS84 (Zone 21)
3	06° 58'.901	056° 34'.755	WGS84 (Zone 21)
4	06° 46'.789	056° 40'.931	WGS84 (Zone 21)
5	06° 35'.625	056° 46'.666	WGS84 (Zone 21)
6	06° 32'.417	056° 48'.993	WGS84 (Zone 21)
7	06° 24'.754	056° 53'.645	WGS84 (Zone 21)
8	06° 24'.754	057° 00'.416	WGS84 (Zone 21)
9	06° 44'.084	056° 49'.097	WGS84 (Zone 21)
10	06° 50'.862	056° 49'.096	WGS84 (Zone 21)
11	06° 50'.854	056° 44'.904	WGS84 (Zone 21)

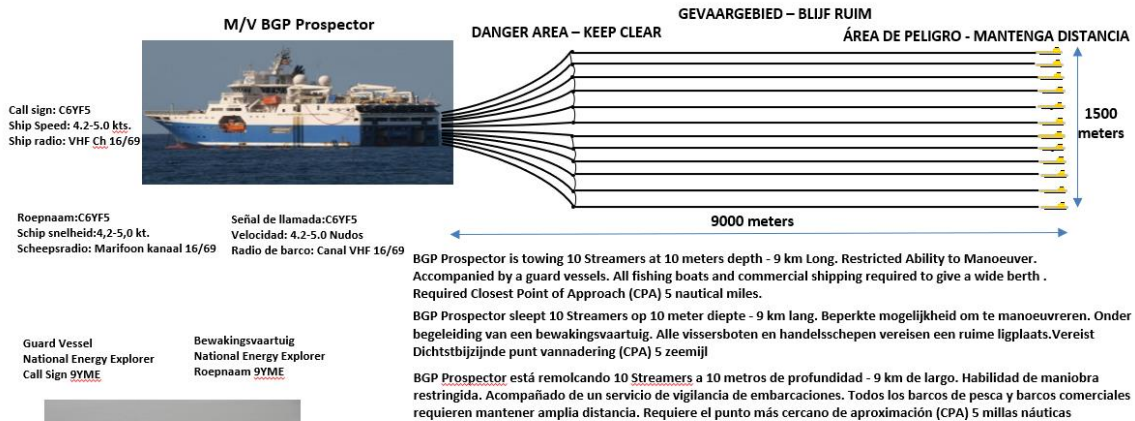
Appendix 2 Project

BGP Flyer issued to LVV for Suriname

Seismic survey carried out by R/V BGP Prospector 24th Oct 2021 to the end of August 2022

Seismisch onderzoek uitgevoerd door R/V BGP Prospector 24 oktober 2021 tot eind augustus 2022

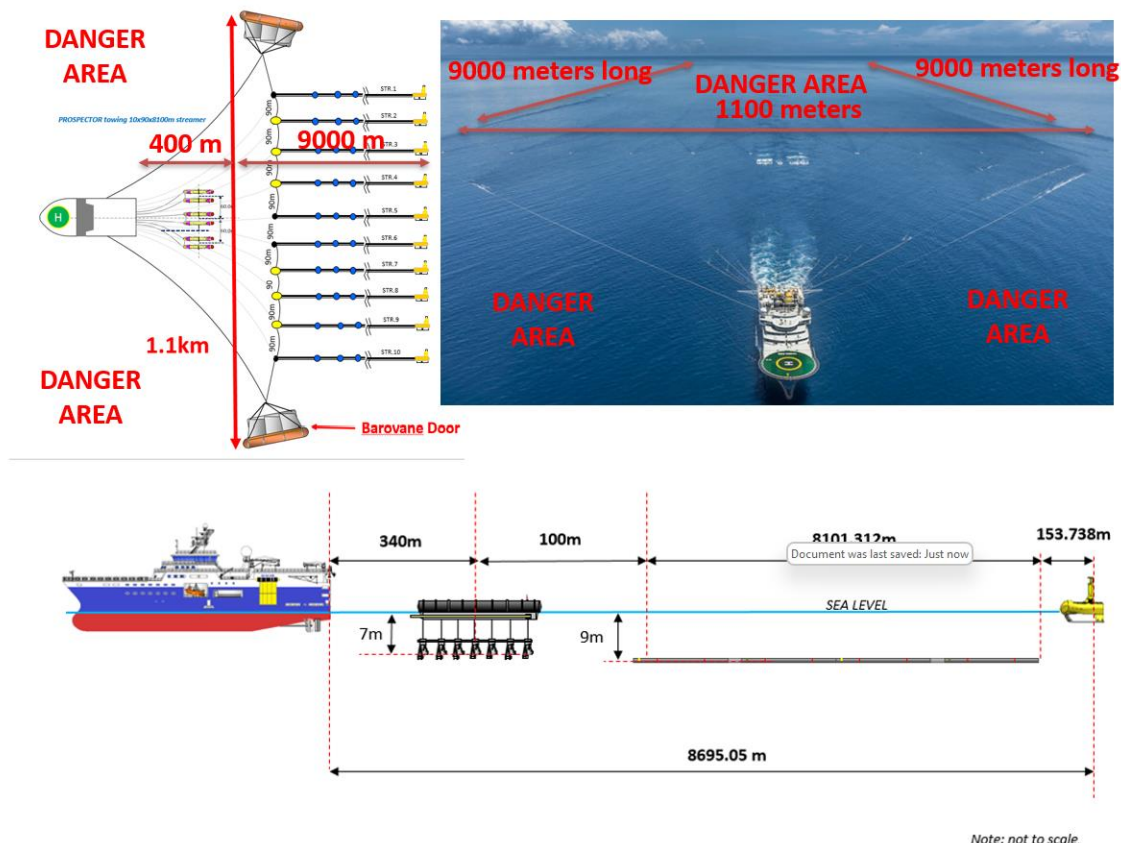
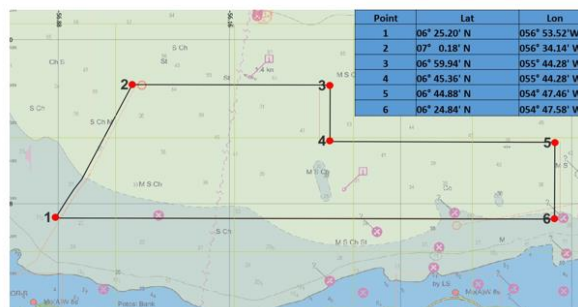
Operación sísmico realizado por R/V BGP Prospector del 24 desde octubre del 2021 a finales de agosto de 2022



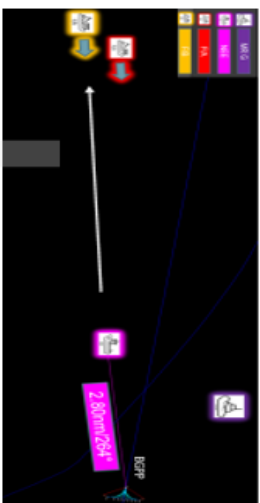
Guard Vessel MOONRISE-G
Call sign: HPEW



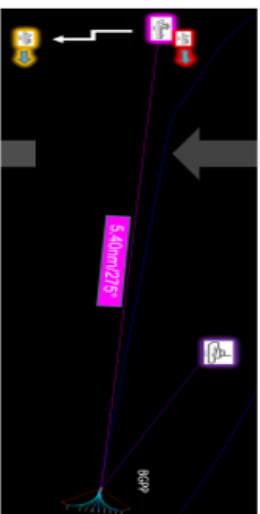
Survey Area



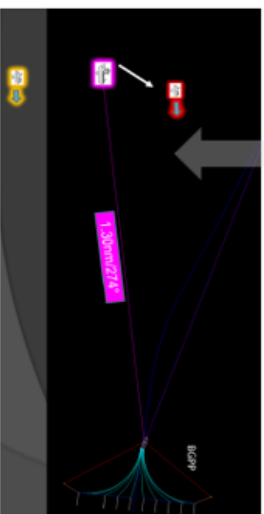
Appendix 3 – Collision simulation



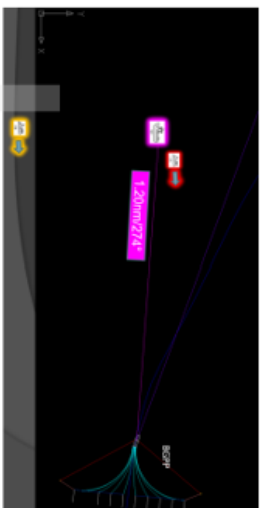
18:20 BGP requests NEE to intercept and move 2 vessels 8NM ahead occupying the path that the BGP is on. Both vessels in path of approaching BGP seismic trawl gear.



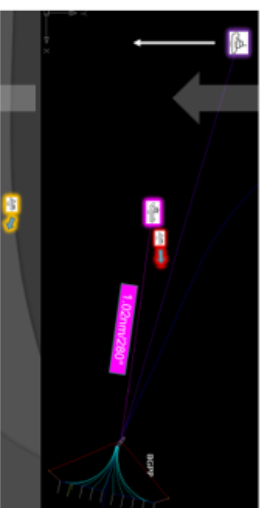
19:00 NEE arrived at FBA. No reply on VHF. Made contact and FBA agreed to recover gear and move South. BGP informed. Moonrise G proceeds North.



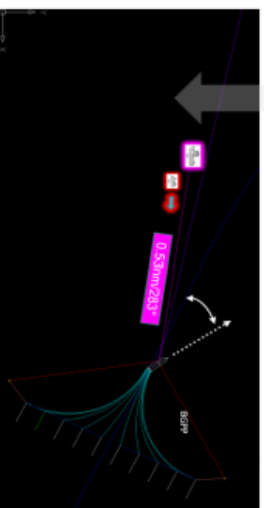
19:41 Navigator instructed by 2nd officer to alter course 30° stbd in seismic track. NEE Proceeds south to FBA. NEE notified that FBA not moving. NEE heads back to FBA



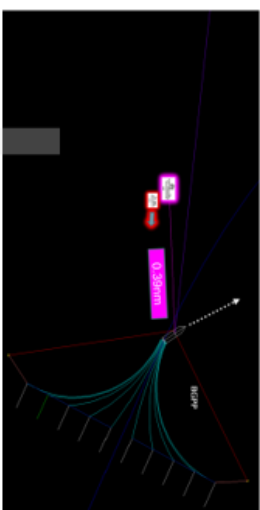
19:44 NEE arrived at FBA again. NEE urged fishermen to increase urgency in retrieving fishing gear and move South of fast approaching BGP



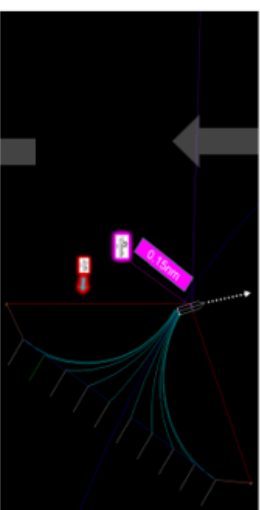
19:47 BGP completes first 30° stbd turn. NEE advised to remain with FBA and assist with moving it South. Moonrise G instructed to head South to make sure FBA is moved on.



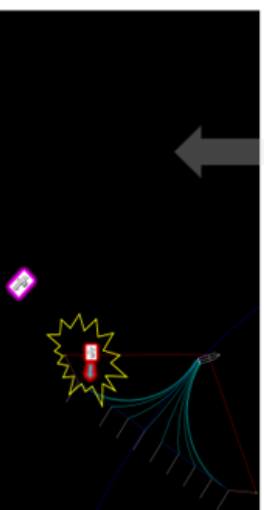
19:52 After assessing situation, BGP Master orders 40° stbd turn and increased turn rate of 5°/min, in order to take evasive action to avoid collision.



19:56 Heading 314°. NEE instructs crew on bow to tell FBA to cut nets and move away from the area. FBA continued to recover fishing gear



19:59 NEE ordered by BGP to vacate area and avoid entering danger zone. FBA left recovering its fishing gear. BGP continues to turn to stbd.



20:02 FBA collides with BGP wide tow rope and capsizes throwing occupants into the water