Ministry of Agriculture
Fisheries Department

Turtle Excluder Device
Annual Report
2018

Mr. Randy Bumbury
Fisheries Officer

Executive Summary

This report contains an analysis of the 2018 Turtle Excluder Device (TED) Technical Compliance Rate (TTCR) for the period January 1 – December 31, 2018. The Legal and Inspectorate Unit (L&IU) of Ministry of Agriculture, Fishery Department, is responsible for monitoring all TED activities in Guyana.

All industrial vessels were monitored for compliance of TEDs in a number of areas, such as, TED angles, bar spacing, extended flap length, floats, leading edge cut, side cut, escape opening and spare TEDs. The industry's four major companies Pritipaul Singh Investment Inc. (Mc Doom) and (Providence), Bev Processors Inc., Guyana Quality Investments Inc. and Noble House Seafoods Ltd. were monitored independently and their information presented at the Seabob Working Group (SWG) mandated meetings.

In 2018, the industrial sub-sector had nine thousand, five hundred and ninety-five (9595) TEDs inspected which resulted in a TTCR of 96.1%. A total of one thousand, nine hundred and ninety-seven (1997) inspections were conducted in 2018 on nine thousand, nice hundred and eighty-eight (9988) TEDs. The TTCR for 2018 was 96.1% due to three hundred and ninety-three (393) TEDs failing during inspections.

Contents

Introduction

Turtle Excluder Device (TED) is a device fitted to a net or modification that allows turtles to immediately escape after capture in the net[1]. The TED allows for small animals such as seabob (*Xiphopenaeus kroyeri*), prawn (*Penaeid spp.*) and small fish. TEDs can be separated into two different groups, active and passive. Active TEDs use fish behaviour to separate target from non-target animals. These TEDs use windows (holes in the net with selvedged edges) and netting funnels to create escape routes for fish and rely upon natural escape responses of the non-target animal. Passive TEDs use physical sorting method to separate target from non-target animals. These TEDs are characterized by grids or panels of netting which physically restrict large animals from passing through. TEDs can also be separated into hard TEDs, which contain hard metallic components such as grids and wire, and soft TEDs which use soft components such as netting and rope.[2] In the Guyanese seabob trawl fishery, the single grid aluminium TEDs are 86.4 cm x 106.7 cm (34" x 42") and constructed with 1.3 cm (0.5") thick bars. They are required to have a maximum bar spacing of 10.2 cm (4"),[3] some vessels utilize 8.9cm (3.5"). All industrial vessels are required by law to be equipped with a hard TED when fishing in Guyana's waters.

The conservation and protection of marine turtles by the Fisheries Department (FD) is set out in the legal framework of the Fisheries Act 2002 and Marine Fisheries Regulation 2018. These

---

[1] Crespi V. *et al. (*2002). "Fishing Technology Equipment. Turtle Excluder Devices (TED). Food and Agriculture Organization. http://www.fao.org/fishery/equipment/ted/en

[2] Ibid

[3] Garstain A. *et al. (2017). "*The effectiveness of a modified turtle excluder device (TED) in reducing elasmobranchs in the Atlantic seabob (*Xiphopenaeus kroyeri)* industrial trawl fishery." pg. 7 https://www.cavehill.uwi.edu/cermes/getdoc/d2f2bd90-29c1-4e3e-9aba-c30ad93e5dcf/garstin_et_al_2017_elasmobranch_bycatch_guyana_sea.aspx

frameworks support the seabob sub-sector bid for Marine Stewardship Council (MSC) certification. There are eight-seven (87) licenced seabob vessels and twenty-two (22) licenced prawn vessels, all of are equipped with a TED. The Fisheries Department, Legal and Inspectorate Unit (L&IU) is responsible for all monitoring, control and surveillance (MCS) activities in Guyana's fisheries sector. TED Inspections are conducted by trained TED Inspectors daily at all four (4) of the authorized landing sites in Guyana.

Fishery Description

Guyana's marine fishery comprises of industrial (seabob and prawn), semi-industrial (deep slope/snapper) and pelagic (deep-sea/tuna). The marine environment of Guyana is found within the area bounded by the Orinoco and Amazon Rivers. During the rainy season the marine environment is large ly influenced by the heavy sediment load and great discharge of fresh water from these huge rivers, along with the Essequibo, Demerara, and Berbice rivers of Guyana affects the salinity, while the sediments (and nutrients) create a series of shifting sand bars and mud flats that cover the shelf out to about the 40-m isobath. Sand gradually becomes dominant beyond this depth and is replaced by coral at about 100 m depth. The mud supports a rich invertebrate fauna that nourishes a variety of demersal species and various species of penaeid shrimp. The shrimp fishery is economically the most important fishery in Guyana,[4] and in order to meet international demands[5], TEDs are required to ensure as part of trawling apparatus.

---

[4] Maison D.M.A. (2007). "Management of inshore artisanal fisheries in Guyana: A co-management approach. pg. 27

[5] Mainly, a measure implemented by the United States to any country which exports harvested shrimp to the USA.

Targets of 2018

Main

1. To ensure the protection of marine turtles and mammals through effective and efficient MCS.

Specific

1. To ensure compliance of TED on all active seabob and prawn vessel.
2. To maintain a TED Technical Compliance Rate above 87% annually.

Activities 2018

In an effort to achieve its objectives, the FD conducted the following MCS activities (to which a number included collaborations with other agencies):

1. Mandatory daily inspection of all vessels before departure and on is return.
2. At sea inspections
3. Prosecution of non-compliant captains
4. Closed Caption Television (CCTV) monitoring
5. Two (2) day inspection of industrial sub-sector with NOAA TED Inspectors.

1. Mandatory daily inspection

TED Inspectors are placed at all authorized landing sites[6] to which vessels are inspected and issued with a TED Certificate of inspection. There were three (3) full time TED Inspectors and

[6] See authorized landing sites

one (1) under training from October – December during 2018. Breakdown of inspections conducted highlighted in the "Review" section.

2. At sea inspections

During the month of February, the FD collaborated with the Guyana Defence Force,Coast Guard to conduct two (2) at sea inspections which resulted in three (3) seabob vessels found trawling without TEDs at sea (Capt. Paul, Miss Xhivana and Highliner). These inspections are key parts of ensuring TEDs are not tampered with when vessels are out trawling.

3. Prosecution

The three (3) captains of the vessels found not using TEDs while trawling were taken to the Guyana Police Force, Marine Division, where they were charged under Fisheries Act 2002. Two (2) of the captains were found guilty (pleaded guilty) of the offence and charged $100,000.00 each. The third captain was found not guilty of the offence, which resulted in a 66.6% successful prosecution. Captain was found not guilty due to lack of compelling evidence.

4. Closed Caption Television (CCTV) monitoring

All seabob vessel were required to have CCTV cameras installed before they were allowed to depart for fishing activities, at the beginning of the new fishing season September 27, 2018 (seabob closed season from August 1 – September 26, 2018). Review of CCTV cameras for use of TEDs and By-catch Reduction Device (BRD) at sea was also done.

5. TED Inspections with the National Oceanic and Atmospheric Administration

On December 6 and 11, 2018 NOAA conducted an assessment of industrial sub-sector for TED compliance. A TED Technical Compliance Rate (TTCR) scores the overall performance of the industry and as of 2016, Guyana is required to maintain a score above 86% after achieving 87%. All 5 TEDs (2 on the port, 2 and 2 on the starboard and 1 spare) are included when recording the TTCR. [7] The FD implemented the TTCR analysis in 2016 and monitors the industries performance monthly. The industry achieved a TTCR of 94% in 2018 from its inspection with NOAA. From a total of seventy-two 72 inspections (4 failures). Failures were due to two (2) TEDs below 45 degrees, one (1) below the 71" flap opening and one (1) below the 71" leading edge cut.

[7] The FD included recording the spare TED as of 2017, prior only four (4) TEDs were considered for the TTCR.

MINISTRY OF AGRICULTURE
FISHERIES DEPARTMENT
TED'S TRIP INSPECTION CERTIFICATE

NAME OF VESSEL
NAME OF CAPTAIN
VESSEL REGISTRATION
NAME OF OWNER
ADDRESS OF CAPTAIN

INSPECTOR'S CHECK LIST APPROVED SETTING	OUTBOUND PRESENT SETTINGS	INCOMING PRESENT SETTINGS
1. TED'S ANGLE (40°-55°) - S1 °S2 °P1 °P2 °Sp °		S1 °S2 °P1 °P2 °Sp °
2. FLOAT SETTING-S1 S2 P1 P2 Sp (one & one)		S1 S2 P3 P4 Sp (one & one)
3. TED'S ATTACHED TO SPARE NET - YES [ ] NO [ ]		YES [ ] NO [ ]
4. BAR SPACING - 4" - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
71" OPENING (SINGLE FLAP)		
1. LEADING EDGE CUT 71" STRETCHED - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
2. SIDE CUT - 26" STRETCHED - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
3. SIDE ATTACHMENT - 6" BEYOND GRID - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
4. FLAP LENGTH - 24" BEYOND GRID - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
5. ESCAPE OPENING - 71" STRETCHED - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
DOUBLE COVER OPENING		
1. LEADING EDE CUT - 56" STRETCHED - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
2. SIDE CUT - 20" STRETCHED - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
3. OVERLAP - 15" STRETCHED - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
4. FLAP LENGTH - 24" BEYOND GRID - S1 "S2 "P1 "P2 "Sp "		S1 "S2 "P1 "P2 "Sp "
TARGET SPECIES BYCATCH		EVIDENCE THAT TED'S WERE BEING USED YES [ ] NO [ ]
TIME/DATE OF INSPECTION INSPECTOR'S NAME CERTIFIED/NOTCERTIFIED M/V ____ IS HEREBY CERTIFIED BY THE DEPARTMENT OF FISHERIES TO PROCEED TO SEA FOR FISHING		TIME/DATE OF INSPECTION INSPECTOR'S NAME CERTIFIED/NOTCERTIFIED M/V ____ IS HEREBY CERTIFIED BY THE DEPARTMENT OF FISHERIES TO UNLOAD CATCH

BY – CATCH REDUCTION INSTALLED - YES [ ] NO [ ]

BY – CATCH REDUCTION DEVICE INSTALLED – YES [ ] NO [ ]

OTHER COMMENTS IF ANY

Figure 1: TED Certificate (Source: Code of Conduct for Captains 2015 – 2020)

Authorized Landing Sites

In 2018 there were five (5) authorized landing sites for industrial vessels (prawn and seabob).

- B.E.V Inc. – seabob vessels only (N.B. company closed on July 16, 2018)
- Gopie Investment Inc. (GII)– seabob vessels only
- Nobel House Seafoods (NHS) – seabob vessels only
- Pritipaul Singh Investment Inc. McDoom (PSI – S) – seabob vessels only

- Pritipaul Singh Investment Inc. Providence (PSI – P) – prawn vessels only

Review

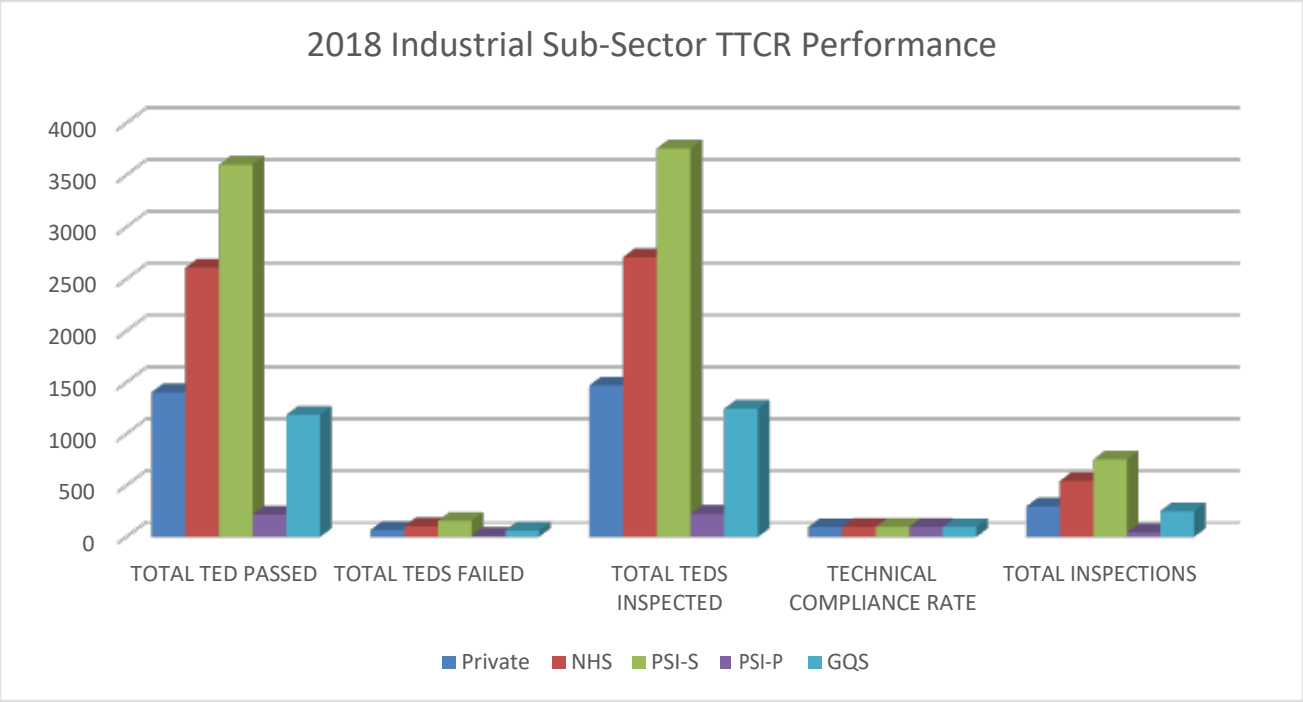
In 2018 a total of nine-two (92) trawlers operated, which is broken-down to eighty-three (83) seabob and nine (9) prawn trawlers. A total of one thousand, nine hundred and ninety-seven (1997) inspections were conducted in 2018 on nine thousand, nice hundred and eighty-eight (9988) TEDs. The TTCR for 2018 was 96.1% due to three hundred and ninety-three (393) TEDs failing during inspections. All failures were detected when vessels return to port[8] . The number of operable vessels in 2018 are as follows:

- Private – 17
- NHS – 27
- PSI-S – 28
- PSI-P – 9
- GII - 11

Company	Total TEDs Passed	Total TEDs Failed	Total TEDs Inspected	TTCR (%)	Total Inspections
BEV/Private	1404	66	1470	95.5	294
NHS	2607	103	2710	96.2	542
PSI-S	4185	155	4340	96.4	868
PSI-P	216	9	225	96.0	45
GII	1183	60	1243	95.2	248.6
Total	9595	393	9988	96.1	1997.6

Table 1: Summary of 2018 Compliance Performance of Companies using TEDs (Source: 2018 TED Reports and Certificates)

[8] Designated landing site



Graph 1: 2018 Industrial Sub-Sector TTCR Performance. (Source: 2018 TED Reports and Certificates)

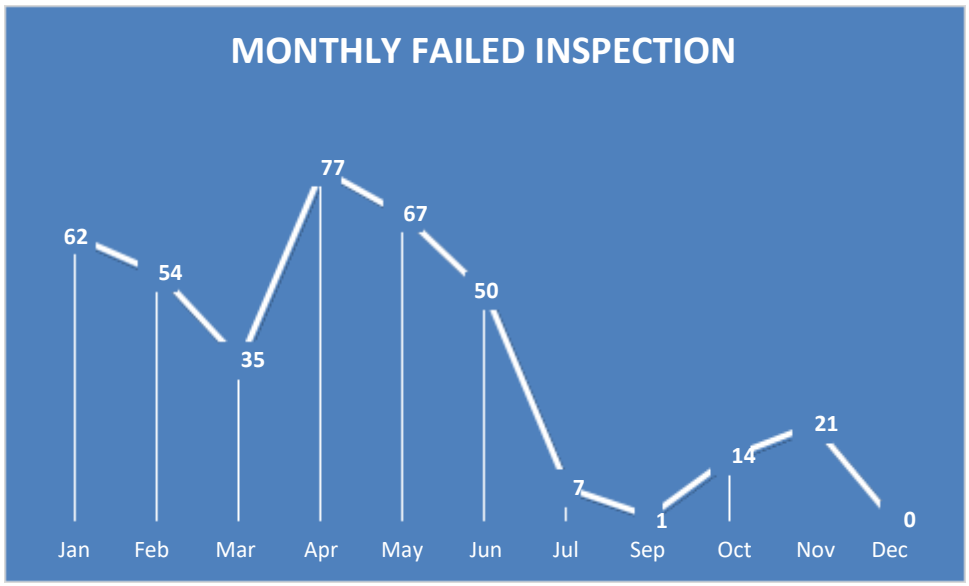
PSI-S recorded the highest TTCR, 96.4% in 2018, with four thousand, one hundred and eighty-five (4185) TEDs passing out of four thousand, three hundred and forty (4340) inspected TEDs. NHS recorded a TTCR of 96.2%, with two hundred and six hundred and seven (2607) TEDs passing out of two thousand, seven hundred and ten (2710) inspected TEDs. PSI-P recorded a TTCR of 95.2%, with two hundred and (216) TEDs passing out of three two hundred and twenty-five (225) inspected TEDs. Private vessels[9] recorded a TTCR of 95.5%, with one thousand, four hundred and four (1404) TEDs passing out of one thousand, four hundred and seventy (1470)

[9] Vessels operated under BEV for the first half of the open season, however were required to land their catch at a different company in the latter half, due to BEV's closure.

inspected TEDs. GII recoded the lowest TTCR, 95.2%, with one thousand, one hundred and eighty-three (1183) TEDs passing out of one thousand, two hundred and forty-three (1243) inspected TEDS.

Infringements

There were three hundred and ninety-three (393) TEDs which failed inspections on return to port in 2018. Infringements occurred in four (4) compliance areas, TED angle below 45 degrees, damaged floats, bar spacing more than 4" and 24" flap length beyond grid. A significant decrease in infringements in 2018 as compared to the five hundred and seventy-seven (577) from 2017.



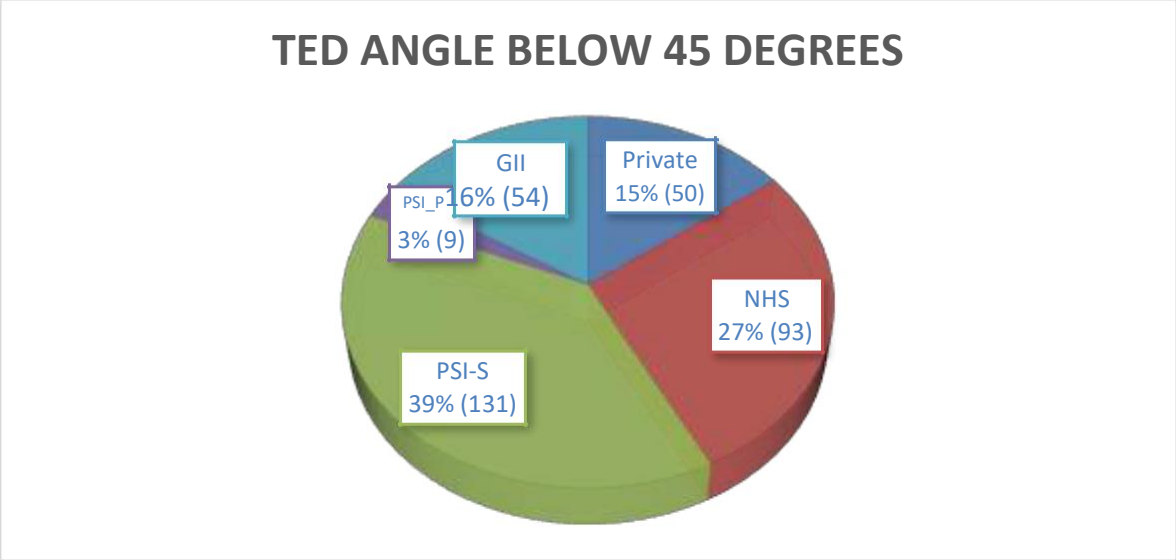
Graph 2: Monthly Failed Inspections (Source: 2018 TED Reports and Certificates)

April recorded the most failed TEDs in 2018, with seventy-seven (77), which represents 20% of the annual failed TEDS. In the first half of the year, 88.5% more TED failures were recorded, as compared to the 11.5% of the latter.

Company	TED Angle below 45 degrees	Bar Spacing above 4”	Damaged Floats	24" Flap Length
Private	50	6	9	0
NHS	93	3	6	0
PSI-S	131	8	10	6
PSI_P	9	0	0	0
GII	54	2	2	2
Total	337	19	27	8

Table 2: Breakdown of 2018 infringements (Source: 2018 TED Reports and Certificates)

1. **TED Angel Below 45^{o}**

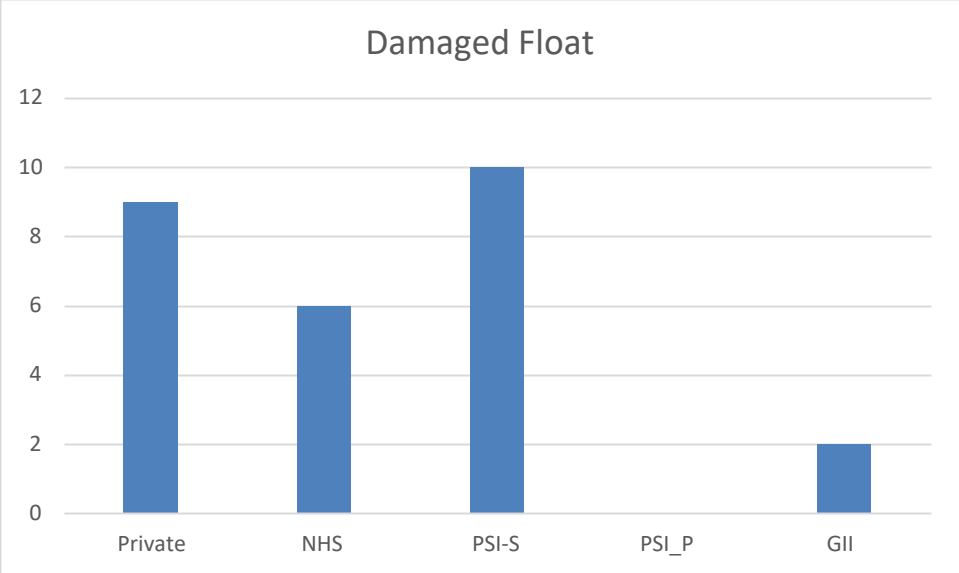


Graph 3: Infringements for TED angles below 45^{o} (Source: 2018 TED Reports and Certificates)

There was three hundred and thirty-seven (337) TED angles which were below 45^{o}, which represents 85.7% of all infringements Based on Guyanese law (Fisheries Regulations 2018), a compliant TED is between 45 – 55^{o}, in 2018 NHS contested that TED angles below 45^{o} should not be considered an infringement. The company’s argument was TED angles below 45^{o} carry economic consequences and it is only considered an infringement above 55^{o} (confirmed by NOAA

during the 2018 inspection). The FD contest that the law takes precedents, as the regulation in meant to protect the company also. There were no TEDs were found above 55^{o}. PSI-S had the most recoded one hundred and thirty-one (131) TED angles below 45^{o}, which represents 39% of the TED angle infringements. Whereas, PSI-P had recorded the least, nine (9) infringements in the same category, which represents 3%.

2. Damaged floats



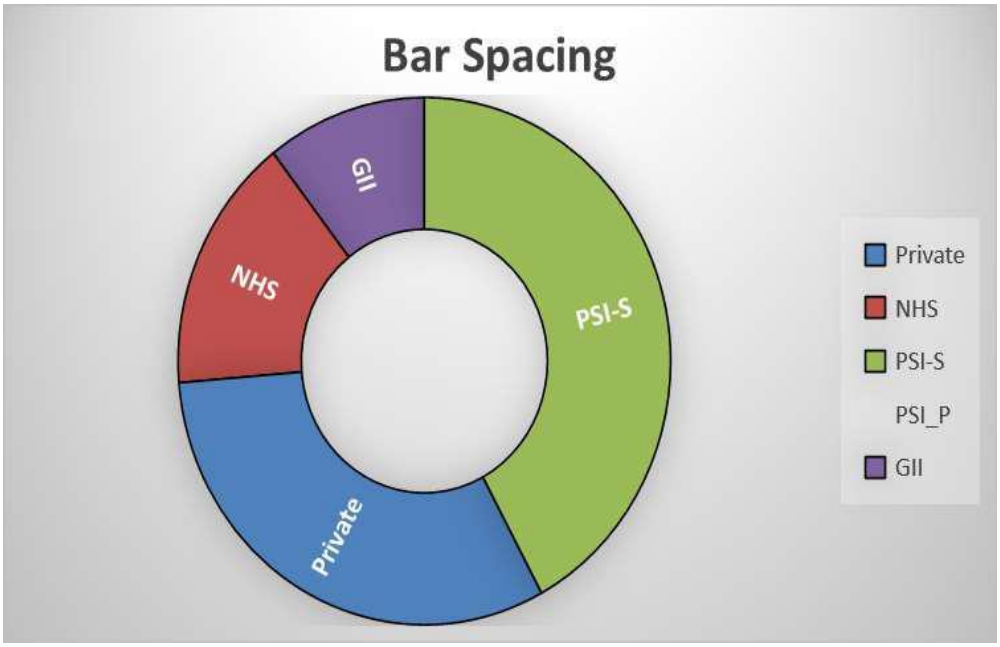
Graph 4: Damaged floats found on inspected TEDs in 2018 (Source: 2018 TED Reports and Certificates)

The industrial sector recorded at total of twenty-seven (27) infringements related to damaged floats, which represents 7% of the total infringements in 2018. Floats help stabilize the TED in the water and prevent it from rolling over during deployment or retrieval.[10] Flotation insures that the TED will not chafe against the sea floor during operation thus preventing the need for mending and

[10] Mitchel J.F. *et al.* (1995). "The Turtle Excluder Device: A Guide to Better Performance." NOAA. pg 12

additional maintenance.[11] A single TED is required to have a minimum of two (2) 10" hard floats, in Guyana companies would add additional 8" floats. PSI-S and the Private trawlers had recorded ten (10) (37%) and nine (9) (33%) damaged floats respectively in 2018, which were the highest recorded damaged floats. NHS and GII had low recordings of damaged floats, six (6) (22%) and two (2) (8%), respectively. No infringements were recorded for PSI-P

3. Bar Spacing



Graph 5: Bar spacing infringements found above 4" (Source: 2018 TED Reports and Certificates)

The industrial sector recorded at total of nineteen (19) infringements related to bar spacing being found above the regulated 4", which represents 5% of the total infringements in 2018. PSI-S recorded 42% (eight (8)), Private 32% (six (6)), NHS 16% (three (3)) and GII 10% (two (2)) of the nineteen (19) bar spacing infringements. No infringements were recorded for PSI-P.

[11] Ibid pg. 12

4. **24” Extended Flap Length**

The industrial sector recorded at total of eight (8) infringements related to flap opening being found above the regulated 24”, which represents 2% of the total infringements in 2018. The flap should fit over the exit hole during towing to prevent shrimp loss, yet open easily enough to allow sea turtles and debris to exit.[12] Only PSI-S and GII recorded infringements, which totaled to six (6) and two respectively.

Discussion

The overall performance of the industrial sub-sector was acceptable for TEDs passed in 2018 96.1% as compared to 2017 95.6% (0.5% increase), however the FD strives to improve overall TTCR in 2019. This will require increased at sea monitoring from sea inspections and the implementation of charges for breach. The number of inspections in 2018 (1997) decreased significantly as compared to 2017 (2623), which represents a 24% reduction in inspections. This can be attributed a number of factors:

1. The closure of BEV in July of 2018 had resulted in Private vessels suspending their fishing activities earlier than the closed season. Additionally, there was less vessel activity at the

---

[12] Mitchel J.F. *et al.* (1995). “The Turtle Excluder Device: A Guide to Better Performance.” NOAA. pg 21

beginning on the new fishing season (Sept – Dec) from the Private vessels, as well as other company groups.

2. Between May and July of 2018, the FD operated with only two (2) TED Inspectors, due to one of the TED Inspectors becoming ill. A fourth (4^{th}) TED Inspector was added in new fishing season, which resulted in a 25% increase in personnel. However, Inspectors were only operating at 80%, due to training requirement for the new TED Inspector and recovery observation for the ill TED Inspection.
3. The prawn sub-sector closed from June - December 2018, after citing low catches as the cause to the FD.

Despite the challenges faced regarding inspections, the FD was able to provide quality inspections and guidance to companies which would have attributed to the 7% increase in the TTCR from 2016 by NOAA.

TED angles below 45^{o} continues to be the most significant infringements recorded by inspectors. This is due to the pressure which is exerted onto the TED causes it to shift, thus moving below the required 45^{o}. The FD have informed the fleet managers and net men to have the TEDs set at 50^{o} to allow for changes which occur at sea. Additionally, have all captains equipped with a protractor to examine TED angles out at sea.

In a bid to improve our monitoring systems, specifically inspections in general. The FD will work on implementing the International Organization for Standards (ISO) inspection standard ISO/IEC 17020: 2012 by 2022, which further improve the credibility of the FD. Two (2) staff of the FD, Mr. Brian Dey, Fisheries Officer and Mr. Randy Bumbury, Fisheries Officer, were trained on how to

implement ISO/IEC 17020 by the Guyana National Bureau of Standards (GNBS) in 2018. Staff will be exposed to more training, to ensure the technical proficiency of the FD is continually enhanced.

Recommendations for 2019

- Through collaboration with the Guyana Defence Force, Coast Guards, conduct at least one (1) at sea inspection per quarter;
- Refresher training on TED inspections for TED Inspectors;
- Training of all captains on maintaining TED angles between the prescribed $45 – 55^{o}$;
- All vessels must be equipped with a protractor to ensure the TEDs are set at the correct angle before they are placed into the ocean.

Conclusion

The overall performance of the industrial sub-sector was acceptable in 2018, regardless of challenges faced. The implementation of new MCS measures and improving current programmes will be key in the pursuit 100% TTCR in 2019. It is important for the industry to support the FD through cooperation and compliance. The FD will work to improve the delivery of the TTCR to the industry in 2019, to ensure any issues found can be addressed as soon as possible by the companies.