Ministry of Agriculture
Fisheries Department

Turtle Excluder Device
Annual Report
2019

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Fisheries Officer

Executive Summary

This report contains an analysis of the 2019 Turtle Excluder Device (TED) Technical Compliance Rate (TTCR) for the period January 1 – December 31, 2019. 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), Guyana Investments Inc. and Noble House Seafoods Ltd. were monitored independently and their information presented at the Seabob Working Group (SWG) mandated meetings.

In 2019, the industrial sub-sector had twelve thousand, one hundred and ninety-five (12126) TEDs inspected which resulted in a TTCR of 98.2%. A total of two thousand, four hundred and twenty-five (2425) inspections were conducted in 2019. The TTCR for 2018 of 98,2% was due to two hundred and twenty-one (221) 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 selvedge 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 thirteen (13) 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 2019

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 2019

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. Industrial Fisheries Surveillance
3. Closed Caption Television (CCTV) monitoring

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 four (4) full time TED Inspectors during 2019. Breakdown of inspections conducted highlighted in the "Review" section. There are no inspections conducted during the Close Seasons, which were as follows:

- Seabob – September 1 – October 21, 2019
- Prawn: July 27 – December 2019

2. Industrial and Semi Industrial Fisheries Surveillance

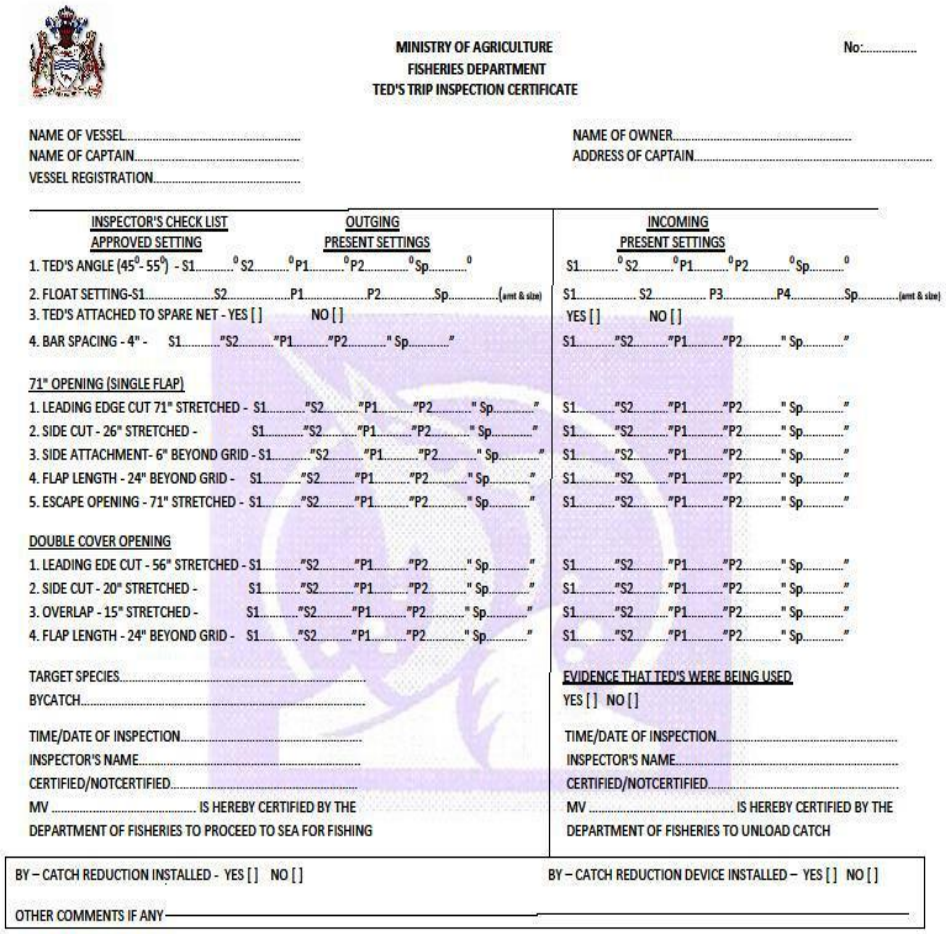
The Industrial and Semi-Industrial Surveillance was implemented in 2019 as a measure to increase the Fisheries Departments surveillance of various landing sites. As such, the surveillance activities were applied to the industrial and semi-industrial fishery to monitoring other areas of the fishery for compliance, such as documentation, cameras, catch and vessel monitoring gear. There were thirty-eight (38) inspections conducted in 2019.

3. Closed Caption Television (CCTV) monitoring

A review of CCTV cameras for use of TEDs and By-catch Reduction Device (BRD) at sea was done with TED Inspectors being present at the inspection. There were forty-eight (48) CCTV

[6] See authorized landing sites

inspections conducted in 2019. No TEDs or BRDs were found to have any signs of tampering during the inspections. All vessels were found to have their TEDs on while trawling.



MINISTRY OF AGRICULTURE
FISHERIES DEPARTMENT
TED'S TRIP INSPECTION CERTIFICATE

No:.....

NAME OF VESSEL.....
NAME OF CAPTAIN.....
VESSEL REGISTRATION.....

NAME OF OWNER.....
ADDRESS OF CAPTAIN.....

INSPECTOR'S CHECK LIST APPROVED SETTING	OUTGING PRESENT SETTINGS	INCOMING PRESENT SETTINGS
1. TED'S ANGLE (45^0- 55^0) -	S1.....^{0} S2.....^{0} P1.....^{0} P2.....^{0} Sp.....^{0}	S1.....^{0} S2.....^{0} P1.....^{0} P2.....^{0} Sp.....^{0}
2. FLOAT SETTING-	S1.....S2.....P1.....P2.....Sp.....(amt & size)	S1.....S2.....P3.....P4.....Sp.....(amt & size)
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.....		EVIDENCE THAT TED'S WERE BEING USED
BYCATCH.....		YES [ ] NO [ ]
TIME/DATE OF INSPECTION.....		TIME/DATE OF INSPECTION.....
INSPECTOR'S NAME.....		INSPECTOR'S NAME.....
CERTIFIED/NOTCERTIFIED.....		CERTIFIED/NOTCERTIFIED.....
MV ..... IS HEREBY CERTIFIED BY THE DEPARTMENT OF FISHERIES TO PROCEED TO SEA FOR FISHING		MV ..... 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 2019 there were four authorized landing sites for industrial vessels (prawn and seabob).

- 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 2019 a total of eighty-nine (89) trawlers operated, which is broken-down to seventy-nine (79) seabob and ten (10) prawn trawlers. A total of two thousand, four hundred and twenty-four (2424) inspections were conducted in 2019 on twelve thousand, one hundred and twenty-six (12126) TEDs. The TTCR for 2019 was 98.2% due to two hundred and twenty-one (221) TEDs failing during inspections this represents a 2.1% increase in compliance from 2018 (96.1%). All failures were detected when vessels return to port[7]. The number of operable vessels in 2019 are as follows:

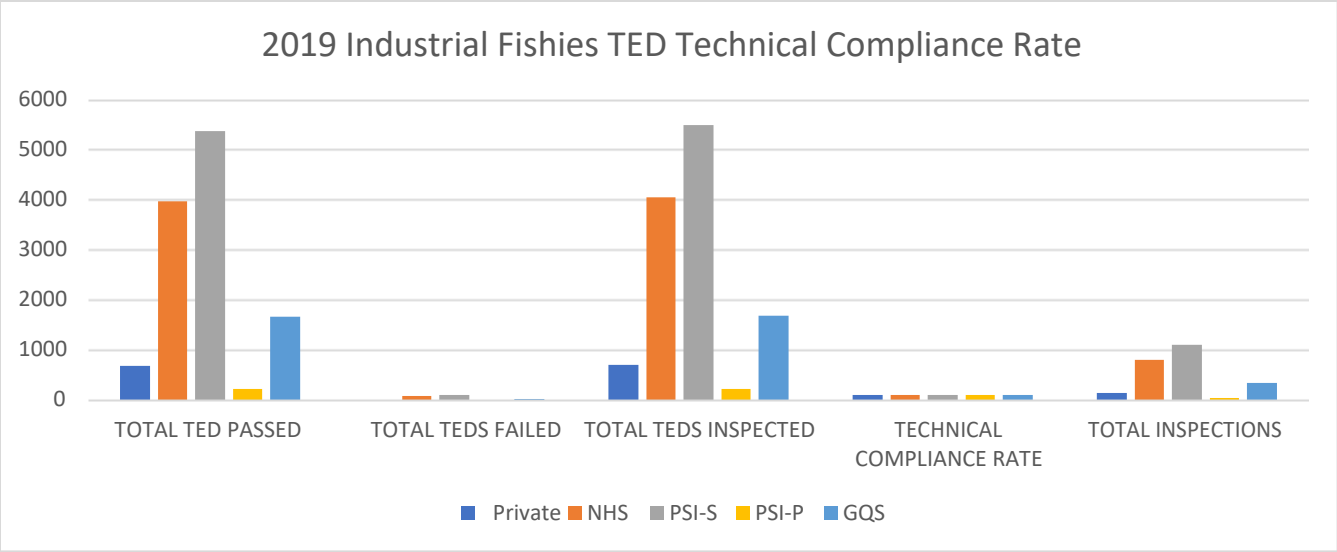
- Private – 6
- NHS – 34
- PSI-S – 28

[7] Designated landing site

- PSI-P – 10
- GII – 11

Company	Total TEDs Passed	Total TEDs Failed	Total TEDs Inspected	TTCR (%)	Total Inspections
Private	686	9	695	98.7	139
NHS	3968	74	4042	98.2	808
PSI-S	5374	110	5484	98.0	1097
PSI-P	222	3	225	98.7	45
GII	1655	25	1680	98.5	336
Total	11905	221	12126	98.2	2425

Table 1: Summary of 2019 Compliance Performance of Companies using TEDs (Source: 2019 TED Reports)



Graph 1: 2019 Industrial Sub-Sector TTCR Performance. (Source: 2019 TED Reports)

PSI-P and the Private trawlers recorded the highest TTCR, with both companies' vessels totaling 98.7% in 2019. The Private trawlers had six hundred and eighty-six (686) TEDs passing out of six hundred and ninety-five (695) inspected TEDs, while PSI-P had two hundred and twenty-two (222) TEDs passing out of two hundred and twenty-five (225). GII recorded a TTCR of 98.5%, with one thousand six hundred and fifty-five (1655) TEDs passing out of one thousand six hundred and eighty (1680) inspected TEDs. NHS recorded a TTCR of 98.2%, with three thousand nine hundred and sixty-eight (3968) TEDs passing out of Four thousand and forty-two (4042) inspected TEDs. PSI-S recorded a TTCR of 98%, with five thousand, three hundred and seventy-four (5374) TEDs passing out of five thousand, four hundred and eighty-four (5484) inspected TEDs.

Infringements

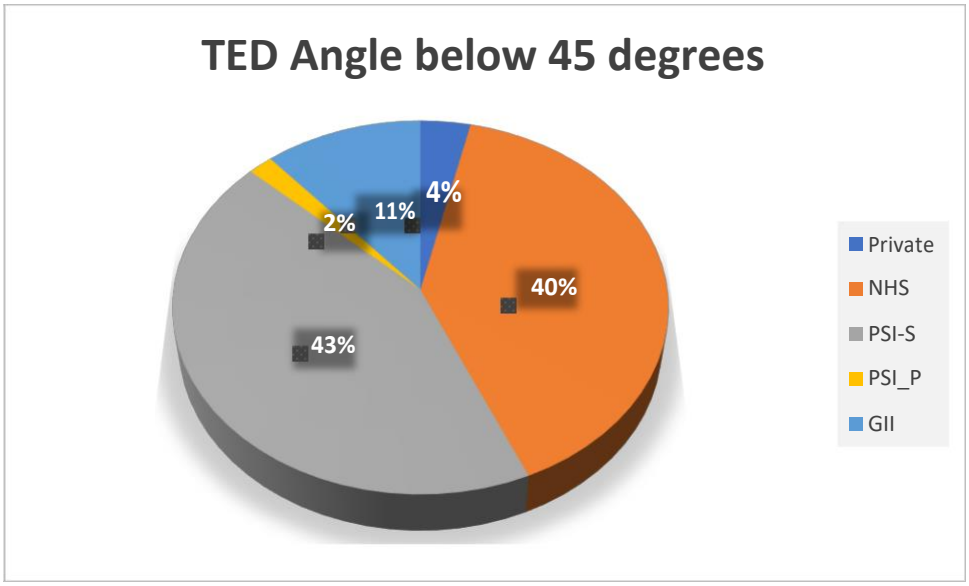
There were two hundred and twenty-one (221) TEDs which failed inspections on return to port in 2018. Infringements occurred in four (5) compliance areas, TED angle below 45 degrees, TED angles above 55 degrees, damaged floats, bar spacing more than 4" and 26" forward cuts. There continues significant decrease in infringements in 2019 as compared to the three hundred and ninety-three in 2018.

Company	TED Angle below 45 degrees	TED Angle Above 55 degrees	Bar Spacing above 4"	Damaged Floats	Forward cuts less than 26"
Private	6	0	0	3	0
NHS	67	0	6	2	0
PSI-S	73	2	16	19	2
PSI_P	3	0	0	0	0
GII	19	0	2	5	2
Total	168	2	24	29	4

Table 2: Breakdown of 2019 infringements (Source: 2019 TED Reports)

Year	Infringements
2017	577
2018	393
2019	221

1. TED Angel Below 45^{o} and 55^{o}

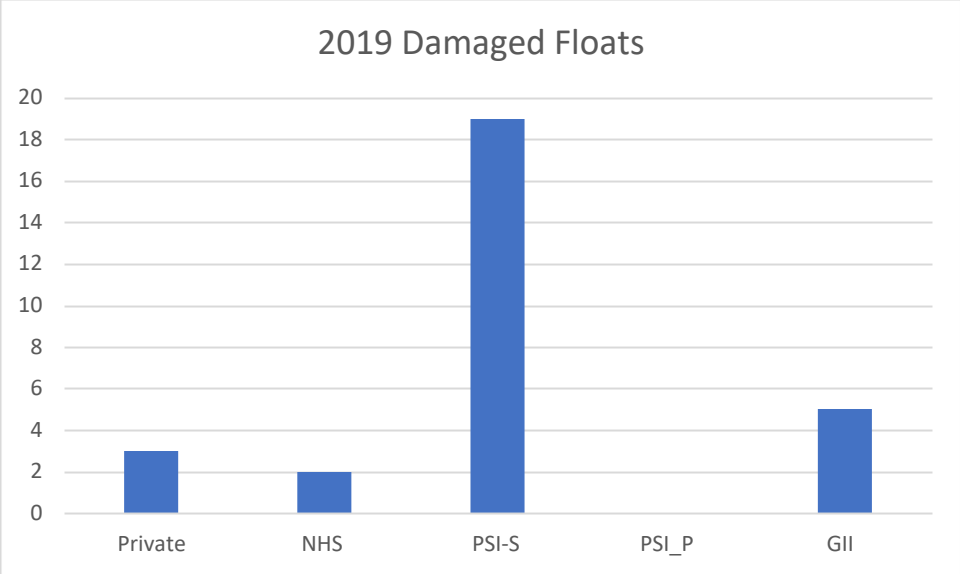


Graph 2: Infringements for TED angles below 45^{o} (Source: 2019 TED Reports)

There was one hundred and sixty-eight (168) TED angles which were below 45^{o}, which represents 76% of all infringements Based on Guyanese law (Fisheries Regulations 2018), a compliant TED is between 45 – 55^{o}, in 2019. The Fisheries Department does note 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). However, The FD contest that the law takes precedents, as the regulation in meant to protect the company also. There were two (2) TEDs found above 55^{o} by PSI-S, which represents 0.9% of the recorded infringements. PSI-S had the most recoded TED,

angles below 45^{o} seventy-three (73), which represents 43% of the TED angle infringements below 45 degrees. Whereas, PSI-P had recorded the least, three (3) infringements in the same category, which represents 2%.

2. Damaged floats



Graph 3: Damaged floats found on inspected TEDs in 2019 (Source: 2019 TED Reports)

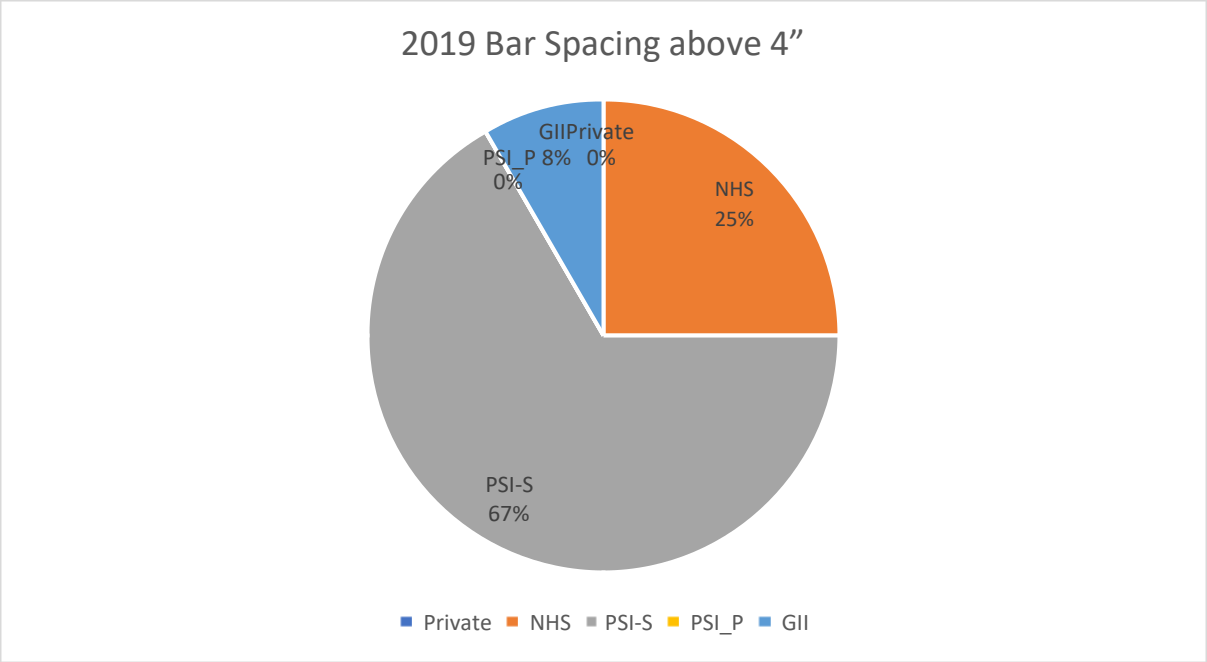
The industrial sector recorded at total of twenty-nine (29) infringements related to damaged floats, which represents 13% of the total infringements in 2019. Floats help stabilize the TED in the water and prevent it from rolling over during deployment or retrieval.[8] Flotation insures that the TED will not chafe against the sea floor during operation thus preventing the need for mending and additional maintenance.[9] 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 GII had recorded nineteen (19) (65%) and five (5) (17%) damaged floats respectively in 2019, which were the

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

[9] Ibid pg. 12

highest recorded damaged floats. NHS and Private trawlers had low recordings of damaged floats, two (2) (7%) and three (3) (10%), respectively. No infringements were recorded for PSI-P

3. Bar Spacing

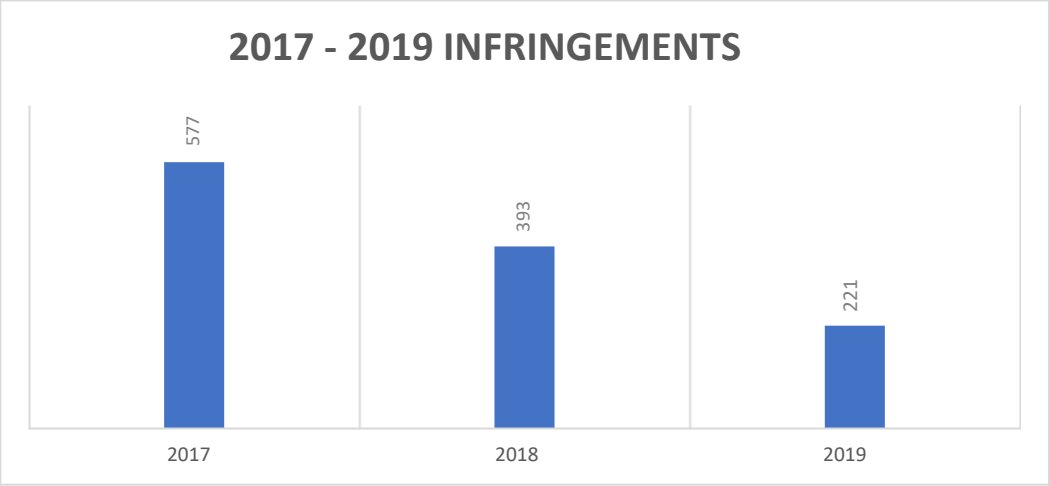


Graph 4: Bar spacing infringements found above 4” (Source: 2019 TED Reports)

The industrial sector recorded at total of twenty-four (24) infringements related to bar spacing being found above the regulated 4”, which represents 11% of the total infringements in 2019. PSI-S recorded 65% (sixteen (16)), NHS (25% six (6)) and GII 8% (two (2)) of the twenty-four (24) bar spacing infringements. No infringements were recorded for PSI-P and Private trawlers.

Discussion

The overall performance of the industrial sub-sector was acceptable for TEDs passed in 2019 98.2% as compared to 2018 96.1% (2.1% increase), however the FD strives to maintain the overall improvement of the TTCR in 2020. Though there were no at sea inspections in 2019, the performance of the industry was still able to improve due to the industry becoming more compliant with regards to ensuring sustainable fishing in Guyana. The number of inspections in 2019 (2425) increased significantly as compared to 2018 (1997), which represents a 18% increase in inspections.



Graph 5: Infringement comparison between 2017 – 2019 (Source TTCR data 2017 – 2019)

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 continued to 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.

Recommendations for 2020

- Through collaboration with the Guyana Defence Force, Coast Guards, conduct at least one (1) at sea inspection per quarter; additionally, the FD will be in receipt of a vessel in 2020, this will allow for better planning of at sea inspections
- Refresher training on TED inspections for TED Inspectors;
- Continued raining 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.
- Trip to Shell Beach for TED Inspectors

Conclusion

The overall performance of the industrial sub-sector was acceptable in 2019. The implementation of new MCS measures, collaboration and improving current programmes will be key in the pursuit 100% TTCR in 2020. 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.