IOTC REGIONAL OBSERVER SCHEME
LONGLINE GEAR SPECIFICATIONS

FORM 2-LL

Revised September 2021

Observer full name	Observer trip number

Special equipment or machinery
circle either "YES" or "NO" to indicate presence or absence of a device on-board.

1. Line setter	YES	NO	2. Line hauler	YES	NO	3. Bait casting machine	YES	NO

General gear attributes
note mainline material code as per table provided in notes and circle units of measure used

4. Mainline material	5. Mainline length			6. Mainline diameter		
		Km	nm		mm	cm

Branchline configurations
note branchline material code as per table provided in notes and circle units of measure used

Branchline configuration # ______

Section #								
7. Material								
8. Length	m	cm	m	cm	m	cm	m	cm
9. Diameter	mm	cm	mm	cm	mm	cm	mm	cm

Branchline configuration # ______

Section #								
7. Material								
8. Length	m	cm	m	cm	m	cm	m	cm
9. Diameter	mm	cm	mm	cm	mm	cm	mm	cm

Branchline configuration # ______

Section #								
7. Material								
8. Length	m	cm	m	cm	m	cm	m	cm
9. Diameter	mm	cm	mm	cm	mm	cm	mm	cm

Branchline configuration # ______

Section #								
7. Material								
8. Length	m	cm	m	cm	m	cm	m	cm
9. Diameter	mm	cm	mm	cm	mm	cm	mm	cm

Additional branchline details
circle storage method used

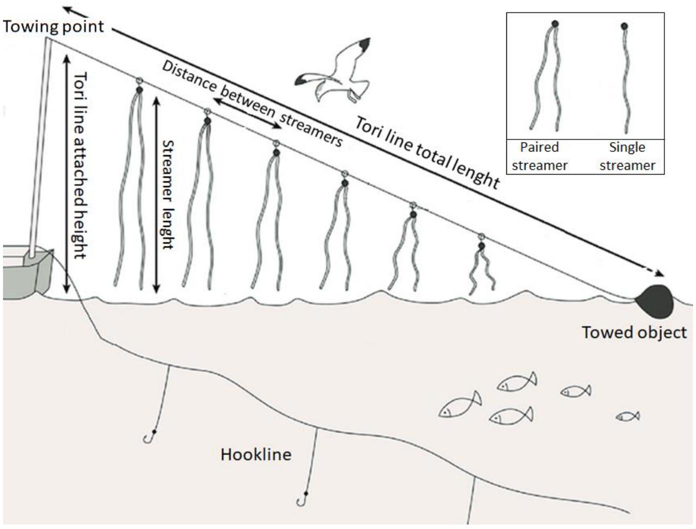
10. Branchline storage	Baskets	Tubs	Reels

Mitigation devices
circle codes of DMDs used

11. DMDs used	AWM	ACD	AAD	LIS	LIG	NON
NTS	OVM	OTH	PAD	UNK	VID	SPD

Tori line details
circle units of measure used

12. Tori line length		m	ft
13. Streamer type (circle)	Paired	Single	
14. Streamer line length (max)	m	ft	cm
15. Streamer line length (min)	m	ft	cm
16. No. streamers per line			
17. Distance between streamers	m	ft	cm
18. Tori line attached height	m	ft	cm
19. Streamer reach surface (circle)	Yes	No	
20. Towed objects number			
21. Towed objects type			



Tori line drawing by Toni Mulet. https://doi.org/10.1371/journal.pone.0196731.g002

IOTC ROS minimum standard data-fields are highlighted in this form in light grey. These are to be collected and reported to the IOTC.

1. LINE SETTER: Circle either "YES" or "NO" to indicate if a line setter is present on-board. Machinery that sets the line at regular speed and depth.

2. LINE HAULER: Machinery that hauls the line in after it has been set. Circle either "YES" or "NO" to indicate if a line hauler is present on-board.

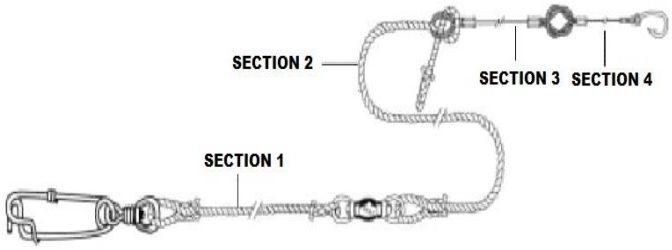
3. BAIT CASTING MACHINE: Most vessels manually deploy branch lines with the bait. However, there are a number of vessels that use automatic bait casting machines. Circle either "YES" or "NO" to indicate if a bait casting machine is present on-board.

4. MAIN LINE MATERIAL: Write down the material the mainline was made of (e.g.: TR3- tarred rope) using codes provided in the table below.

5. LENGTH: Record the total length of the mainline (mainline maximum length). Ask this information from the captain. Measure it to the decimals and circle units of measure used (e.g.:100,5 Km).

6. DIAMETER: Record the diameter of the mainline. Ask this information from the captain or crew and crosscheck it by measuring mainline diameter with callipers. Measure it to the decimals and circle the units of measure used (preferably 'millimetres', e.g.: 3.1 mm).

BRANCHLINE CONFIGURATION #: Branchlines can have multiple configurations. The Observer is to allocate a unique serial number (four-digit numerical code beginning 0001) to each individual branchline configuration within each gear specifications. An example is provided below.



LINE MATERIALS CODES			
TR3	3 strand tarred rope (red or black	**MUK**	Multifilament Kevlar
BRL	Braided line (kuralon - nylon)	**MUD**	Multifilament Dyneema
GLW	Galvanized wire (mat)	**MUN**	Multifilament nylon
MOC	Monofilament Cremona	**MUT**	Multifilament Tetoron
MOD	Monofilament Dyneema	**SKW**	Sekiyama wire (central part of the wire surrounded by cotton or synthetic fibre thread, usually tarred)
MOK	Monofilament Kevlar		
MON	Monofilament nylon		
MOT	Monofilament Tetoron		
MUC	Multifilament Cremona	**SSW**	Stainless steel wire (bright)

BRANCHLINE SECTION #: Each branchline can be composed of multiple sections and each section can be made of different materials, lengths and diameters. The Observer is to allocate a unique serial number (begin at 0001) to each section starting with section 1, that closest to the mainline.

7. MATERIAL: Record the branchline material for each of the sections (see line materials table above), where section 1 is that closest to the mainline. Note that wire trace may be sheathed by a plastic or nylon coating.

8. LENGTH: Record the length of each of the branchline sections (to the decimals), where section 1 is that closest to the mainline. Circle the units of measure used (preferably 'meters', e.g.: 5.8 m).

9. DIAMETER: Record the diameter of each of the branchline sections (to the decimals), where section 1 is that closest to the mainline. Circle the units of measures used (preferably 'millimetres', e.g.: 1.8 mm).

ADITIONAL BRANCHLINE DETAILS

10. BRANCHLINE STORAGE: Record if the branch lines are coiled up and packed into baskets, or layered out in tubs, or coiled up onto reels.

MITIGATION DEVICES

11. DMDs USED: Record depredation mitigation device/s (DMDs) used by the vessel (if any) during the observed trip, by circling one or more of the DMDs codes provided (see code description in the table below).

DEPREDATION MITIGATION DEVICES (DMDs)			
AAD	Active acoustic deterrents transmit sounds that deter animals from the vessels.	**OTH**	Other (specify)
		NON	None
ACD	Acoustic decoys, transmits acoustic cues to attract animals away from true fishing activity.	**OVM**	Other visual methods used to increase fishing gear visibility reduce sea-turtles, cetaceans and sea-birds bycatch.
AWM	Above water methods used to reduce sea-turtles, cetaceans and sea-birds bycatch (e.g. tori lines, kites, drones, raptor silhouettes).	**PAD**	Passive acoustic deterrents, use sonar reflective systems on the fishing gear, such as streamers with reflective spheres, cones, and cylinders.
LIS	Light-sticks can be used to illuminate portions of the fishing gear to reduce sea turtle bycatch.	**SPD**	"Spiders" or "Socks", physically protects hooked fish from depredation by cetaceans.
LIG	Lights of different colour attached to the fishing gear every 5 m to 10 m to reduce turtle and sea-bird bycatch.	**VID**	Visual decoys or deterrents (e.g., dummy buoys)
		UNK	Unknown

TORI LINE DETAILS *if no tori line present on-board fill in NA*

12.TORI LINE LENGTH: Record tori line total length from the point of attachment (towing point) to the towed object, measured to the decimals. Circle units of measure used (preferably 'meters').

13.STREAMER TYPE: Indicate the type of streamers which are used with the tori line by circling either "paired" or "single" streamer type.

14.STREAMER LINE LENGTH (MAX): Record the maximum length of streamer lines. Measure it to the decimals and circle the units of measure used (preferably 'meters').

15.STREAMER LINE LENGTH (MIN): Where lengths vary, record streamer lines minimum length to the decimals. Circle units of measure used (preferably 'meters'). If no variation record N/A for not applicable.

16.No. STREAMERS PER LINE: Record the number of streamers that are attached to a single tori line.

17.DISTANCE BETWEEN STREAMERS: The distance between aerial streamers might vary. Measure several distances between aerial streamers and provide the maximum distance measured. Record it to the decimals and circle the units of measure used (preferably 'meters').

18. ATTACHED HEIGHT: Record tori line attached towing point height to the decimals and circle units of measure used (preferably 'meters').

19.STREAMERS REACH SURFACE? Circle "Y" or the "N" to specify if all streamers are long enough to touch the sea in calm conditions

20.TOWED OBJECT NUMBER: Record the number of towed objects used to maintain tori line tension and achieve aerial extent.

21.TOWED OBJECT TYPE: Record the type of towed objects used to maintain tori line tension and achieve aerial extent when deployed.