

CIFT-TED operations along East coast of India

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Endangered marine turtles were protected under Schedule-1 of the Indian Wildlife Protection Act 1972. Field trials were conducted using the existing ICAR-CIFT- Turtle Excluder Device (TED) along east coast from February to March 2020 off Visakhapatnam, Andhra Pradesh and Dhamra and Balasore Districts in Odisha to quantify the catch losses and escapement of marine turtles. The study was conducted in collaboration with WWF-India.

CIFT-TED was installed in the trawl between the hind belly and codend. A small mesh (25 mm diamond mesh) exit cover cod-end was additionally provided in order to retain the catch excluded due to the installation of TED. Catches were sorted species-wise and weighed separately for both retained catch in the main cod-end and excluded catch in the exit cover cod-end.

Field trials were conducted onboard private marine fishing vessels off Visakhapatnam between Latitude 17°41' to 17°42' and Longitude 83° 24' at a depth range of 30-40 m.

A total of 3 hauls each of 1- hour duration was under gone onboard a 13.5 m LOA commercial wooden trawler. The installed engine power was 102 hp. Details of the vessel and trawl used for experiments are given in Table 1.



Table 1. Details of Fishing Vessel & Gear

Vessel	Particulars
Type	Wooden trawler
Length over all	13.5 m
Engine	Ashok Leyland Marine Diesel
Horsepower	102 hp
Navigation, fish finding and communication equipment onboard	Global Positioning System (GPS); Echo Sounder; VHF
Crew complement	7
Gear	Particulars
Type	Bottom trawl
Size (head rope length)	35 m
Mesh size: wing end and belly sections	160-80 mm diamond mesh
Cod - end mesh size	25 mm diamond mesh
Otter boards	1600 x 760 mm; 60-65 kg each.

The escapement of fish, shrimps and cephalopods from cover cod-end from 1st, 2nd and 3rd, hauls by the attachment of TED consist of 4.2%, 3.2% and 3.8%. The total escapement from the 3 hauls was 10.9% with total retention at the

CIFT-TED operation was conducted at Balasore (Lat 21° 25.21'N & Long 87°07.75 'E) at depth of 28-30 m. The total catch recorded was 8.5kg. The escapement percentage was 2.9% of the total catch with 97.1% retention rate (Table 3). The

Table 2. Retained and escaped catch from the main cod end and cover cod end from CIFT-TED operations at Visakhapatnam

	1 st haul	2 nd haul	3 rd haul	Total
Main cod-end catch (kg)	35	25	20	80
Cover cod-end catch (kg)	1.5	0.80	0.75	3.05
% of escapement	4.2	3.2	3.8	Average % 3.81

main cod-end of 89.1% from operations off Visakhapatnam. An average escapement through the main cover cod-end from Visakhapatnam fishing harbour was 3.81%.

Field studies with CIFT-TED operation were conducted at Dharma (Lat 20° 50' to 20° 54' N & Long 87° 07' to 87° 08' E) At depths ranging from 30-40m.

A total of 2 hauls of 1 hr duration was conducted. The catch from the first haul and 2ndhaul was 35kgs and 105kgs respectively amounting to a total catch of 140kgs. The escapement percentage from 1st and 2nd haul was 1.7% and 2.8% from the cover cod-end with a total retention of 97.4% from the main cod-end. The average escapement percentage from the 2 hauls was 2.35%. (Table 3)



main species recorded were *Lepturacan-thussavala*, *L.bindus*, *E.malabaricus*, *P.stylifera*, *S.indicus*, *Sepia inermis*, *L. devauceli*, *S.longiceps*, *S.gibbosa*, *Ilisha megaloptera* etc. from the three fishing experimental fishing areas. Species such as catfish, *T.corringerii*, goatfish, catfish, barracuda, mullet, horse mackerel, flat fish, pomfrets, and *A.chacunda* showed 100% retention. No turtles were encountered in the study. Previous studies have shown that CIFT-TED was efficient in 100% exclusion of turtles from trawls with minimal catch loss. The study shows that the catch loss percentages of fish are minimal with the use of CIFT-TED.



Table 3. Retained and escaped catch from the main cod-end and cover cod-end from Dhamra & Balasore, Odisha

Dhamra, Odisha			
	<i>1st haul</i>	<i>2nd haul</i>	<i>Total</i>
<i>Main cod-end (kg)</i>	35	105	140
<i>Cover cod-end (kg)</i>	0.6	3.0	3.6
<i>% of escapement</i>	1.7	2.8	2.57%
Balasore, Odisha			
	<i>1st haul</i>		<i>Total</i>
<i>Main cod-end (kg)</i>	8.5		8.5
<i>Cover cod-end (kg)</i>	0.25		0.25
<i>% of escapement</i>	2.9		2.9%