

Brief Status Report, Islamic Republic of Iran

BRD Trial Fishing Operation

By Shrimp Artisanal Trawlers

(Hormozgan Shrimp Harvest Season)

December 2007

This experiment, has been performed for the purpose of different By-Catch Reduction Devices comparison, in Artisanal trawlers, within Hormozgan province fishing grounds(contains : Sirak, Kuhestak, Dar Sorkh, Aab Shirin Kon, Keshti-e- Sukhte, Tula) during 29 days shrimp harvest season (from October 8, till November 13, 2007) by two trial and blank vessels which harvested simultaneously.

Two different types of devices namely; JTED (for juvenile fish reduction) and Modified ground gear (from horizontal to parallel for seabed destruction reduction) examined based on a pre determined schedule.

Data related to each harvest operation, has been recorded separately in specific forms contain some information e.g. vessel speed, harvesting time, longitude and latitude, fishing ground information, Sea conditions, discard level, juvenile fish level lower than LM50(Length at which 50 percents of the individuals fish, matured), large fish harvest amount, shrimp harvest rate, etc.

Results obtained from 91 times fishing, showed that by applying JTED in 44 times fishing turns, small shrimp weight and large shrimp weight have been reduced 16.5% and 43%, respectively. However commercial fish species have been increased by 0.5% and discard reduced by 38.6%.

Applying JTED equipped with guiding panel 28 times fishing turns, small size shrimp and large size shrimp reduced by 31% and 18.5% respectively. However commercial fish species increased by 6.7% and discard rate reduced by 45%.

Applying parallel chain ground gear in 15 fishing turns, demonstrated; small size and large size shrimp reduction, 38.9 and 20.7%, respectively. Commercial fish species and discard amount also decreased by 26% and 3.3%, respectively.

Consequently, shrimp reduction in both JTED with guiding panel and without guiding panel, observed. But the shrimp reduction amount in JTED with guiding panel is lower; In the meantime By-Catch reduction percentage in this device is higher. Therefore JTED with guiding panel is more efficient.

As we observe in parallel chain ground gear results; shrimp reduction amount is similar to other experimented devices and By-Catch reduction rate is extremely low (3.3%) and could be considered sufficient only for commercial fish species.

Ultimately it is concluded that; comparing these 3 devices shows that; according project objectives, JTED with guiding panel is more sufficient in comparison with 2 other devices.

Vessels Technical specification:

Two dhows (Artisanal vessel) used in trials with below specification:

1- Rostami (3/9749) – Fiberglass

- Length : 21 Meters
- Width: 6 Meters
- Engine Power : 300 Horsepower

2- Yaar(3/7304) – Wooden

- Length : 19.2 Meters
- Width : 6.8 Meters
- Engine Power : 320 Horsepower

Navigation system for both vessels is GPS – Wireless set



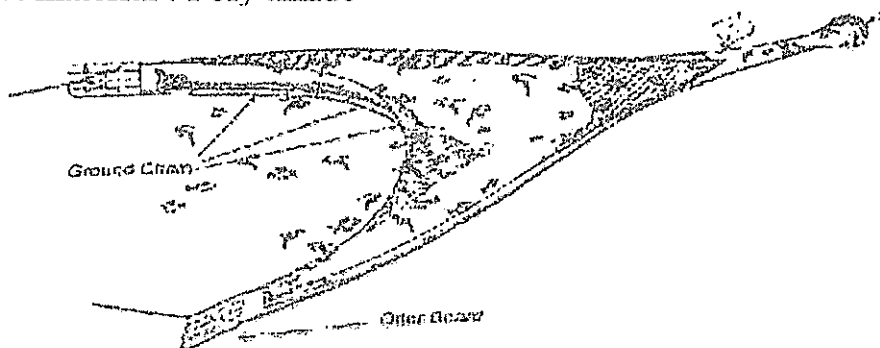
Figure 1- Trial and Blank vessels

Fishing Gears Technical specification:

- Otter Board: wooden with metal frame Weight : 85 Kg, Dimensions: 180 * 90
- Ground Gear : Chain No.8 , Weight : 75 Kg , Length : 53 Meters
- Float : EVA , No.10 , Quantity : 21

Net:

- Mesh size in main body : 45 → 210D/24Ply/45mm STR/100MD/200y
- Mesh size in Cod end : 20 → 210D/30Ply/20mm STR/100MD/100y
- Net material : Poly amide



Hormozgan Trawl net scheme

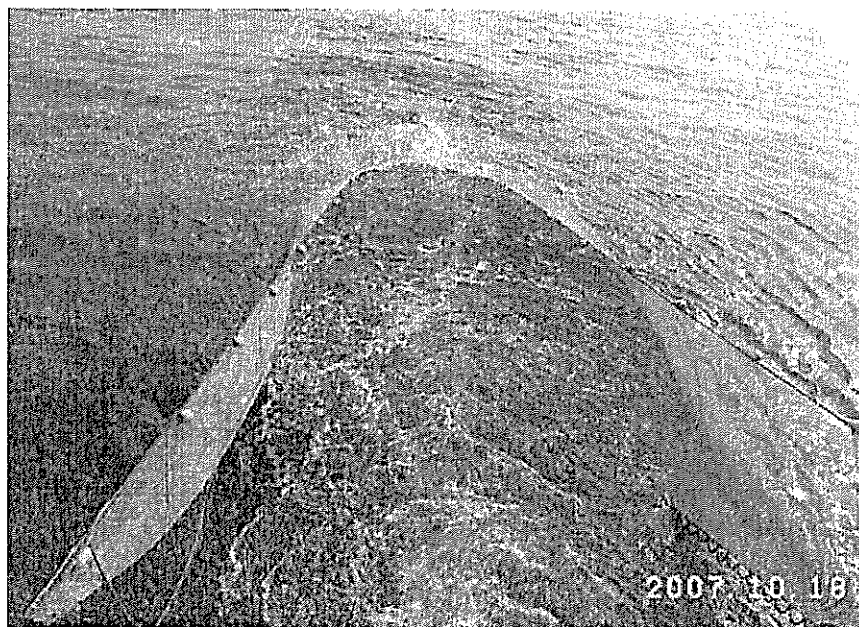


Figure 2 – Trawl net

Treatments:

After Technical committee assembly and holding expert sessions in Hormozgan province, it was decided; following treatments to be done:

- JTED;(aiming juvenile fish reduction) 2 situation ; with and without Guiding panel
- Ground Gear Modification from horizontal to parallel position(aiming avoiding seabed destruction and stingray catch reduction)

JTED Device specification:

- Material : Metal frame and rope net
- Weight: 13.5 Kg
- 4 Buoys, No.10 EVA
- Dimension: 3 sections each : 40*50 Cm
- Grid bar spacing : 4Cm
- Grid angle : 45°
- Grid bindings : 40 Cm
- Angle fitting by chain

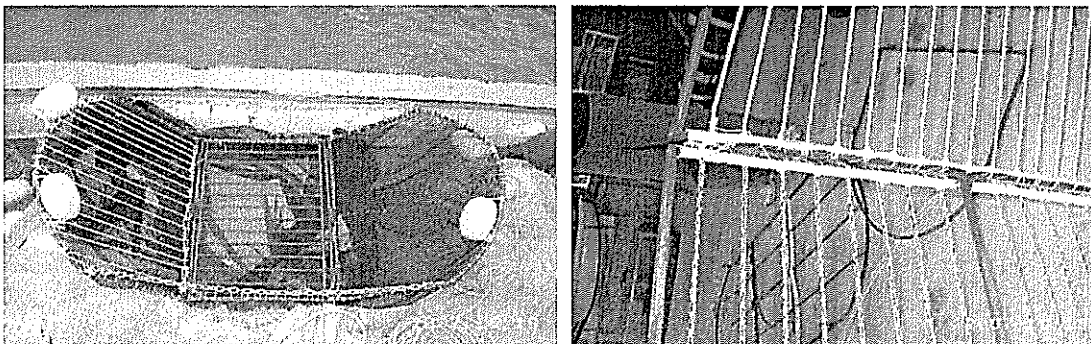


Figure 3- JTED

Modified Chain specification:

- Wight: 75 Kg
- quantity : 131
- Chain height: 40 Cm
- Chain spacing : 28 Cm
- Links number for each chain : 16 & 17 links

Trial fishing Implementation:

BRD test project for shrimp Artisanal trawlers in Hormozgan province started October 8, 2007 and completed; November 13, 2007.(totally 29 working days onboard)

91 harvests, each one took long 2 hours, by 2 vessels simultaneously, being parallel, have been completed. One vessel as blank (ordinary net), another one as trial equipped with BRD harvested, at the same time. Catch statistics, recorded precisely in particular forms.

Treatments:

- Treatment 1: Traditional net + JTED*
- Treatment 2: traditional net + JTED with guiding panel*
- Treatment 3: Traditional net + parallel chain*

Results:

Three treatments done, in this trial fishing period which in treatment 1 to 3; with 44, 28 and 15 times harvesting, respectively. Catch related data recorded in daily catch record forms (annexed).

Treatment 1- (Traditional net + JTED)

Catch Frequency: 44 times

Catch amount and trial fishing amount rate to blank harvest vessel

(Weight in Kg)

Large shrimp		Small shrimp		Commercial fish		Discard	
Blank	Trial	Blank	Trial	Blank	Trial	Blank	Trial
1159	657	322	268	353	354	8546	5240
43% Reduction		16.5% Reduction		0.5% Increase		38.6% Reduction	

Treatment2-(Traditional net+ JTED with cover)

Catch frequency: 28 times

Catch amount and trial fishing amount rate to blank harvest vessel

(Weight in Kg)

Large shrimp		Small shrimp		Commercial fish		Discard	
Blank	Trial	Blank	Trial	Blank	Trial	Blank	Trial
156.6	127.6	124.2	85.4	132.5	141.5	2218.5	1217.6
18.5% Reduction		31% Reduction		6.7% Increase		45% Reduction	

Treatment3-(Traditional net + parallel chain)

Catch frequency: 15 times

Catch amount and trial fishing amount rate to blank harvest vessel

(Weight in Kg)

Large shrimp		Small shrimp		Commercial fish		Discard	
Blank	Trial	Blank	Trial	Blank	Trial	Blank	Trial
939	744	208.5	127	77.5	57.2	2218.5	1217.6
20.7% Reduction		38.9% Reduction		26% Reduction		3.3% Reduction	

Technical constraints:

Device Problems:

- Device heaviness caused its unsteadiness in top of the net
- Device deformation and breaking caused by lack of firmness after several frequent net fishing
- The frame cover's tissue is unbearable and unfit , causes imbalance during trawling

Vessel Problems:

- Lack of two precise similar vessels (engines Power, Vessel dimensions, speed, Fishing equipment, etc)
- Fishing vessels concentration during shrimp harvest season in province fishing ground

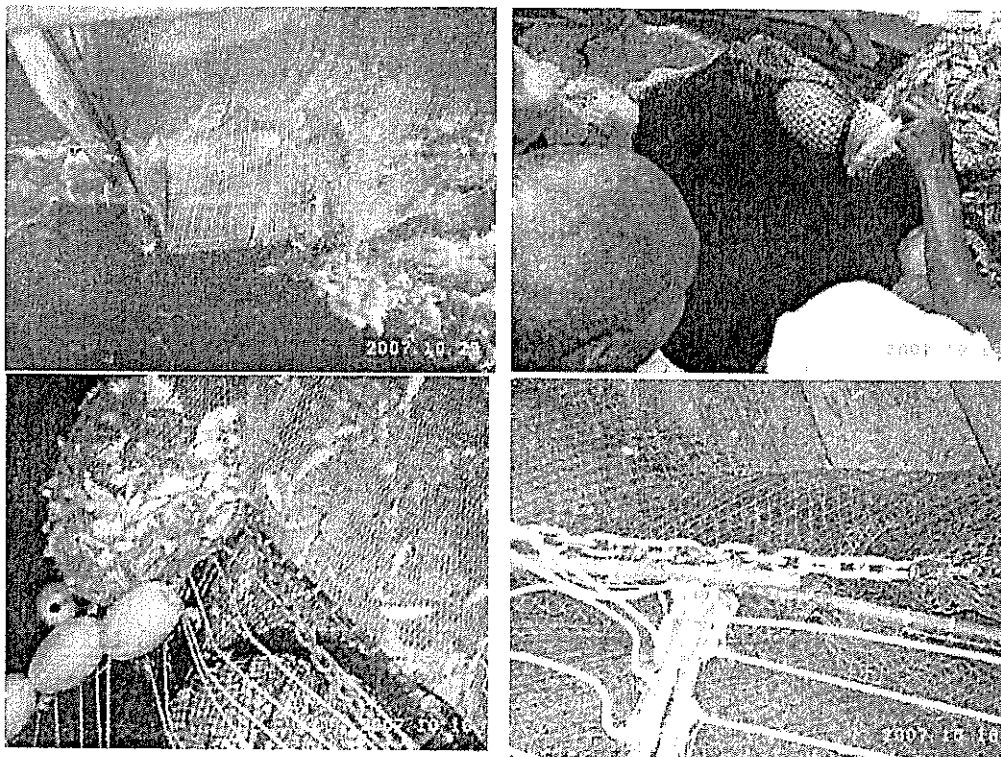


Figure 4- Trawl net and devices during experiments

Recommendations:

- 1- Outcomes of this experiment showed that JTED equipped with guiding panel comparing two other devices is more efficient for keeping shrimp in trawl net and alternatively, discard level is relatively low by using this device. Regarding this fact that fishermen are so sensitive to Shrimp catch reduction by applying BRD's, it is proposed that; above mentioned device to be assessed improvably, by frequent trials and necessary modification should be performed along with preventing shrimp reduction. These devices should be install on some shrimp Artisanal trawlers for assessing shrimp harvest and discard reduction.
- 2- Regarding this fact that; majority of shrimp caught in Persian Gulf, harvested by *Artisanal fishing* vessels and there has not been any specific study on By-Catch size by these vessels and proper BRD's, It is proposed that integrated studies and experiments to be carried out according to regional ecological conditions and world experiences.
- 3- Study and trial fishing on BRD's by fish trawlers in Oman Sea, for omitting Non target catch and nonstandard sizes
- 4- Study on Fish and other aquatic behavior when trapped with nets equipped with different BRD's by applying snorkel devices and underwater movie making apparatus

Shrimp Trawling By-Catch Reduction Project

Daily Catch data record form

Dhow's Name : Blank Trial Date: / / 2007

Harvesting Turns No.	Start time	final Time	Catch Composition	Total catch amount	Species types %														
					Large				Small										
	geographic coordinate	geographic coordinate	Shrimp		Species														
	Longitude:	Longitude:	Large Aquatics		Weight														
	Latitude:	Latitude:			Species														
	Depth	speed	Commer cial Fish species		Weight/quantity														
					species	Croaker	Silver Pomafret	Black Pomfret	Spanish Mackerel	King Mackerel	Grouper	Other species							
					quantity														
	Sea condition				Weight														
	Calm	Semi calm	Stormy	Discard	%														
					Total	weight													

Weight / Kg Depth / M Speed/ NT