

Progress Report to the Project Coordinator EP/GLO/201/GEF

Country: CUBA

Reporting period (6-months from July to December)

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1. Meetings of the National Steering Committee held:

On October 2004, the research project " TECHNICAL-ECONOMICAL ASSESSMENT OF THE ESCAPE DEVICES USE ON SHRIMP NETS" was elaborated for its Ministerial approval and further execution during 2005 on a domestic funding basis. It includes the activities that should be preformed in the context of the Project EP/GLO/201/ GEF. The Marine Shrimp Division Expert Committee approved the mentioned project and submitted it to the Scientific Council of the institution, resulting in its further approval by the Fisheries Research Center. Finally, it was approved at Ministerial level on January of the current year, being allocated the governmental funds for its execution which constitutes the contribution of the government to the project.

2. Progress of each activity:

During the July-December period, 2004, three experimental cruises were conducted (July, September and November) using the modified net in conjunction with the "fish eye"-type escape devices, elliptic shape and size 53,0 cm in the longest diameter and 32,5 in the shortest (Figure 1). Eighty four trawls of 30 minutes duration each were performed with the purpose of allowing a higher escape of fish and to observe their effect on shrimp catches. Trawls were conducted on board vessels FC-20 and FC-26 from the Santa Cruz del Sur Industrial Fishing Enterprise. Table 1 shows results of shrimp and fish catches for both fishing systems in the working period.



Figure 1.- Escape devices (fish eye- type) used.

For a total of 128 experimental trawls performed in the year, it is observed that the modified net shows a retention of 1.6 % lower than the traditional net on shrimp catches and allow an escape of 14.1 % higher than the traditional net on fish catches, as an average. Results variability is mainly depending on the working area due to the effects of factors as depth, spatial distribution of the species, time of the day, among others.

Table 1 Catches and retention percents for each fishing system.

Cruise	Total Catch				Size of elliptic Fish Eye
	Shrimp		Fish		
	Traditional	Modified	Traditional	Modified	
March	78,5	78,3	649,9	564,7	48,5-25,0
Retention %	-0,3		-13,1		
June	19,4	21,1	319,5	269,2	48,5-25,0
Retention %	8,8		-15,7		
July	40,7	43,6	282,2	252,7	53,0-32,5
Retention %	7,1		-10,5		
September	87,9	91,9	554,9	494,7	53,0-32,5
Retention %	4,6		-10,8		
November	91,2	77,8	467,2	372,1	53,0-32,5
Retention %	-14,7		-20,4		
TOTAL	317,7	312,7	2273,7	1953,4	
Retention %	-1,6		-14,1		

Student "t" test for both normalized values series was applied to validate results. Concerning shrimps, test result for $P=0.05$ showed no significant difference between the catch values for both systems in the 128 experimental hauls, while for fish catches a significant difference was found for $P=0.01$. Results indicate that both systems show similar characteristics in shrimp retention for the catch values obtained in the 5 experimental cruises, and, on the other hand, a remarkable difference for fish catches with a value near to 14.1 %. Best results in fish escape observed in November cruise should be determined by changes in the escape device design, which was made of 9 mm bronze smooth bars which increased its rigidity and also the addition of two S4-type plastic buoys in the upper part of the device (Figure 2).



Figure 2.- Installation of escape devices

Nevertheless, it should be noted that in the experimental cruises conducted in November, the body of the traditional net had a 24 mm mesh size, while in the modified, this section was made of 26 mm, thus influencing in a higher retention of the traditional gear on shrimp catches. However, no affectation related to fish catch was observed due to the low selectivity of the net to the species composing the by-catch

Results obtained up-to-now indicate that the fish eye-type fish escape device is adequate to the specific characteristics of the Cuban shrimp fishery and its inherent fishing system, being noted its constructive plainness and addition to the net, affecting in no way the operations performed with the fishing technology actually in use. Taking into account that the proper size of the device was determined in this period and also a perfection in its constructive design took place, an improvement of results should be expected.

According to the activity chronogram of the experimental cruises during the current year, the use of the double foot rope is included in order to increase the by-catch escape and determine the effect of such modification on non-target marine species.

On the other hand, the modified twin net with escape device on one site of the vessel and the traditional one of control on the other site will be introduced in the 1st quarter of the current year after arrangements with the Santa Cruz del Sur Industrial Fishing Enterprise director and the FC-26 crew engaged in the directed fishery on shrimp. This introduction will allow the personnel to get familiar with the use of the system and also to obtain a valuable information about its functioning on a commercial exploitation regimen.

Fishery management. Improvement of the fishery regulations system.

From July 15th, 2004 on, the Ministerial Resolution 158/2004 related to the close season of the species compounding the shrimp resource and its by-catch was established. This period was extended to one more month regarding the previous year to contribute to the resource conservation and also in favour of the protection of juvenile individuals of commercial fishes and other species composing the shrimp fisheries by-catch.

On the other hand, the mandatory use on shrimp nets of a 24 mm meshsize between knots (48 mm stretched mesh) in the cod end and 26 mm (52 stretched mesh) in the body net from the 1st quarter of the current year on was established, thus allowing the escape of shrimp juveniles individuals and another small-sized marine organisms. Likewise, a non-shrimp fishing activity area of one nautical mile off the coastal band along the whole southern shelf of the country was implemented. This zone is considered to be a main nursery area of shrimps, fishes and other marine species.

3. Workshops, training, or demonstration activities undertaken.

During the period October 6th to 9th, 2004, the visit of Mr. Janne Fogelgren, Project Operations Coordinator, took place to Cuba. Mr. Folgeren visited our Research Center and also different Directorates of the Ministry of the Fishing Industry. The visit resulted in a valuable exchange of information and experience related to the activities performed in the Project as well as the recommendations about its execution and control.

An update course aimed at shrimp vessels masters of all the fishing enterprises involved in the resource exploitation was held at the Fishing School "Andrés Gonzalez Lines" from 25th to 29th, 2004. On 28th topics, the resource current status was addressed jointly with a chat on the fundamentals and objectives of the Project, being stressed the use of the fish escape devices and results obtained up to present. This allowed a valuable exchange of information and also to inform the 58 masters attending the importance of the activity being developed (Figures 3 and 4).