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A Better Understanding of Fishery Cooperatives in the Aegean, Turkey

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Abstract: This study assesses the current status of fishery cooperatives located on the Turkish Aegean Sea coasts and focuses on their characteristics, activities and problems. For this, 93.4% (n = 57) fishery cooperatives' managers were interviewed. These fishery cooperatives were categorised into two groups according to their locations-Izmir metropolis where the Central Fish Market is located and the rest of the cities and non parametric statistical tools were employed to analyze the data collected. The results indicated that there are significant differences between the two groups when considering providing inputs, number of cooperative members, number of vessel owners, number of fishery depended members, attendance to general assembly, fulfilment of cooperative's objectives, membership fee payment and lack of interest. These results may be of any help to the decision makers and managers to be more aware of the cooperatives problems and to design region-based strategies for better management of fishery cooperatives for the area under investigation and similar places elsewhere.

Key words: Fishery cooperatives, small scale fishery, fisheries management

INTRODUCTION

Cooperatives have great importance in countries, where small holdings prevail. Since small holdings prevail in Turkish agriculture and fisheries sectors, cooperatives are of vital importance. Most of the cooperatives in Turkey are operating in their small and local markets. Cooperatives are generally considered to be service maximezer to their members. This objective results in a lower rate of return to equity. However, this outcome should not be considered as a negative situation for cooperatives since their members are still in better conditions in terms of higher prices for their products, lower input prices and/or better marketing channels etc.

The sustainability and further development of fishery cooperatives is very important for society as a whole and for their management bodies as well as for the fishers themselves (Unal *et al*., 2009). Fishery cooperatives are usually multi-purpose organisations formed with a strategy for independence, for efficiency reasons (e.g., economies of scale), for opening new markets, for enabling access to new resources and new technologies, opening new opportunities through access to capital etc., for educational benefits and/or as a political instrument. More specifically their objectives and activities may include the building of fishing boats, their repair, their insurance, as well as joint ownership of boats, access to saving and credits, provision of equipment and other inputs, processing, ice making, supply of ice and cold storage, marketing, trade, transport, distribution, improvement of infrastructure, education, training and action as a pressure group (Lindenthal, 1994).

Almost 1/4 of the fishermen (23%, n = 21, 719) in Turkey are organised under fishery cooperatives. According to the Ministry of Agriculture and Rural Affairs (MARA), there are 517 fishery cooperatives in Turkey and 34% (n = 180) of them deal with marine capture fishery. With 61 (34% of all) marine capture fishery cooperatives, the Aegean region takes the 1st rank in Turkey. The Fishery Cooperative Union of the Aegean Region is the only and one of the 13 fishery cooperative unions. This union has 24 fishery cooperative members and a total of 1, 141 fishermen members. Unal and Yercan (2006) reviewed historical development of fishery cooperatives in Turkey. They also, emphasized the importance of cooperatives for fishermen and fisheries management. Indeed, cooperation is one of the most effective tools to reach the objectives of fisheries management and fishery cooperatives are major players of decision making process in Turkish fishery. However, literature on the subject is limited and presently there is insufficient information available. For example, Berkes (1986) reported that there were many fishery cooperatives in Izmir Bay and some of them were quite effective in marketing and promoting the best interest of their members. Unal *et al*. (2008) reviewed the status and

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problems of 35 marine fishery cooperatives in the Izmir Bay. In another study, Unal *et al*. (2009) assessed the successes and failures of six selected fishery cooperatives (three from Izmir and three from Mugla) in the Aegean region and revealed their characteristics and problems.

The aim of the present study is to assess the characteristics, activities and problems of the fishery cooperatives operating in the Turkish Aegean and to identify the similarities and differences among them for the pre-defined two sub-regions.

MATERIALS AND METHODS

The study was conducted with the fishery cooperatives located along the Turkish Aegean Sea coasts (Fig. 1). A questionnaire comprising 48 questions was designed to outline the characteristics and problems of the cooperatives. The relevant fishery records from MARA were used as ancillary data. As a result, a total of 57 fishery cooperative's managers (93.4% of all) were interviewed in 2007. The participatory observation techniques and small group discussions with the head of cooperatives were also carried out to obtain reliable supplementary information during the 4 days seminar on fishery cooperatives (between 10 and 13 July 2007) organized in Izmir.

The fishery cooperatives were divided into two groups on consideration of their location and their distance to the Central Fish Market of Aegean located in Izmir (group I: Cooperatives from Izmir Provencal coasts (n = 29); group II: cooperatives from Balikesir, Aydin and Mugla Provencal coasts (n = 28). The differences between these two groups were tested with non-parametric tests. The comparisons between the two groups were made by

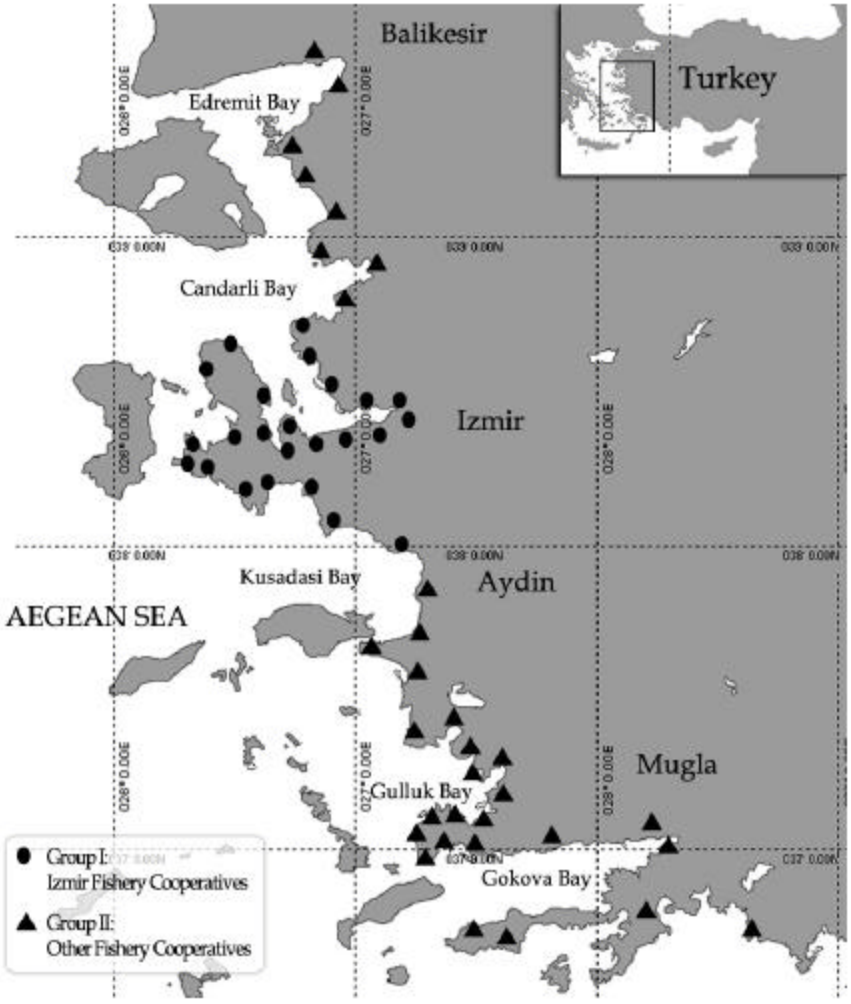

Fig. 1: The locations of fishery cooperatives studied on the Turkish Aegean coasts in 2007

the chi-square (χ^2) test for the categorical data. However, Mann Whitney U test was used when one of the groups had continuous data while, the other categorical. Type-I error (α) was taken as <0.05. The frequencies and percentages were used to analyze the respondents' perceptions for the fulfilment of cooperative's objectives and for the identification of the problems. The study, particularly seek the significant difference between the two groups in terms of cooperative characteristics such as years of operation, membership rate, marketing, solidarity, input supply, increasing capital, providing patronage refund, meeting attendance, combating illegal fishing and other problems.

RESULTS

The characteristics and functions of the fishery cooperatives: The oldest cooperative surveyed was the Izmir Balik Avcilari Fishery Cooperative founded in 1953 followed by the Ege Ornek Fishery Cooperative founded in 1961. The most recent ones, with the foundation year 2005, were the Datca Karakoy and Didim Akbuk Fishery Cooperatives. The inquired characteristics, functions and some key indicators of fishery cooperatives were given in Table 1 and 2. The mean years of operation of fishery cooperatives were 16.7±10.5 in the region and 83% of the fishery cooperatives were >10 years old. The mean number of cooperative members was 58±47.7.

The Sasali Cevre Koyleri Fishery Cooperative had the largest number of registered members (n = 270) followed by the Dogan Bey Fishery Cooperative with 259 members. However, membership rate was 64.3% in the former cooperative while, all of the local fishers were members of the cooperative in the latter cooperative.

One-third (33.4%) of the fishery cooperatives had no employees. The mean number of active vessel owners within the cooperatives was 32.6±30 and the mean number of cooperative members whose life entirely depended on fishery was 31.8±30.7. Almost, one-third of the cooperative members (31.8%) were entirely depending on fishing activity in the region (Table 1).

Among the Aegean fishery cooperatives, the mean percentage of membership-cooperation rate-was 76.3%. The highest membership rate was 100 while, the lowest was 14%. The cooperatives providing marketing facilities to their members were 43.9 and 24.1% of them organise an auction system regularly. The cooperatives providing qualified business management (31.6%), input (35.1%) and patronage refund (19.3%) to their members were not in desired levels. On the contrary, 76.4% of the cooperatives in the region reported that they combated with illegal fishing and 69.6% of them provided education service.

While, numerous characteristics and functions of group I and II surveyed were common, several cooperatives distinguish significantly from each other (Table 1 and 2). When comparing the two groups with regard to the characteristics, significant differences were found. Some of these features were their number of members (U = 150.5; p = 0.000), the number of total

Table 1: The characteristics of fishery cooperatives on the coasts of Tuirkish Aegean as derived from the analysis of questionnaires and interviews in 2007

		Characteristics (Mean±SD)									
Groups	Fishery cooperatives	Years of operation	Number of cooperative members* (y)	Number of non-members	Total number of fisher* (x)	Membership rate ((y/x)*100)	Number of employees	Number of members who are vessel owners*	Number of active vessel owners*	Number of fishery depended members*	Number of members who attend to general assembly*
I	Izmir	15.3±10.4	38.7±16.5	21.8±22.6	56.7±31.40	74.8±19.5	1.9±1.5	25.8±11.8	20.8±11.8	19.9±15.4	27.8±14.0
II	The rest	18.2±10.6	77.5±59.9	55.9±79.9	117.0±103.3	77.8±25.0	3.1±2.2	47.2±36.3	43.6±37.8	43.2±37.2	49.7±27.7
All-TR	Aegean	16.7±10.5	58.1±47.7	37.7±58.7	86.9±81.50	76.3±22.3	2.4±1.9	36.7±29.0	32.6±30.4	31.8±30.7	38.8±24.3

*Significant differences between two groups were found considering the number of cooperative members (U = 150.5; p = 0.000), the number of total fishers in the study area (U = 200.0; p = 0.001), the number of members who are vessel owners (U = 200.0; p = 0.002), the number of members who are active vessel owners (U = 181.0; p = 0.001), the number of members whose life entirely depend on fishery (U = 189.5.0; p = 0.001) and the number of members who attend to general assembly (U = 172.5; p = 0.000)

Table 2: The functions and some key indicators of fishery cooperatives along Turkish Aegean coasts in 2007

		Functions and key indicators (%)										
Groups	Fishery cooperatives	Existing marketing facilities	Providing inputs to members*	Availability of capital	Combating illegal fishing in cooperative area	Qualified business management	Increases in capital	Providing patronage refund	Solidarity among members	Education service on cooperation	Existing auction	Fulfilment of objectives*
I	Izmir	37.9	20.7	27.6	70.4	27.6	17.2	24.1	67.9	58.6	17.9	40.8
II	The rest	50.0	50.0	50.0	82.1	35.7	39.3	14.3	73.1	81.5	30.8	98.0
All –TR	Aegean	43.9	35.1	38.6	76.4	31.6	28.1	19.3	70.4	69.6	24.1	69.0

*There were found significant differences between two groups considering input supply χ^2 (Fisher's Exact Test; p = 0.02) and the rate of fulfillment of cooperative's objectives (U = 0.500; p = 0.000)

Table 3: The analysis of the responses of the heads of the fishery cooperatives on the problems of the cooperatives along Turkish Aegean coasts in 2007

		Problems (%)										
Groups	Fishery cooperatives	Tax system	Illegal fishing	Conflicts among fishers	Marketing problems	Limited fishing ground	Difficulties on collecting membership fee*	Lack of interest among fishers*	Limited financial source	Fishery circular	Conservation and control service	Government policies on fishery cooperatives
I	Izmir	31.0	72.4	27.6	69.0	48.3	62.1	69.0	69.0	58.6	34.5	82.8
II	The rest	46.4	78.6	32.1	60.7	60.7	25.0	46.4	67.9	60.7	50.0	75.0
All-TR	Aegean	38.6	75.4	29.8	64.9	54.4	43.9	57.9	68.4	59.6	42.1	78.9

*There were found significant differences between two groups considering membership fee; χ^2 (Fisher's Exact Test; p = 0.005), lack of interest among fishers; χ^2 (Fisher's Exact Test; p = 0.004)

fishermen in the cooperative area (U = 200.0; p = 0.001), the number of vessel owners (U = 200.0; p = 0.002), the number of active vessel owners (U = 181.0; p = 0.001), the number of members, who attend to general assembly (U = 172.5; p = 0.000) and the number of members whose life entirely depends on fishery (U = 189.5.0; p = 0.001). However, compared to the rate of members whose life entirely depend on fishery between the group I and II, the results are almost the same (56.8±40.9 and 56.8±27.3, respectively).

Significant differences were also found between the two groups while, considering input supply χ^2 (Fisher's Exact Test; p = 0.02) and a fulfilment rate of the cooperative's objectives (U = 0.500; p = 0.000).

The group I comprised the fishery cooperatives, which have less members, less active vessel owners and less fishery depended members (Table 1). However, the membership rate or cooperation rate of Group I (74.8±19.5) was very close to the group II (77.8±25.0).

The mean number of employees of fishery cooperatives in group I was 1.9±1.5 while, the fishery cooperatives in group II had 3.1±2.2 employees. Both Group 1 and 2 were ineffective on providing patronage refund (24.1 and 14.3%, respectively), qualified business management (27.6 and 35.7%, respectively) and an auction system (17.9 and 30.8%, respectively).

In contrast to group I (with 40.8%), the heads of the cooperatives in group II (with 98%) seemed to be satisfied and pleased with the performance of their cooperative. This is extremely high ratio. However, this is in contradiction with the members' participation to the general assembly. The members' attending the general assembly do not support the declaration made by the manager for the fulfilment of cooperative objectives.

The problems of fishery cooperatives: The results of the study indicate that ongoing government policies on fishery cooperatives (78.9%), illegal fishing (75.4 %) and limited financial sources (68.4%) appear to be the major and common problems for almost all cooperatives. Most of the cooperatives are being faced problems caused by government policies. Additionally, about 65% of those reported problems about the marketing, 60% of them on the fishing circular and 58% on lack of interest among fishers. The main problems of the cooperatives as obtained from enquire conducted with the heads of cooperatives as shown in Table 3.

Looking at the differences between the two groups of cooperatives, there were significant differences on two types of problems; the difficulties on collecting membership fee; χ^2 (Fisher's Exact Test; p = 0.007) and the lack of interest among fishers; χ^2 (Fisher's Exact Test; p = 0.006). More fishery cooperatives in group I (62.1%) declared that they had difficulties to collect membership fees when compared to Group II (25.0%). Similarly, the lack of interest among members was reported as a problem by more cooperatives in group I (69.0%) than the ones in group II (46.4%) (Table 3). The cooperatives in group I can be expressed as a metropolitan type of cooperatives where they have to work in the limited fishing grounds due to competition among them. Therefore, they are not able to create added value for their members. In fact, the members of metropolitan type of cooperatives are not fishery depending members and the household income is created by the involvement of other sectors. It is true to say that this kind of fishers are doing fishery as semi professionals.

In terms of conflicts among members, the results of the study indicated that the Aegean Region with its multigear fishery is surprisingly a quite peaceful region for fishers. Because, only 29.8% of fishery cooperatives declared that there exist problems among fishers in their fishing areas.

The results derived from characteristics of fishery cooperatives also indicated that the lack of qualified business management and the auction system (Table 2) were also seen as key problems that fishery cooperatives had to face. Successful cooperative movement is strictly related to the successful manager or management board besides the other necessary conditions. The cooperatives cannot provide an auction system for the members in both group I and II type of cooperatives. But, this is provided in a limited way by the group I type of cooperatives with the 17.9% in existing auction system.

DISCUSSION

This study of the perception of their managers aimed to address and to profile, structure, characteristics, functions and problems of fishery cooperatives located along the Turkish Aegean Sea coasts by considering numerous variables accepted to be associated with their structure. Except the north of Balikesir Province, this is the first study covering the entire Turkish Aegean on the fishery cooperatives and claims fully representing the fishery cooperatives in the region. The study also provides outputs to better understand the fishery cooperatives and crucial information to MARA for establishing the policies on fisheries management as well as fishers (the heads of cooperatives) themselves in their understanding of the characteristics and problems of fishery cooperatives. In fact, any fisheries stakeholders in the Aegean region can get benefit from these and there was, a need for such a practical study for comprehensive fisheries management.

Fundamental problems, solutions and strategies concerning fishery cooperatives in Turkey have been stated in several studies (Kocel, 1971; Arisoy, 1974a, b; Ozcelik, 1998; Unal and Yercan, 2006; Unal *et al*., 2008, 2009) since early 1970s. It was found in this study that present fishery cooperatives in the Aegean Region have similar problems. For instance, one of the latest related study, Unal *et al*. (2008) reported that the most significant problems of the Fishery Cooperatives in Izmir were the lack of ports and shelters facilities, management and internal problems such as conflict among the members, illegal fishing and market based problems. Similarly, in this study, government policies on fishery cooperatives, illegal fishing, marketing infrastructures and lack of interest among members are major problems of fishery cooperatives in Izmir.

Regarding the problems stressed in the group I and II, significant differences were found in payment of membership fee and lack of interest. The rest of the problems were found to be similar for all the regions. Both the payment of membership fee and lack of interest were pointed out by the most of the fishery cooperatives in Izmir as problems (group I). In fact, both problems show parallelism, meaning that requirements of cooperation have not been well understood and fulfilled by fishers in Izmir.

Unal *et al*. (2009) stressed that to date, the problems of fishery cooperatives have not been solved neither by government nor by cooperatives and not even by academics. In addition to suggestions that they mentioned in their research, this study points out that solutions also require better understanding of fishery cooperatives and fishers by decision makers. Fishers themselves require better understanding of fishery cooperatives. Therefore, by focusing on the above characteristics and problems of fishery cooperatives, it may be possible to assist the development of better management of fishery cooperatives. Similarly, Unal *et al*. (2009) also claimed that by stressing on successful/failure indicators of fishery cooperatives, successful fishery cooperatives might be developed by MARA.

As a result of the interviews with 57 fishery cooperatives' heads, it is accepted that enough information was collected to define an average Aegean fishery cooperative as well as their problems and to make in-depth comparisons between the different cooperatives.

In the region, the membership rates are rather high but this does not explain the efficiency of the cooperatives in the area for the expected results. Furthermore, the member attendance was found rather unsatisfactory. This shows that the members' participation and motivation is weak. One precondition for the display of the cooperative potential is the participation of the members. In cases, where such participation is not possible, cooperatives will not be able to reach desired or expected goals. Thus, members' participation has proved to be a necessary precondition to reach the aims of cooperative organizations, to become economically viable and self-reliant.

As it is concerned by the examined functions and key indicators, the cooperatives in the area for both group I and II can be evaluated as non-commercially oriented cooperatives. Patronage refund is much more related with the net margin-sales and cost differences. If there is no satisfactory patronage refund allocated, cooperatives probably are not creating net margin because of the underdeveloped trading activities. We can evaluate this type of cooperative system that is representing fisher's interest in the territory under study or national level and perform public relations activities.

It is shown that the cooperatives located out of metropolitan areas (group II) are better functioning than the cooperatives located centrally. The reason might be related to the high number of fishery dependent members in those cooperatives. Fishermen who work in under the central fishery cooperatives (group I) are usually semi professional.

Unal and Yercan (2006) reported in their study that only a very limited number of fishery cooperatives in Turkey were able to meet the expectations of their members. However, in the present study, cooperatives' managers from group II claimed the opposite. In such a way that when the question on the fulfilment rate of

cooperative's objectives was asked to the heads of cooperatives instead of cooperative members and it was claimed that 98% of objectives were fulfilled. However, this answer has to be approached with reservations. The rate in group II was almost double compared to the 1 in group I. If the reason would be related to exaggeration, then, both groups could have had similar high rates. Therefore, this claim of group II should be assessed together with the other characteristics of both groups in a holistic approach. For example, the mean number of employees, active vessel owners, fishery depended members, meeting attendance were claimed to be more than double in group II (Table 1). Likewise, regarding cooperatives' functions and some key indicators (Table 2), again almost all the results of Group II cooperatives are better compared to the results of group I. All these results show that the cooperatives of group II meet the cooperatives' objectives in a better way.

In his comparative study of the Turkish coastal fisheries, Berkes (1986) examined five fishery cooperatives and mentioned that the Izmir Fishery Cooperative had neither the legal authority nor the economic power to gather all of the fishers in the locality under its umbrella. After two decades, the present study indicated that the Izmir Balik Avcilari Fishery Cooperative (with 67.4% cooperation rate, 60% fulfilment of its objectives, lack of marketing facility, qualified business management and inputs) is quite far from the desired levels of a successful fishery cooperative.

CONCLUSION

Based on the literature related to the region (the Aegean as well as Turkey) under study (Kocel, 1971; Arisoy, 1974a, b; Berkes, 1986; Knudsen, 1998; Ozcelik, 1998; Unal and Yercan, 2006; Unal *et al*., 2008, 2009) and the present research, it is possible to conclude that problems of fishery cooperatives are still existent. There are many fishery cooperatives with different or similar characteristics and problems. It is clear that MARA cannot solve all of the problems found in the cooperative sector including fisheries cooperatives. Therefore, characteristics and problems showing significant similarities or differences should be understood as a 1st step and then separated.

A better understanding of fishery cooperatives will help cooperative managers as well as decision makers in their research with fishery cooperatives to produce solutions and contribute to increasing the efficiency of fishery cooperatives along the Turkish Aegean. To conclude, this study has found that if improvement of fishery cooperatives in the Aegean region as well as other coasts of Turkey is sought by MARA, support in solving the problems claimed in this study is necessary. Improvement in some key indicators such as qualified business management, marketing and further education is essential to help meet the objectives of fishery cooperatives.

Most of the results show that the problems faced are much more related with the problems of the general cooperative sector such as insufficient government policies containing a lack of cooperative development policies, support services, human resource development, fiscal privileges, limited financial sources, unqualified business management, limited members participation, etc. Of course, these create an inefficient cooperative sector not only for the fishery cooperatives but also for the other type of cooperatives.

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