

## A Follow- up Study of Some Fishing Community Problems around Burullus Lake, Kafr El- Sheikh Governorate, Egypt

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**Abstract:** The study aimed to follow up some fishing community problems around Burullus Lake by identifying the most important problems facing fishermen at the present time and arranging these problems according to their severity over time. The study was conducted in Kafr El- sheikh Governorate; where three villages were selected randomly from the largest fishing district (Al- Burullus). The three selected villages were overlooking the sea and the lake; they were Al- Burj, Al- Aqoula, and Bar Bahri, on a total sample size of 150 Fishermen. Data was collected using a personal interview questionnaire from each fisherman during November 2021, and 100% of the sample has been targeted. Frequencies, percentages, and average degrees were used in data analysis. The most important results showed that some problems have increased in severity over time. These problems were the presence of reeds, throwing waste in the lake, the presence of Bashnin in the lake, the lack of fishing in light, fishing near bogs, and the difficulty of extracting a carnet for children under 12 years the lack of modern fishing boats, the increase of motors prices in association, the absence of fish canning factories, and the long-distance between markets and the lake. On the other hand, some problems have decreased in severity over time; for example, fry fishing, taking over places in the lake, the absence of an ambulance in the lake, and throwing sewage in the lake, favoritism for some, production smuggling, discrimination in punishment, the difficulty of obtaining boat licenses, yarn price hike, the dispute over fishing places, migration of fishermen to cities and other countries, the lack of snow inside the lake, and underestimating the price by traders.

**Keywords:** problems; fishing communities; Burullus Lake; regulatory authorities; marketing; Egypt.

## دراسة تتبعية لبعض مشكلات مجتمعات الصيد حول بحيرة البرلس بمحافظة كفر الشيخ بمصر

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**المستخلص:** استهدفت الدراسة تتبع بعض مشكلات مجتمعات الصيد حول بحيرة البرلس بمحافظة كفر الشيخ بمصر، من خلال تحديد أهم تلك المشكلات في الوقت الحالي وترتيبها حسب خطورتها بمرور الزمن، وأجريت الدراسة على عينة من 150 صيادا تم اختيارهم من ثلاث قرى اختيرت عشوائياً من بين قرى مركز البرلس وهي: البرج، والعاقولة، وبر بحري، وجمعت البيانات بواسطة استبانة بالمقابلة الشخصية من كل صياد خلال شهر نوفمبر 2021م، وتم استيفاء 100% من العينة المستهدفة، واستخدم في تحليل البيانات: التكرارات، والنسب المئوية، والمتوسط الحسابي، والانحراف المعياري، وأسفرت النتائج عن وجود بعض المشكلات زادت حدتها بمرور

الزمن ومنها: انتشار الغاب (البوص)، وإلقاء المخلفات في البحيرة، وانتشار نبات البشنين، والصيد بالقرب من البوغاز، وصعوبة استخراج الكارنيه للأطفال دون سن 12 عام، وعدم وجود مراكب صيد حديثة، وزيادة أسعار الوقود، وعدم وجود مصانع كافية لتعليب الأسماك، وبعد المسافة بين الأسواق والبحيرة. وعلى الجانب الآخر انخفضت حدة بعض المشكلات بمرور الزمن مثل: صيد الزريعة، والاستيلاء على أماكن بالبحيرة، وعدم وجود إسعاف بالبحيرة، وإلقاء مياه الصرف الصحي بالبحيرة، وتهريب الإنتاج، والتمييز بين الصيادين في العقوبة، وصعوبة الحصول على تراخيص لمراكب الصيد، وارتفاع أسعار الغزول، والخلاف على أماكن الصيد، وهجرة الصيادين إلى المدن والبلدان الأخرى، ويخس السعر من قبل التجار.

الكلمات المفتاحية: مشكلات؛ مجتمعات الصيد؛ بحيرة البرلس؛ السلطات الرقابية؛ التسويق؛ مصر.

## 1- Introduction.

Agricultural development is one of the main pillars of comprehensive development in Egypt, which includes many programs such as the development of fisheries, which depends on water resources, whether natural or fish farms. However, agricultural production is no longer limited to the production of traditional crops only; rather, it includes fish, which is one of the important sources of animal protein.

The Egyptian state has adopted many policies and strategies included the most important objectives of raising the productivity of natural fisheries production in northern lakes (Manzala, Burullus, Idku, Mariout, and Bardawil), giving more attention to those lakes in managing to make each lake an independent production unit. (Sustainable agricultural development strategy 2030, 2021)

Egypt enjoys water fisheries amounting to 13.40 million feddans, of which 6.8 million feddans are from the Mediterranean, 4.4 million feddans are in the Red Sea, 2.2 million feddans consist of the northern lakes, the High Dam Lake, the Nile River and its branches. Despite that, there was still a fish gap estimated at 366.5 thousand tons in 2018, forcing the state to import to fill that gap. (Fish production statistics in Egypt, 2018)

In order to narrow this gap and reduce the number of fish imports, it was necessary to promote fish production by developing fish wealth. This can only be achieved by working to solve all the problems facing the fishermen and to maintain the Egyptian fisheries.

Burullus Lake has been one of the most important Egyptian fisheries, its fish production was estimated at about 71.4 thousand tons in 2018, equivalent to 36.4% of the total productivity of Egyptian lakes, 19.1% of the total productivity of natural fisheries, and about 3.7% of the total Egyptian fish production amounting to 1934.7 thousand tons. (Statistical Yearbook, 2020)

Despite the importance of Burullus Lake as a source of fish production in Egypt, it has been suffering from the problem of low fish productivity, and this decrease in productivity has been due to many problems that may be related to the lake, ports, fishing tools and equipment, service aspects and other problems that may lead to poor fisherman productivity.

In light of studies that have been conducted on the problems of fishing communities around Burullus Lake in the last twenty years, the study of Bali and El- Sabbagh (2004) limited the problems faced

by fishing communities into eight main groups: fishing, lake, regulatory authorities, marketing, household, social, housing environment, and problems of services. (Bali and EL- Sababagh, 2004)

The study of Bali (2012) indicated that there were many problems faced by the fishing community around Burullus Lake. The most important problems were the lack of a funding source, fry fishing, discrimination in doing violations, the lack of refrigerators, high living expenses, the lack of social solidarity between fishermen, the spread of flies and mosquitoes, and poor health services. (Bali, 2012)

In Heedak study (2012); there were some important problems faced by members in dealing with fishermen cooperative societies around Burullus Lake. They were the lack of cooperation of the board of directors with the fishermen, the failure to meet their demands, high prices of fishing tools and supplies. This is in addition to the failure to announce the activities of the association and its profits, the failure to provide any support from members, high and late renewal costs of licenses, and the shortage of loan repayment period.

Maha Hegazy divided the problems of the fishing communities around Burullus Lake into seven categories: social security problems, housing environment problems, health problems, ecological lake problems, regulatory and security problems, fishing and fish marketing, and some economic problems. (Hegazy, 2017)

By reviewing previous studies and writings, researchers found that the Lake District has been characterized by the low standard of living for the majority of the population, geographical and cultural isolation, the absence of communication with other societies. Moreover, there were the low level and quality of infrastructure, the lack of new professions corresponding to the increase in population growth rates, and the spread of poverty, ignorance, and diseases.

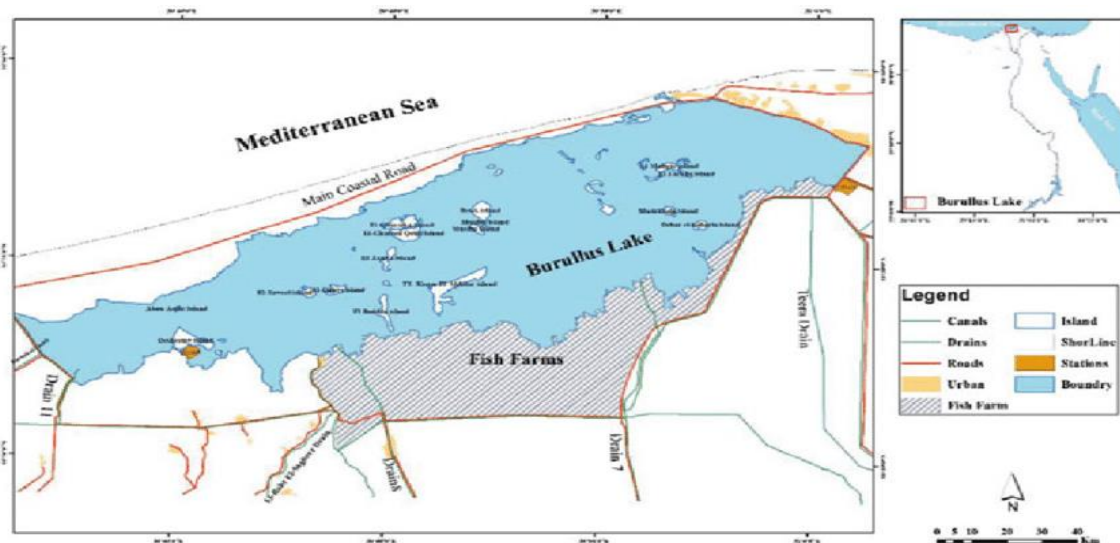
This requires the need for human activities to be consistent with how the world works, as environmental and ecological systems must become an integral part of the decision- making process. When sustainable development occurs, there will be promising economic, urban, and tourism opportunities in this region.

## **2- Study Problem and objectives**

The fishermen sector around Burullus Lake suffered from neglect that led to many social, economic, and health problems. This is besides environmental, security, and other problems, which in turn have affected the lives of the residents of this region, this requires the necessity of identifying the most important problems that these societies have been suffering from, arranging these problems according to their relative importance, as well as following up the degree of suffering from these problems over time. This is in order to prioritize confronting and overcoming these problems.

### 3- Methodology.

The study was conducted in Kafr El- Sheikh Governorate, which is one of the largest governorates in the Republic in terms of fishing, where three villages were selected randomly from the largest fishing district (Al- Burullus), It located in the northern part of the Nile Delta, with an area of 460 km<sup>2</sup>, rich in plants, a group of islands inside the lake, mud flats, fresh water swamps and grassy environments, in addition to some industrial environments such as fish farms, salt flats, channels and drains that drain agricultural wastewater into the lake, the reserve includes the entire Burullus Lake, including its islands, in addition to a sand barrier separating the lake from the Mediterranean with a length of approximately 65 km<sup>2</sup>. (Burullus Reserve Management Plan, 2003)



Source: [https://www.researchgate.net/figure/Location-of-Lake-Burullus-Nile-Delta-lakes-Egypt\\_fig1\\_324677848](https://www.researchgate.net/figure/Location-of-Lake-Burullus-Nile-Delta-lakes-Egypt_fig1_324677848)

The three selected villages were overlooking the sea and the lake, which were Al- Burj, Al- Aqoula, and Bar Bahri. All the fishermen who have membership in the fishermen associations were enumerated, then 50 Fishermen were selected from each village by a systematic random sampling method, so the total sample size became 150 fishermen. Data was collected using a personal interview questionnaire from each fisherman during November 2021, and 100% of the sample has been targeted.

The questionnaire included questions related to the degree of presence of some problems. These problems were divided into four groups of problems; problems related to the lake (eight sub- problems), problems related to the regulatory authorities within the lake (six sub- problems), problems related to fishing (eight sub- problems), and problems related to fish marketing (six sub- problems). The rates of presence of each problem were: high, medium, low, no problem, and the responses were given weights: 3, 2, 1, and 0, respectively.

#### 4- Statistical Analysis Methods

The statistical program SPSS in version 23 was used to analyze data, where a set of statistical methods was used, as it suited the nature of the data and was suitable for the study objective. These methods were frequencies, percentages, and average degrees.

#### 5- Results.

##### 5- 1 Problems Related to the Lake:

The results in Table (1) showed that this category of problems included 8 sub- problems that differed in terms of their absence or presence and suffering from them to varying degrees. They also showed that this category of problems came in second order according to its importance in the general arrangement of the four categories of problems studied with a general mean of 1.78 degrees.

From table (1), the problems related to the lake can be arranged in descending order according to its relative importance as follows: the presence of reeds, throwing waste in the lake, fry fishing, the lack of security inside the lake, and the presence of Bashnin in the lake. This is in addition to taking over places in the lake, the absence of an ambulance in the lake, and throwing sewage in the lake, with average degrees: 2.3, 2.09, 2, 1.92, 1.62, 1.61, 1.47, 1.37 degrees respectively.

**Table (1) Problems Related to the Lake and Its Relative importance**

N	Problems	presence of the problem								Average Degrees
		No		High		Medium		Low		
		N	%	N	%	N	%	N	%	
1	The presence of reeds	-	-	70	46.36	55	36.67	25	16.67	2.3
2	Fry fishing	-	-	60	40	30	20	60	40	2
3	Taking over places in the lake	-	-	35	23.33	22	14.67	93	62	1.61
4	Throwing waste in the lake	-	-	61	40.67	42	28	47	31.33	2.09
5	The absence ambulance in the lake	-	-	65	43.33	40	26.67	45	30	1.47
6	The lack of security inside the lake	-	-	52	34.67	34	22.67	64	42.67	1.92
7	The presence of Bashnin in the lake	-	-	28	18.67	37	24.67	85	56.67	1.62
8	Throwing sewage in the lake	-	-	47	31.33	52	34.67	51	34	1.37
general mean= 1.78										

Source: Compiled and calculated from questionnaires 2022.

By comparing the results of current study with the results of previous studies as in table (2), it is clear that:

- Some problems have increased in severity over time. These problems were the presence of reeds, throwing waste in the lake, and the presence of Bashnin in the lake.
- Some problems have decreased in severity over time. These problems were fry fishing, taking over places in the lake, the absence of an ambulance in the lake, and throwing sewage in the lake.
- The problem of the lack of security inside the lake was still in the same severity level over time.

**Table (2) Suffering from Problems Related to the Lake over Time**

Problems	Current Study 2022		Hegazy 2017		Bali 2012		Bali and Elsabbagh 2004	
	Average	Rank	Average	Rank	Average	Rank	Average	Rank
The presence of reeds	2.3	1	2.74	3	1.99	6	2.19	3
Fry fishing	2	3	2.99	1	2.98	1	2.90	1
Taking over places in the lake	1.61	6	2.64	4	2.65	2	2.30	2
Throwing waste in the lake	2.09	2	2.21	7	1.86	7	1.30	7
The absence of an ambulance in the lake	1.47	7	2.01	8	2.20	4	1.60	5
The lack of security inside the lake	1.92	4	2.42	5	2.32	3	2.09	4
The presence of Bashnin in the lake	1.62	5	2.37	6	1.63	8	1.02	8
Throwing sewage in the lake	1.37	8	2.77	2	2.07	5	1.46	6

Source: Compiled and calculated from questionnaires 2022.

### 5-2 Problems Related to Regulatory Authorities within the Lake:

The results in Table (3) showed that this category of problems included 6 sub- problems that differed in terms of their absence or presence and suffering from them to varying degrees. It was clear that this category of problems came in fourth order according to its importance in the general arrangement of the four categories of problems studied with a general mean of 1.22 degrees.

From table (3), the problems related to regulatory authorities within the lake can be arranged in descending order according to its relative importance as follows: the absence of fishing in light, fishing near bogs, laws not applied to all, favoritism for some, production smuggling, and discrimination in punishment, with average degrees: 1.44, 1.39, 1.26, 1.18, 1.07, and 1 degree respectively.

**Table (3) Problems Related to Regulatory Authorities within the Lake**

N	Problems	presence of the problem								Average Degree
		No		High		Medium		Low		
		N	%	N	%	N	%	N	%	
1	Laws not applied to all	40	26.67	22	14.67	35	23.33	53	35.33	1.26
2	Favoritism for some	61	40.67	23	15.33	42	28	24	16	1.18
3	Production smuggling	70	46.67	40	26.67	20	13.33	20	13.33	1.07
4	Fishing near bogs	41	27.33	33	20.2	33	22	43	28.67	1.39

N	Problems	presence of the problem								Average Degree
		No		High		Medium		Low		
		N	%	N	%	N	%	N	%	
5	The absence of fishing in light	22	14.67	25	16.67	37	24.67	67	44.67	1.44
6	Discrimination in punishment	75	50	25	16.67	25	16.67	25	16.67	1
general mean= 1.22										

Source: Compiled and calculated from questionnaires 2022.

By comparing the results of the current study with the results of the previous studies in table (4), it is show that:

- Some problems have increased in severity over time. These problems were the absence of fishing in light, and fishing near bogs.
- Some problems have decreased in severity over time. These problems were favoritism for some, production smuggling, and discrimination in punishment.
- The problem of the laws not applied to all was still in the same severity level over time.

**Table (4) Suffering from Problems Related to Regulatory Authorities within the Lake over Time**

N	Problems	Current study		Hegazy		Bali		Bali and Elsabbagh	
		2022		2017		2012		2004	
		Average	Rank	Average	Rank	Average	Rank	Average	Rank
1	Laws not applied to all	1.26	3	2.54	3	2.56	2	2.61	2
2	Favoritism for some	1.18	4	2.76	2	2.63	1	2.12	4
3	Production smuggling	1.07	5	2.35	5	2.46	3	2.70	1
4	Fishing near bogs	1.39	2	2.52	4	1.60	5	0.73	5
5	absence of fishing in light	1.44	1	0.24	6	1.20	6	0.21	6
6	Discrimination in punishment	1	6	2.77	1	2.40	4	2.37	3

Source: Compiled and calculated from questionnaires 2022.

### 5-3 Problems Related to Fishing

The results in Table (5) showed that this category of problems included 8 sub- problems that differed in terms of their absence or presence and suffering from them to varying degrees. It also showed that this category of problems came in first order according to its importance in the general arrangement of the four categories of problems studied with a general mean of 2.25 degrees.

From table (5), the problems related to fishing can be arranged in descending order according to its relative importance as follows: the difficulty of extracting the carnet for children under 12 years, the lack of modern fishing boats, the long process of extracting the carnets, and yarn price hike. This is in addition to the increase of motors prices in association, the dispute over fishing places, migration of

fishermen to cities and other countries, and the difficulty of obtaining boat licenses, with average degrees: 2.61, 2.53, 2.43, 2.35, 2.34, 2.11, 1.93, and 1.73 degrees respectively.

**Table (5) Problems Related to Fishing**

N	Problems	presence of the problem								Average Degree
		No		High		Medium		Low		
		N	%	N	%	N	%	N	%	
1	The difficulty of obtaining boat licenses	25	20	45	30	45	30	35	23.3	1.73
2	Yarn price hike	-	-	71	47.33	63	42	17	11.33	2.34
3	The long process of extracting carnets	-	-	90	60	45	30	15	10	2.43
4	The difficulty of extracting the carnet for children under 12 years	-	-	100	66.67	42	28	8	5.33	2.61
5	The dispute over fishing places	25	20	42	28	80	53.33	3	2	2.11
6	The lack of modern fishing boats	10	6.67	102	68	68	23.33	3	2	2.53
7	Migration of fishermen to cities and other countries	35	23.33	10	6.67	43	28.67	2	1.33	1.93
8	The increase of motors prices in association	10	6.67	75	46.67	32	21.33	43	28.67	2.35
<b>general mean= 2.25</b>										

Source: Compiled and calculated from questionnaires 2022.

From table (6) and by comparing the results of the current study with results previous studies), it is clear that:

- Some problems have increased in severity over time. These problems were the difficulty of extracting the carnet for children under 12 years, the lack of modern fishing boats, and the increase of motors prices in association.
- Some problems have decreased in severity over time. These problems were the difficulty of obtaining boat licenses, yarn price hike, the dispute over fishing places, and migration of fishermen to cities and other countries.
- The problem of the long process of extracting the carnets was still in the same severity level over time.

**Table (6) Suffering from Problems Related to Fishing over Time**

N	Problems	Current study		Hegazy		Bali		Bali and Elsabbagh	
		2022		2017		2012		2004	
		Average	Rank	Average	Rank	Average	Rank	Average	Rank
1	The difficulty of obtaining boat licenses	1.73	8	1.82	5	2.14	6	1.81	4



N	Problems	Current study		Hegazy		Bali		Bali and	
		2022		2017		2012		Elsabbagh	
		Average	Rank	Average	Rank	Average	Rank	Average	Rank
2	Yarn price hike	2.34	4	2.84	1	2.34	2	2.44	1
3	The long process of extracting the carnets	2.43	3	2.23	3	2.15	5	2.28	2
4	The difficulty of extracting the carnet for children under 12 years	2.61	1	1.17	8	2.29	4	1.06	6
5	The dispute over fishing places	2.11	6	2.49	2	2.30	3	1.82	3
6	The lack of modern fishing boats	2.53	2	1.48	7	1.92	8	0.56	8
7	Migration of fishermen to cities and other countries	1.93	7	1.97	4	2.35	1	1.60	5
8	The increase in motors prices in association	2.35	5	1.53	6	2.07	7	0.85	7

Source: Compiled and calculated from questionnaires 2022.

#### 5-4 Problems Related to Fish Marketing:

The results in Table (7) showed that this category of problems included 6 sub- problems that differed in terms of their absence or presence and suffering from them to varying degrees. This is in addition to the fact that this category of problems came in third order according to its importance in the general arrangement of the four categories of problems studied with a general mean of 1.69 degrees.

From table (7), the problems related to fish marketing can be arranged in descending order according to its relative importance. First, there were no fish canning factories. Second, markets were far from the lake. Additionally, there were lack of refrigerators and lack of snow inside the lake. Moreover, traders underestimated the price. Finally, there were no marketing groups. These problems were arranged with average degrees: 2.18, 1.87, 1.63, 1.61, 1.49, and 1.34 degrees respectively.

Table (7) Problems Related to Fish Marketing

N	Problems	presence of the problem								Average Degree
		No		High		Medium		Low		
		N	%	N	%	N	%	N	%	
1	The lack of refrigerators	20	13.33	40	26.67	35	23.33	55	36.67	1.63
2	The lack of snow inside the lake	10	6.67	30	20	42	28	68	45.33	1.61
3	Underestimating the price by traders	25	20	55	36.37	53	35.33	17	11.33	1.49
4	The absence of marketing groups	10	6.67	50	35.33	61	40.67	29	19.33	1.34
5	The absence of fish canning factories	-	-	72	48	43	28.67	35	23.33	2.18
6	The long- distance between markets and the lake	15	10	45	30	55	36.37	35	23.33	1.87

general mean= 1.69

Source: Compiled and calculated from questionnaires 2022.

By comparing the results, it is clear from table (8) that:

- Some problems have increased in severity over time. These problems included the absence of fish canning factories and the long- distance between markets and the lake.
- Some problems have decreased in severity over time. These problems included the lack of snow inside the lake and underestimating the price by traders.
- Other problems; the lack of refrigerators and the absence of marketing groups, were still in the same severity level over time.

**Table (8) Suffering from Problems Related to Fish Marketing over Time**

N	Problems	Current study 2022		Hegazy 2017		Bali 2012		Bali and Elsabbagh 2004	
		Average	Rank	Average	Rank	Average	Rank	Average	Rank
1	The lack of refrigerators	1.63	3	1.46	3	0.93	4	2.04	2
2	The lack of snow inside the lake	1.61	4	1.48	2	0.82	6	1.70	6
3	Underestimating the price by traders	1.49	5	2.28	1	1.44	1	2.23	1
4	The absence of marketing groups	1.34	6	1.17	6	0.91	5	1.87	4
5	The absence of fish canning factories	2.18	1	1.35	4	1.38	2	1.96	3
6	The long- distance between markets and the lake	1.87	2	1.23	5	1.15	3	1.79	5

Source: Compiled and calculated from questionnaires 2022.

## Conclusion.

The study found a set of results, the most important of which are:

- the group of problems related to fishing was the most common problem that fishermen suffer from with general mean 2.25 degrees, and the most of these problems in terms of suffering is the difficulty of extracting the carnet for children under 12 years.
- The group of problems related to the Lake came in the second order with general mean 1.78 degrees, and the most of these problems in terms of suffering is the presence of reeds.
- The problems related to marketing came in the third order with general mean 1.69 degrees, where the most problem in terms of suffering is the absence of fish canning factories.
- The group of problems related to regulatory authorities came in the fourth order with general mean 1.22 degrees, and the most of these problems in terms of suffering is the absence of fishing in light.

- there were some problems that have increased in severity over time. These problems were the presence of reeds, throwing waste in the lake, the presence of Bashnin in the lake, the absence of fishing in light, and fishing near bogs. This is besides the difficulty of extracting the carnet for children under 12 years, the lack of modern fishing boats, the increase in motors prices in association, the absence of fish canning factories, and the long- distance between markets and the lake.
- Some problems have decreased in severity over time. These problems were fry fishing, taking over places in the lake, the absence of an ambulance in the lake, and throwing sewage in the lake. Moreover, there were favoritism for some, production smuggling, discrimination in punishment, the difficulty of obtaining boat licenses, yarn price hike, the dispute over fishing places, migration of fishermen to cities and other countries, the lack of snow inside the lake, and underestimating the price by traders.

### Recommendations.

Based on the findings of the study, the following can be recommended:

1. Activating the role of fish Extension because there is no Extension at all or because it is weak if it exists.
2. working on placing the Burullus Reserve and all the existing reserves in Egypt on the map of Egyptian tourism and revitalizing rural tourism, as these reserves are characterized by the natural landscapes and the biological diversity of plant and wild life and sand dunes.
3. Encouraging the establishment of a rural and fishing eco- hotel to develop eco- tourism on one of the inner islands, as it depends on the environment, nature and cultural attractions. Building is done with local materials based on clean energy (solar and alternative) and raw materials such as jungles, mats, mud bricks, palm trees and branches, and providing Cruises, bird watching, photography and fishing trips, in addition to visiting the environmental center of the reserve, which increases income and provides job opportunities for fishermen.
4. Work to implement the laws and legislation related to the lake and fishing.
5. Work must be done to develop the productive efficiency of the Egyptian lakes by providing dredgers to cleanse the sulfur and deepen the lakes constantly to prevent the occurrence of the phenomenon of siltation (because of its high land) to prevent attempts at continuous drying and disinfection of the lake and to resist the spread of reeds, jungles and Nile roses.
6. The Fisheries Authority must supply the lakes with extinct species of fish in the form of fry, so that they can return to the lake again.
7. Developing and activating cooperative societies for fishermen and activating their role because these cooperatives have an important role.

8. Establishing some small projects that are suitable for reserves to increase the income of fishermen.

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