An Analytical Study Of Productivity For The Fish Farms In Beheira Governorate

Summary And Recommendation

There is no doubt that all the countries of the world are interested in providing food in various ways. In view of the increasing population growth, the world has become increasingly concerned with fish wealth as part of the protein food, and even in developing it. The economic importance of fish is that it is a renewable natural resource. This can generate a profitable economic return. Although Egypt enjoys many fisheries and the presence of many El- Beheira, fish farms, government, civil and fish farming in rice fields and floating cages, this water wealth is not exploited Yields enough in the field of fisheries at the national level in general and in particular the province of the El-Beheira, so the research problem is how the great benefit of those resources and to raise the productive efficiency of fish farms in El-Beheira.

The study aims at estimating the most important factors affecting the productivity of the fish farms in El-Beheira governorate to identify the efficiency of the resources in these farms in order to increase production efficiency.

In order to achieve the objectives of the study, the study included three main sections. The first chapter dealt with two chapters. The first chapter discus with the theoretical framework, the second chapter discuse with the review of previous studies related to the subject of the study.

The second part of the study dealt with the current status of fish production in Egypt and the El-Beheira Governorate.

Through the study of the temporal development of production and consumption, the average per capita consumption of fish and the food gap in Egypt during the period from ٢٠٠٠ to ٢٠١٥, (P), which reached ١٣١.٢ at a significant level of ٠.٠١ at ٧١.٢ thousand tons with an annual change rate of about ٦.٢٤٪ from the average annual. As for the development available for consumption, least square method equation indicated that there was a general trend that was statistically significant at ٠.٠١ levels. The annual increase rate was about ٧٦,٨٠٠ thousand tons, which represents about ٥.٦٥٪ of the average annual consumption of fish. As for the development of the average consumption of fish per capita, it was found that there was a significant increase in morale, which was statistically significant at ٠.٠١. The annual rate of increase was about ٠.٦٣٠, equivalent to about ٣.٨٦٪ of average per capita consumption. In the study of the development of the self-sufficiency ratio of fish, least square method equation indicated that there was a general trend which was statistically significant at ٠.٠١. The annual increase rate was about ٠.٥٤١ thousand tons, which represents about ٠.٦٥٪ Annual fish.

As for the temporal development of fish production from natural fisheries in Egypt, least square method equation for the temporal development of sea fish production showed that there was a significant decreasing trend which was statistically significant at ٠.٠٥٪ according to the value of (P) of about ٦.٦٧. The annual decrease was ١.٣ tons, equivalent to ١.٠٨٪ of the average production, as for the development of fish production from El-Beheira; least square method equation showed that there was a decreasing trend that did not prove statistically significant according to the value of (P) of about ٠.١٩. The annual decrease was ٣٢ tons, which is equivalent to ٠.١٨٪ of the average production, as for the development of fish production from the Nile River and a variety; least square method equation indicated that there was a significant decreasing trend that was statistically

significant at ٠.٠١ levels according to the value of (P) of about ١٨.١٢. The annual decrease amounted to ٢.٨٦ thousand tons, equivalent to ٣.٢٪ of the average production, As for the temporal development of fish production from natural fisheries, least square method equation showed that there was a decreasing general trend which was statistically significant at ٠.٠١ level according to the value of (P) of ١٨.٢٢ at about ٤, ٤٨ thousand tons with an annual change rate of about ١, ١٨٪ of the annual average.

As for the development of fish production from fish farming in Egypt, least square method equation for the development of fish production from government farms showed that there was an increasing trend that did not prove statistically significant according to the value of (P) of about ٠.٢٧. The annual rate of increase was ٠.٤٢ thousand tons, which is equivalent to ٣.٥٪ of the average production, As for the development of the production of fish from the local farms, least square method equation showed that there was a significant increase in morale which was statistically significant at ٠.٠١ level according to the value of (P) of about ٣٢٣.١٩. The annual rate of increase was ٤٣.٠٩ thousand tons, which is equivalent to ٧.٤٪ of the average production, on the production of fish from semi-intensive culture least square method equation showed that there was an increasing tendency that did not prove statistically significant according to the value of (P) of about ٠.٠٩. The annual rate of increase was ٠.٠١٦ thousand tons, equivalent to ١.١٪ of the average production. As for the development of fish production from intensive culture, least square method equation indicated that there was a significant increase in significance at a significant level of ٠.٠١ according to the value of (P) of about ٢٨.٠٢. The annual increase rate was ٠.١٧٢ thousand tons, which is equivalent to ٢٦.٤٪ of the average production, As for the development of fish production from cages culture, least square method equation indicated that there was a

significant increase in significance at a significant level of ٠.٠١ according to the value of (P) of about ٩.٥. The annual rate of increase was ١٣, ٠١ thousand tons, equivalent to ١٣.١٦٪ of the average production, as for the temporal development of fish production from paddy fields, least square method equation indicated that there was a significant increase in morale which was statistically significant at ٠.٠١ levels according to the value of (P) of about ٧.٢. The annual rate of increase was ١.٢٨ thousand tons, which is equivalent to ٥.٦٪ of the average production, And the development of fish production from fish culture, least square method equation showed that there was a decreasing general trend which was statistically significant at ٠.٠١ level according to the value of (P) of ٣١٢, ٢٤ at ٥٨, ٠١ thousand tons with an annual change rate of about ٨, ١٦٪ of the annual average.

As for the development of foreign trade, least square method equation for the quantity of imports showed that there was a significant trend which was statistically significant at ٠.٠٥ level according to the value of (P) of ٤.٥١ at ١١.١٨ thousand tons with an annual change rate of about ٤.٦ % Of the annual average, As for the evolution of the import value ratio, least square method equation showed that there was a significant increase in significance at a significant level of ٠.٠١ according to the value of (P) of ٤٢,٧٥ at ٢٩١٦٥٦.٧ thousand tons with an annual change rate of about ١٤.٧٢٪ Annual average. As for the development of the percentage of exports, least square method equation indicated that there was a significant increase in the mean value at a significant level of ٠.٠١ according to the value of (P) of ٥٨.١٦ with about ١.٥١ thousand tons with an annual change rate of about ١٧.٠٤٪ Annual average. As for the development of the percentage of export value, least square method equation showed that there was a significant increase in the mean value at ٠.٠١ level according to the value of (P) of ٧٥.٠٨ at ١٥٥٢٣.٤٤ thousand tons with an annual change rate of about ٢٠.٠٣٪.

As for the temporal development of fish production from the natural fisheries in the El- Beheira, least square method equation for the development of fish production from the sea showed that there is a decreasing trend that did not prove statistically significant according to the value of (P) of about ٣.٨. The annual decrease was ٠.٣٠ thousand tons, equivalent to ٢.٥٪ of the average production. As for the development of fish production from El-Beheira, least square method equation showed that there was a significant decreasing trend that was statistically significant at ٠.٠١ level according to the value of (P) of about ٥١.٩. The annual decrease was ٠.٣٥ thousand tons, equivalent to ٤.٥٪ of the average production. As for the development of fish production from the Nile River and its branch, least square method equation showed that there was a significant decreasing trend which was statistically significant at ٠.٠١ levels according to the value of (P) of about ٣١.٣. The annual decrease was ٠.١٦ thousand tons, equivalent to ١١.٤٪ of the average production. As for the development of fish production from natural fisheries, least square method equation indicated that there was a significant decreasing trend, which was statistically significant at ٠.٠١ level according to the value of (P) of ١٤.٩٥ at about ٠.٨٢ thousand tons with an annual change rate of about ٣, ٩٦٪ of the annual average.

As for the development of fish production from fish culture in the El- Beheira governorate, least square method equation for the development of fish production from government farms showed that there was a decreasing trend that did not prove statistically significant. The annual decrease rate was about ٠.٠١٦ thousand tons, which is equivalent to ٠.٠٠١٪. As for the development of the production of fish from the local farms, least square method equation showed that there was a decreasing general trend that did not prove statistically significant. The annual decrease rate was about ١.٣٠ thousand tons, which is equivalent to ٠.٠٠٣٪ of the average production. As for the production of fish from intensive

and semi-intensified culture, least square method equation showed that there was a general trend which was statistically significant at ٠.٠١ levels. The average annual increase was about ٠.١٠٩ thousand tons, which is equivalent to ٠.٠٨٪ of the annual average. As for the development of fish production from cages culture, there is an increasing general trend which was statistically significant at the level of ٠.٠١, about ٥.٤٩ thousand tons per year, with an annual change rate of about ٠.٠١٧٪ from the average annual. As for the temporal development of fish production from paddy fields, least square method equation indicated that there was a decreasing general trend which was statistically significant at ٠.٠٥ levels at ٠.١٥٧ thousand tons with an annual change rate of about ٠.٠٠٤٪ from the average annual.

As for the temporal development of the total production of fish in the Republic and the Governorate, least square method equation for the development of the total production of fish in the Republic showed that there was an increasing general trend which was statistically significant according to the value of (P) of ١٣١.٢ at the level of ٠.٠١, Thousand tons at an annual rate of change of about ٦.٢٤٪ of the annual average. As for the temporal development of the total production of fish in the governorate, least square method equation showed that there is an increasing trend of the total production in the governorate, which was statistically significant at ٠.٠١ levels with ٥.٩٠ thousand tons with an annual change rate of ٥.٩٨٪ from the annual average.

The most important factors influencing the quantity consumed were the number of population, the quantity of imports and the retail price of poultry. The production elasticity was estimated at ٣.١٨, ٠.١٨١ and -٠.١٧٩ for each of them respectively Means that an estimated ١٠٪ change in each of them has a significant change of ٣١.٨٪, ١.٨١٪, and ١.٧٩٪, respectively.

The third part of the study consists of four chapters. The first chapter discuse with the choice of the sample of the field study, The second chapter discuse with the estimation of the production functions, the third chapter, the estimation of the cost functions and the fourth chapter. Chapter ١ Selection of the sample of the field study The study community was identified as the governorate of the El-Beheira because of its importance in fish farming, where it occupies the fifth place in terms of area of fish farms by ٤.٢٣٪ of the total area of farms in the Republic and in terms of farm productivity, ٥, ٣٦% of the total republic. Central Edco and Kafr El-Dawar were selected as the largest centers in terms of the number of fish farms according to their relative importance of about ٣٩٪, ٣٨.٨ respectively, The area of Al-Jarf, Al-Khairi canal and Khom Hassan were selected from the Edco Center as the largest areas in terms of the number of fish farms. The area of Al-Sunna, Al-Haybi and Al-Kneis was selected from Kafr El Dawar Center. The sample size of ٢٤٤ farms was randomly selected from both centers. Areas identified (١٢٣ Edco Farm, ١٢١ Kafr El Dawar). The sample size was divided into two categories of production (less than ١٠ feddans, more ١٠ feddans), and each category contained two types of production, the normal and half intensive.

The second chapter discuses with the statistical estimation of the production functions in the sample of the field study. The results of the equations in the double logarithmic pattern of the regular category of less than ١٠ feddans at the Edco center showed that the most important factors affecting the quantity produced are the area of the farm and the feed quantity, ٠.٢١ respectively, which means that a ١٠٪ change in each of them has a change in the same direction of ٧.٧٪, ٢.١٪, For the normal pattern, the largest category of ١٠ feddans at the Edco Center. The results of least square method equation in its double logarithmic form of the function showed that the most important factors

affecting the quantity of fish produced were the area of the farm and the product experience. The production elasticity was estimated at ٠.٨٤, -٠.١٥ respectively, which means that a change of ١٠٪ in each of them will result in a significant change of ٨.٤٪ in the same direction and -١.٥٪ in the opposite direction, For the ordinary pattern, less than ١٠ feddans at the Kafr El Dawar Center, the results of least square method equation in its double logarithmic form of the productive function showed that the most important factors affecting the quantity of fish produced are the amount of organic manure and the farm area where production elasticity was estimated at ٠.٠٩٦, Which means that a change of ١٠٪ in each of them will result in a change in the same direction of ٠.٩٦٪, ٩.٥٪, For the normal pattern, a larger category of ١٠ feddans showed the results of least square method equation in its double logarithmic form of the productive function. The most important factors affecting the quantity of fish produced are the area of the farm, the duration of the production cycle, the quantity of organic fertilizer, the quantity of the chemical fertilizer and the amount of feed, ٠.٨٤, -٠.٧٣, ٠.٠٣١, ٠.٠٢٣, ٠.٣٧ respectively, which means that a change in the value of ١٠٪ in each of them will result in a change of ٨.٤٪, ٠.٣١٪, ٠.٢٣٪, ٣.٧٪ In the same direction and a change of magnitude -٧.٣٪ in the opposite direction.

The double of logarithmic function of the semi-intensive class of less than ١٠ feddans at the Edco Center indicated that the most important factors influencing the quantity of fish produced were the number of fry and the amount of fodder. The production elasticity was estimated at ٠.٥٢ and ٠.٥٦ respectively, each of which has a significant change of ٥.٢٪, ٣.٦٪ in the same direction, The double logarithmic function of the half-condensed form of the ١٠-acre group at the Edco Center showed that the most important factors affecting the quantity of fish produced were the area of the farm, the amount of fodder and the amount of

organic fertilizer. Production elasticity was estimated at ٠.٧٥, ٠.٢٣ and ٠.٠١٦ respectively Means that a change of ١٠٪ in each of them has a significant change of ٧.٥٪, ٢.٣٪, ٠.١٦٪ in the same direction, The double logarithmic function of the semi-intensive form of less than ١٠ feddans showed that the most important factors influencing the quantity of fish produced were the area of the farm, the number of fry and the quantity of the chemical fertilizers. The production elasticity was estimated at ٠.٩٥, ٠.٠٢١ and ٠.٠١ respectively Means that an estimated ١٠٪ change in each of them has a significant change of ٩.٥٪, ٠.٢١٪, ٠.١٪ in the same direction, The most important factors influencing the quantity of fish produced were the area of the farm and the amount of organic manure, where the production elasticity was estimated at ١.١, ٠.٠٣٧, respectively, which means that the change is estimated ١٠ % In each of them have a significant change of ١٠.١٪, ٠.٣٧٪ in the same direction.

Chapter٣ discuses with the statistical estimation of the cost functions and the estimation of the parameters of the productive costs of the productive farms, The sample of the study shows that the optimum size is less than ١٠ feddans at the center of Edco ١٧ tons and the maximum size is ٣٢.١٣ tons, While the maximum size of the profit was ٥٤.٩ tons. The average size of the regular category was less than ١٠ feddans at Kafr El Dawar Center with ١٧.٤٦ tons, while the maximum size of the profit was ٤٢.٧ tons. ١٠ feddans at the center of Kafr El Dawar about ٤٤.٧ tons while the maximum volume of profit was ٥٨.١٤ tons.

As for the semi-intensive type, the optimum size was estimated at less than ١٠ feddans at the Edco Center at ٢٨.٨٦ tons, while the maximum size of the profit was ٥٠.٤٨ tons. The optimum size of the largest category of ١٠ feddan at the Edco Center was estimated at ١١٣ tons, for a profit of ٤٢٦.٥ tons. The optimum size was estimated to be less than ١٠ in Kafr El Dawar. The optimum size was ٣٤.٤٣ tons, while the maximum volume

was ٥٧.٦٣ tons. The optimum size of the largest category of ١٠ acres at Kafr El Dawar Center was estimated at ٩٣.٤١ tons, while the maximum volume of profit was ٢٩٢, ٥٠ tons.

The fourth chapter discuses with the productivity and economic efficiency of fish farming for the sample of the field study for the ٢٠١٧ season for the cities of Edco and Kafr El-Dawar in El-El- Beheira Governorate according to the patterns and productive categories of both centers. ٨٦ thousand pounds, ١١٠٨.٧ thousand pounds, average Fdani ٨٦.٥٢ thousand pounds and the net profit is ١٠٩,١٦ thousand pounds with an average net return of Fdani ١٨,١٤ thousand pounds, ٤٠٠,٦ thousand pounds with an average net return Fadani ٣١,٢ thousand pounds , For the lower and more than ١٠ acres respectively. As for the yield of the investor, it was found that the calculation of the yield of the fish invested in the fish farms in the research groups studied showed that it was about ٠.٢٧ and ٠.٥٧ respectively in favor of those farms.

As for the semi-intensive system at the lowest and more than ١٠ feddans at the center of Idco, it was found that the average value of production, ٨٦٦,٦٦٥ thousand pounds with an average Fadani ١٣٣,٣ thousand pounds, ٢٩٣٩,٩٩١ thousand pounds with an average of ١٣٤,٥٩ thousand pounds and a net yield of ٣٦٦, ٢٧ thousand pounds with an average net return of Fdani ٥٦,٤ thousand pounds, ١٢٧٩.٧٩ pounds with an average net return Fdani ٥٨.٦١ thousand pounds, respectively. In the study of the yield of the finite investor, it was found that in calculating and estimating the yield of the fishery invested in the fish farms in the research groups studied, it was found to be about ٠.٧٣, ٠.٧٧ respectively in favor of those farms.

A study of production efficiency measures at Kafr El Dawar Center shows that the average value of production is ٣٣٧.٦٥ thousand pounds with an average of ٧٩.٤ thousand pounds,

١٢٥١.٦ thousand pounds with an average of ٨٨,٨ thousand pounds and a net yield of ٥١.٧٣ thousand pounds, Net revenue of Fdani ١٢,٢ thousand pounds, ٤٠٥,٩ thousand pounds with an average return of Fdani ٢٨,٦٤ thousand pounds, for the ordinary pattern of the lowest and more than ١٠ acres, respectively. As for the yield of the investor, it was found that the calculation of the yield of the fishery invested in the fish farms in the research groups studied showed that it was about ٠.١٨, ٠.٤٧, respectively, in favor of these farms.

As for the semi-intensive and low-grade system and more than ١٠ acres in the center of Kafr El-Dawar, it was found that the average value of production ٨٧٧,٥٦٦ thousand pounds with an average Fdani ١٣٢,٩٤ thousand pounds, ٢٨١٤,٢١ thousand pounds, average Fdani ١٣٥,٧٤ thousand pounds, , ٤٨ thousand pounds with an average net return of Fadani ٤٩.٥٤ thousand pounds, ١٠٨٠,٢٣ thousand pounds with an average net return of Fdani ٥١,٩١ thousand pounds, respectively. As for the yield of the investor, it was found that the calculation of the yield of the fish invested in the fish farms in the research groups studied showed that it was about ٠.٥٩ and ٠.٦٢ respectively in favor of those farms.

Chapter five discuss the most important indicators of marketing efficiency for the most important fish species in the province of El- Beheira indicate that the distribution of the consumer's fairy that the average share of the product of the consumer fairy of tilapia in the field research sample in the El-Beheira in ٢٠١٧ was about ٨٣.٧٧٪ while the average share of the wholesaler The retailer about ٢.١٩٪, ١٤.٠٤٪ respectively of the consumer fairy, While the average share of intermediaries of the consumer fairy for tilapia fish is about ١٦.٢٣٪. It was also found that the average share of the product of the consumer pie of the boury fish in the field research sample in the governorate of El-Beheira during the year ٢٠١٧ was about ٨٩.١٠٪ while the average

share of the wholesaler and retailer was about ١.٧٨٪, ٩.١٢٪ respectively Of the consumer's fairy, while the average share of the consumers of the consumer fairy for the fish Albori about ١٠.٩٠٪. It was also found that the average share of the product of the fairy consumer of the fish Altobara in the field research sample in the province of the El- Beheira in ٢٠١٧ was about ٨٨.٥٦٪ The average share of both the wholesaler and the retailer was about ١.٦١٪, ٩.٨٢٪ respectively of the consumer fairy, while the average share of the intermediaries of the consumer fairy for the fish of the brick is about ١١.٤٤٪.

The estimated marketing efficiency of tilapia, boron and lobster fish was estimated to be about ٧٨.٤٢٪, ٨٦.٠٤, ٨٥.٠٨٪, indicating the high marketing efficiency of these varieties.

Recommendations

In the study of the most important problems faced by fish producers in the province of the El-Beheira, the study recommends the following:

١- Expanding in the establishment of cooperative societies for the owners of fish farms representing them and defending them and providing them with all the inputs of production at low prices and coordinating with the General Authority for Fisheries Development to solve their problems.

٢- The interest in providing credit facilities to fish farms owners through the provision of loans with a simple interest and soft guarantees, especially that these projects proved the feasibility of the effectiveness of investment.

٣- Activating the role of the Agricultural Extension Service and supplying it with sufficient numbers of specialists and training specialized guides in the various aquaculture fields to solve their problems and implementing training courses and building guidance programs for fish farms owners to upgrade the adoption of technical innovations for fish farming.