

Sectoral Approaches In Tourism and Aquaculture In Turkey

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Abstract — In many countries, usage of the coastal zones for tourism and aquaculture activities has been a long term problem which turns to a case under dispute for these two business sectors. Discussions on the mutual negative impacts have been started from the second half of 1900 and continuously remaining.

Amount of aquatic products supplied from fishing activities has been dramatically decreasing day by day due to the reduction of the habitats and pollution occurring both in Turkey and the rest of the world. This dramatic decrease lead to an increase in aquacultural activities.

In this paper, we discussed the mutual problems between these two different sectors and suggested possible solutions to resolve the problems by considering the recent developments in both sector.

Key words — Aquatic products, pollution, tourism

I. INTRODUCTION

Tourism lands have been invaded with the spread of world aquaculture production sites depending on the developments in terrestrial and marine aquaculture systems that is claimed to be the source of pollution. This conflict between these two sectors has been discussed since the second half of 1900s in many countries.

This issue, which has been kept up to date in our country, has been dealt with in order to discuss whether both sectors can take part in the same pot.

II. THE PERSPECTIVE OF FISHERIES

In our country, fisheries has decreased due to some reasons such as pollution and narrowing living spaces in recent years. The capture of fishery product has decreased 19.2% in 2014 according to released data of Turkey Statistical Institute [1]. It is estimated that this decrease will continue during the following years. The fisheries sector which supplies most of the of protein requirement despite of increasing population tries to close the gap through aquaculture. Hence, it has been reported that the aquatic products obtained from aquaculture has increased nearly 1%.

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There are 8333 km marine coast and can be used as a aquaculture production area of 178.000km long river, approximately 200 (surface area 200.000ha) natural lake and 3444km² dam lake in Turkey [7]. It has been occurred that greater use of these areas for aquaculture production is inevitable. According to the released data, aquaculture production is about 145 million tonnes per year all over the world and 45 million tonnes of this production has been obtained by only aquaculture facilities [4]. Until 2030, the amount of aquatic product obtained from aquaculture is expected to exceed 80 million [10]. In our country, it has been expected that share of aquaculture would exceed by 50 % in 2023 [2]. At the beginning of 2000s, fish consumption obtained from aquaculture has preclude in contrast with derived from fishing in France [11]. Looking at the historical development of aquaculture stretching back to B.C. 4000s is one of the oldest food acquisition deal. According to estimates of WHO in 2025, the world population would exceed 8 billion [5]. It has been discussed that natural source would be disappear fastly in parallel with this rapid increase. Experts have emphasized that the global food production must be duplicated by 2050s [12].

What should be done to be the complementary or minimally affected sectors for both sectors that indispensable for our economy of country? In natural area although approximately 1 million eggs while becoming one egg or sperm could fish individuals, while aquaculture is high so you can not take these figures comparison (hatchery 30%, in growing cage 80%) [9]. The fish, which has an undisputed place in the human nutrition, has appeared to be inevitable for obtain through aquaculture in our country that have the total coastline of 8330km and 154000km² of the total continental shelf. To date, approximately 15 % of total aquatic products have been obtained through aquaculture (the freshwater and marine) in our country. It has been noticed that production of our aquatic products is an important export item for our country, as well as creating an employment opportunity.

III. THE PERSPECTIVE OF TOURISM

After a brief mention of the importance of fisheries if we will take a look at the tourism sector;

It has been known that travel history has been initiated by Sumerian in 4000 B.C. and also Ancient Egyptians has made a visit to the pyramids and soil in 3000 B.C. To date, tourism sector with an old past, plays an important role in the formation of the balance of payments by the foreign exchange

income that it provides and also makes contribution to the national giants. According to the released data in 2014, the number of international tourists all over the world grew 4.4% when compared to the previous year and reached a total of 1.135 million tourists. International tourism receipts reached an estimated US \$ 1.5 trillion with an increase of 3.7% (UNWTO, 2014). Our country is still the 6th country in tourism sector which attracts the most tourists in the world and entertain 36,244,632 tourists in 2015 [13].

The importance of clean and natural environmental values in terms of tourism is indisputable. Likewise, aquaculture and tourism sector are in common expectation at this point. In 2015, Turkey with its Blue Flag-certified beaches has ranked second in the world.

Those who engaged in tourism have suggested that especially the culture of caged fish produces organic pollution due to its close proximity to the shore and leads to image impairment.

However, those who deals with the aquaculture would like to limit regional tourism for efficient use of natural resources and to consider the aquaculture areas when tourism areas are identified. They have also expected that these request should be reported in EIA (Environmental Impact Assessment).

After this brief description, the fact that the aquaculture and the tourism sector actually support each other would be beneficial in both sectors. The fish farmers would be provide fresh and healthy products to the tourists who wants to consume fish. While this situation is regarded as the potential of the customer for fish farmers, it will be the customer satisfaction for the tourism professional.

IV. CONCLUSIONS AND RECOMMENDATIONS

Both terrestrial and marine intensive fish farming have caused wastes in reasonable quantities that create environmental pollution. The majority of this pollution occurs when nitrogen-based wastes are treated with gaita and urine at the result of the digestion of feed that consumed or not consumed by fish. They accumulate in vicinity of the production facilities and the immediate surroundings in sediment. In addition, some medicaments used for fish health are also included in the sedimentation. This pollution is completely local. The sediment layer is oxygen-free and it leads to the formation of sulfur compounds.

According to the result of the study conducted in 1989, amounts of nitrogen and phosphorus thrown into the Baltic Sea less than 1% of the total nitrogen and 3.6% of total phosphorus are due to aquaculture [6].

Although some of the pollution is local, some of the necessary precautions list to reduce the losses are as follows;

The areas to be cultivated should be mostly in offshore or chossing coastal areas where water circulation is very good. Furthermore, It would be beneficial if the government support premiums to offshore system.

Attention should be paid to the fact that the packaging materials used in fish meal production and marketing do not consist of pollutants and the use of more natural substance should be encouraged. Required inspections should be continuous.

Polyculture possibilities should be explored, as the example of nutrient elimination in the culture of mussels and some Salmonid species.

Filtration and vacuum methods should be used to remove solid substance. Resirculating systems also play an important role, especially in inland aquaculture.

The training of all staff responsible for production would reduce the pollution load because it would be prevent over feeding.

Legal arrangements should be considered with the participation of different professional group without losing time.

If appropriate and indispensable areas are identified in terms of aquaculture, tourism activities and investments should be limited in here. Rational use of resources should be essential in determination of these areas. Aquaculture sites and beaches, marine sports areas and field of vision should be identified with geographic information systems (GIS) and spatial databases should be established. Tenerife (Canary Islands, Spain) is a good example for sharing the borders of both sectors using GIS [8].

Agriturism should be encouraged in areas where endemic species exist or where biodiversity may be of interest. Some countries have taken this kind of tourism to their orders [14].

Provided that the measures suggested briefly above are taken, it is believed that the aquaculture and tourism sectors will take place in the same pot in the rational and effective use of the resources of our country.

REFERENCES

- [1] Anonymous. www.tuik.gov.tr/PreHaberBultenleri.do?id=18731, 2014.
- [2] Anonymous. Dünya Gıda Dergisi, 2015 2-58-59
- [3] Batu Akdeniz Kalkınma Ajansı 2012., www.baka.org.tr/.../1357649435SU-URUNLERI-RAPORU
- [4] FAO. (2014) www.fao.org/fishery/statistics/software/en].
- [5] K. Van Leeuwen. Too little water in too many cities. Integrated environmental assessment and management, 2015, 11(1), 171-173. <https://doi.org/10.1002/ieam.1596>
- [6] M. Enell, and H. Ackefor. Development of Nordic Production in Aquaculture and Nutrient Discharges into Adjacent Sea Areas. Aquaculture Europe Magazine, 1992, 16:6-11.
- [7] N. Aksungur and Ş. Firdin. Su Kaynaklarının Kullanımı ve Sürdürülebilirlik. SUMAE YUNUS Araştırma Bülteni, 2008, 8:2.
- [8] O. M. Perez, T. C. Telfer, and L. G. Ross. Use of GIS-based models for integrating and developing marine fish cages within the tourism industry in Tenerife (Canary Islands). Coastal Management, 2003, 31(4), 355-366. <https://doi.org/10.1080/08920750390232992>
- [9] R. Subasinghe, D. Soto and J. Jia. Global aquaculture and its role in sustainable development. Aquaculture, 2009, 1: 2-9. <https://doi.org/10.1111/j.1753-5131.2008.01002.x>
- [10] S. Altun. Dünya Gıda Dergisi, 2015, 2-54,56.
- [11] S.Girard, P. Paquette. The French market for fresh fish: an opportunity for farmed cod? XV EAFE Conference, Ifremer, Brest, France, 2004, 15-16 May 2003: 8p.
- [12] T. Dyson. World food trends and prospects to 2025. Proceedings of the National Academy of Sciences, 1999, 96(11), 5929-5936. <https://doi.org/10.1073/pnas.96.11.5929>
- [13] Türkiye Otelciler Birliği. <http://yigm.kulturizm.gov.tr/TR,9853/istatistikler.html> UNWTO(2014). http://cf.cdn.unwto.org/sites/all/files/pdf/unwto_annua_l_report_2014.pdf
- [14] Z. G. Adrian, T. R. M. Magdalena, S. Ionica and T. Adrian. The Agritourism Potential of Aquaculture Farms in Romania. International Journal of Sustainable Economies Management (IJSEM), 1(3), 2012, 58-75. <https://doi.org/10.4018/ijsem.2012070106>