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Fishing activities in Turkish Republic of Northern Cyprus.

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ABSTRACT

Although it is a renewable natural biological source, fisheries is not endless. Due to fish are able to go different aquaculture areas or captured by numerous countries, fisheries is a part of a common heritage. For this reason, when fishing activities are not controlled, it may cause a considerable reduction in stocks and thus there should exist an obligation to enforce and sustain common rules with the collective management and/or planned activities for fishing sources. The national legislations related to fishing activities in Turkish Republic of Northern Cyprus (TRNC) are discussed in detail in this study. In addition, existing and potential marine sources are also assessed on the viewpoint of mariners. This study presents a five-year statistics of fishing and aquaculture as well as a fishing fleet in TRNC. Finally, this study clarifies some applicable recommendations to increase the fishing activities in TRNC by considering to Ecosystem management.

Introduction

RNC Department of Animal Husbandry is the authority responsible for arranging all kinds of fisheries activities. During the office performs these activities, it benefits from Famagusta, Kyrenia, Iskele and Güzelyurt District Livestock Offices and Directorates affiliated with Ministry of Food, Agriculture and Energy and other authorities. The legal justification of Fisheries Regulation numbered as 27/2000 was published on the year of 2000.

These are;

- Amateur (Sports) Fishing Legislation
- Marketing Certain Fisheries Legislation
- Regulation on Fishing Port Operation and Administrative Principles
- Regulations for Rules Regarding Fisheries Information Records
- Regulation on Fisheries Retail Sales Places
- Regulation on Permission for Surrounding Nets
- Aquaculture Legislation
- Regulation on Monitoring and Auditing Fish Farms
- Rules regarding Project Design for Artificial Reefs, Design, Implementation and Monitoring.

The legal justification of Fishing Ships (Registration, Sales, Transfer and Pledge) Law numbered 34/1975, 52/1988 is “Fishing Ships Regulation”.

Overview of Fishing Activities in TRNC

Considering the usable sources, 67% of TRNC’s land borders consist of shorelines. 50.6% of total island shores have fishing area of 8780 km^2 (Atun, 1999). It can be stated that a serious potential is available for improvement of the fishing sector, if total 21 lakes (ponds) and offshore waters of Mediterranean Sea out of 12 nautical miles are considered.

Due to socio-politic and socio-economic status of the country, comparing to the rapid development of technology on the world, scientific researches and technological

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Table 1. The number of the fishing fleet according to years (Department of Animal Husbandry Office Activity Reports, 2012).

	2007	2008	2009	2010	2011
Commercial Ship	442	422	437	448	454
Active Ship	269	288	295	300	305
Fisher	388	381	340	410	414
Amateur Ship	207	227	242	281	320
Amateur (Sole Owner)	205	217	220	263	313
Amateur (Not sole owner)	138	146	157	221	101
Spear Fishing Permission	306	384	208	368	346
Total	1955	2065	1899	2291	2253

developments are ignored (Benli et al. 1999; Benli et al. 2010). Thus, fishing products are affected from this negative case (Atun, 1999; Benli et al. 1999; Benli et al. 2010). Fishing in TRNC might be described and highlighted as below:

- It can be defined as a typical Mediterranean Shore Fishing performed with artisanal methods.
- Individual marine origin productions based on coastal competition without organizing and completely un-audited annual production is estimated as 450-500 tons.
- Some of capture are consumed as household needs and remaining is presented to market at the fishing area.
- Among 350-400 fishers working in this sector, some of them work for hobby, some of them for a second work or revenue and just 30-40% of them accept this job as their profession.
- Alternative fishing methods such as joint fishing operations are not available among fishing vessels, yet.

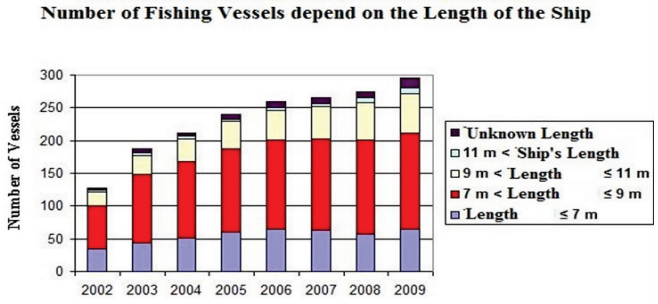

Figure 1. Classification of the fishing vessels (Department of Animal Husbandry Office Activity Reports, 2012).

Table 1 indicated that fishing and livestock activities considering fleet's existing status, production level and imports/exports. There is a low increasing in fishing activities based on these data, and it's not sufficient numbers considering the potential of Island.

According to TRNC Department of Animal Husbandry Office, the number of fishing vessels is increased as shown in Figure 1. On the other hand, the increment in dimensions of the vessels is not sufficient and the percentage is same classified by ship's length.

Table 2. Quantity of fishing and aquaculture production (Department of Animal Husbandry Office Activity Reports, 2012).

Year	Fishing (ton)	Aquaculture (kg)		
	Declared	Sea bream	Sea bass	Total
2010	176	127.033	15.866	142.899
2009	157	131.315	41.110	172.425
2008	215	147.920	9.710	157.630
2007	186	211.000	-	211.000
2006	162	33.350	-	211.000
2005	165	-	Tuna	346.192
2004	130	-	Tuna	68.575
2003	-	-	Tuna	150.743

Table 2 indicated the fishing quantity of capture and aquaculture production between 2003 and 2010. Import fishing data is given in Table 3. According to Table 2 and Table 3, it is obviously understood that the amount of needed fishing products is too much higher than obtained products at fishing and aquaculture. In addition, the amount of imported marine origin food between the years of the 1998 to 2008 is shown in Figure 2.

Table 3. Imported Fishing Products (Department of Animal Husbandry Office Activity Reports, 2012)

Year	Fresh (cooled) (kg)	Processed (kg)
2010	736.050	628.547
2009	611.192	573.916
2008	451.959	917.310
2007	440.604	788.684
2006	537.135	517.166

Export fishing data is shown in Table 4, and Figure 3 indicates the export of the total amount of the marine origin product between 2008 and 2009 according to Green Line Regulation (GLR; The Green Line Regulation entered into force on 1 May 2004. It defines the terms under which the provisions of EU law apply to the line between the areas of the Republic of Cyprus in which the Government of the Republic of Cyprus exercises effective control and the areas in which it does not. http://www.moi.gov.cy/moi/pio/.../report%2005.doc).

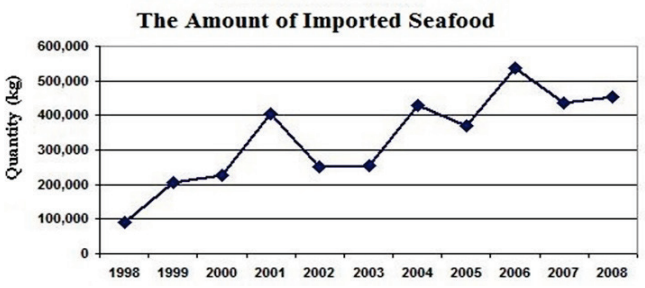

Figure 2. Seafood Import (Department of Animal Husbandry Office Activity Reports, 2012).

Table 4. Export Fishing Data within the scope of the Green Line Regulation (Department of Animal Husbandry Office Activity Reports, 2012).

	2008	2009	2010	2011
KG	20.053	60.728	91.408	113.210
TL	434.717	1.535.471	2.169.313	2.404.182

Results and Consideration

It is understood that there are some differences comparing with typical Mediterranean Shore Fishing when more detailed information is acquired from fishers and fishing vessel fleets of TRNC. The summary is listed as;

Fishing Activities:

- ✓ TRNC fishing vessel fleet (physical features/capabilities, purpose, usage and efficiency of capture media) is not convenient enough. The fleet consists of rather old boat.
- ✓ The ships are not designed which have the physical abilities to increase the fishing products in a unit effort.
- ✓ The fishing performance is under the expectations. Preferably, the near shore area is used for fishing (capture) in terms of quantity and diversity of supply is constrained by the amount.
- ✓ Fishing income does not go much beyond covering the costs.
- ✓ There are limited infrastructure and superstructure facilities. Supply is insufficient to affect the quality of the product. Seals, dolphins, interactions with marine life such as turtles are more. As a result of Pufferfish, fishing is severely adversely affected (Benli, 1999).
- ✓ Due to lacking of social, security, professional, organization, features such as marketing, socio-economic structure of the fishers are very weak.
- ✓ Mariner's environment is of limited freshwater, thus it reduces productivity.
- ✓ There is a less demand for marine origin food in the country.
- ✓ Young population does not take fishing as a profession.

Aquaculture

- ✓ The amount and diversity of the existing production is too low to qualify as an economic resource.
- ✓ The aquaculture in the country depends on foreign raw materials and logistics industry.
- ✓ There are available areas for production.

Ecosystem Management

- ✓ TRNC and coastal ecosystems with high biodiversity and low biological productivity can be considered as a typical Mediterranean case, which makes it clear that properties are available (Benli, 2010).
- ✓ On the other hand, due to low rainfall values, the island's fresh water reserves are poor. These fresh water reserves also limit the relationships. Limited fresh water-sea interactions rapidly spread on the island because of the activities with the use of coastal areas affected negatively which was almost completely lost.

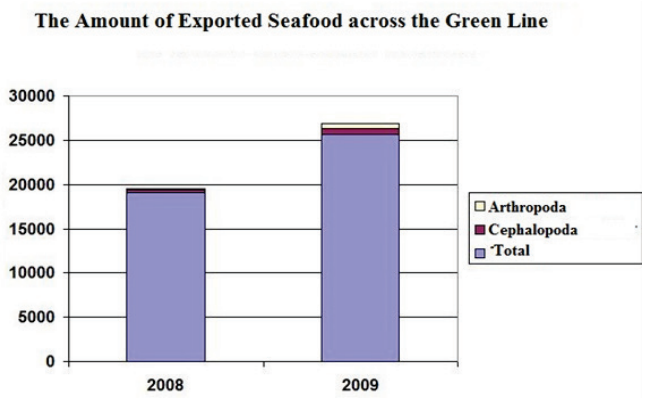

Figure 3. Marine origin exported food (Department of Animal Husbandry Office Activity Reports, 2012).

- ✓ Because of the freshwater not associated with any difference of both chemical parameters such as chlorophyll and nutrients, and biological parameters such as plankton, benthos biomass species compositions, it means that there are big challenges for the young species in the coastal ecosystem in terms of reproduction, development, feeding and finding sheltering area.
- ✓ Steams, terraces, reefs and sea grass meadows of *Posidonia oceanica* privileged ecological roles such as habitats of fish-breeding-housing due to feeding areas are extremely important in terms of stock.
- ✓ On the other hand, under the protection of the global Mediterranean monk seal, shelter for species such as sea turtles / breeding areas in the country, this kind of interaction increases the size of the fishing seriously. Biological diversity of protected area management guarantees the continuation of the development, which is to be appropriate.
- ✓ Pufferfish (*Lagocephalus sceleratus*), bluespotted cornetfish (*Fistularia commersonii*) in the Mediterranean, the new spans two indo-pacific origin species and natural predators removed to the new ecosystem, especially two active predators are fed with the puppies and young fish. Romp mouth and development of reef in coastal areas consisting of Cyprus to be occupied is a serious problem for fish stocks.

Recommendations: Fishing and Environment Integration

Fishing Activities and Aquaculture

- ✓ The incentives and countermeasures should be taken by targeting the fishing activities. The large pelagic (tuna, akya (Lear fish), bonito, albacore, etc.) and demersal fish (mullet/ Mugilidae, bakalyaro, red sea bream, etc.) with the modern equipment (particularly suitable crane and cold storage systems and electronic communication devices) with a enabled boats (suitable for fishing nets) between the

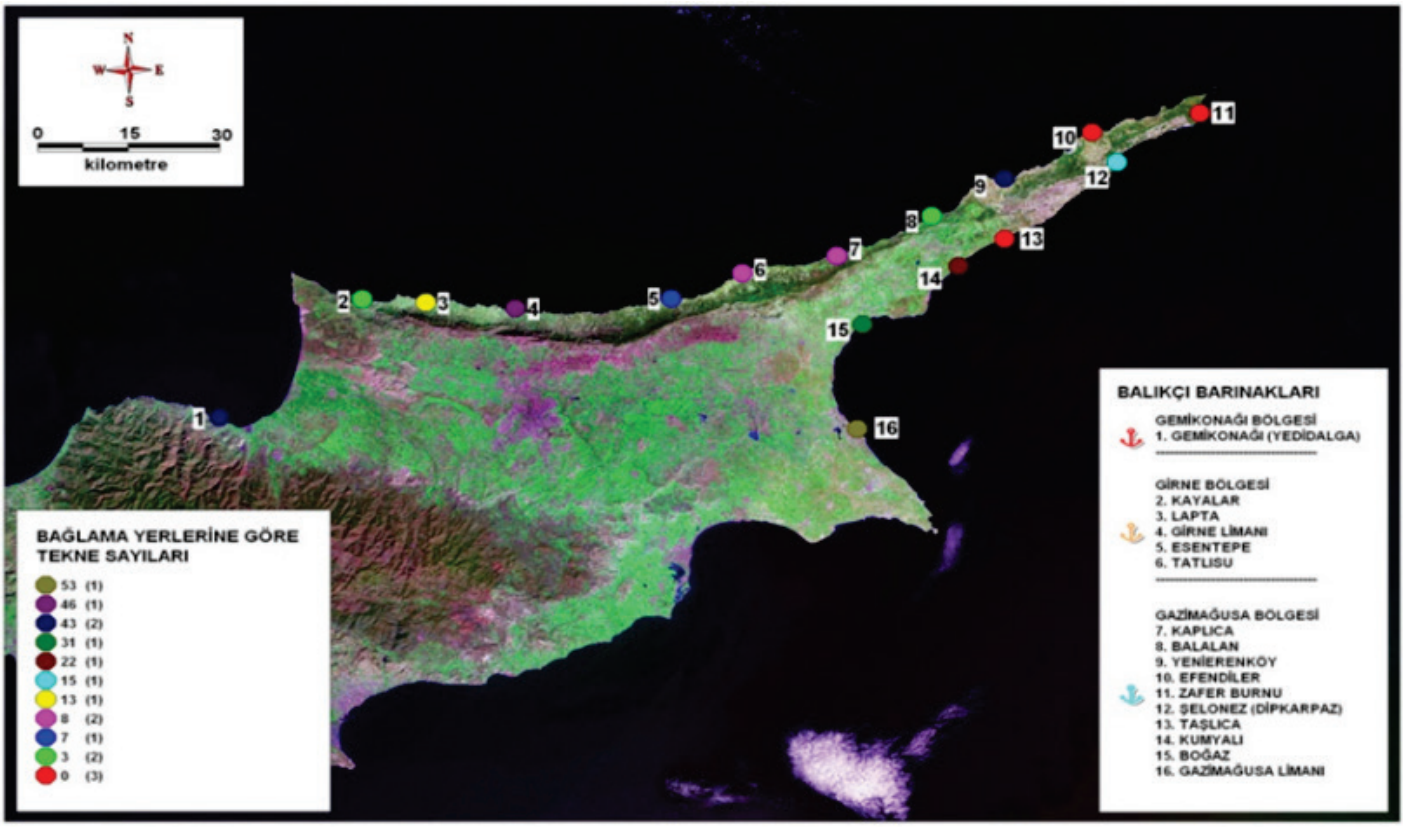

Figure 4. Fishing ports and mooring locations (Department of Animal Husbandry Office Activity Reports, 2012).

depths 50-500 m.

- ✓ Time limits should be available for fishing that will be held in shallow waters.
- ✓ According to sea conditions, both the fishing boats and minimum standards regarding fishing tools must be re-considered and re-regulated.
- ✓ Infrastructure of fishing pier/ports and review of standards (office, cold storage, berth, maintenance-repair, etc.) should be identified and renewed.
- ✓ Fishing licenses, basic boating, fishing techniques and training courses might be held on environmental ecology given to individuals who succeed as a result of a legal arrangements should be made to ensure and implemented by determining a milestone.
- ✓ In order to improve socio-economic conditions of fishers activities with legal and administrative requirements of professional organizations (such as mandatory membership) should be considered (e.g. chambers, associations, etc.).
- ✓ Aquaculture, both in terms of supply of raw materials and logistics to be dependent on foreign countries, as well as having a limited market in the country in terms of contribution to the national economy as a sector is very limited. On the other hand, keeping the production at minimum capacity, and keeping the increasing capacity depends on export opportunities to the Southern part of Island; this is commensurate with the arranging and production in the country's ability, reserves and economic contribution to the extent possible to maximize in terms may be useful.

Ecosystem Management

- ✓ The research for pufferfish (*Lagocephalus sceleratus*) and bluespotted cornetfish (*Fistularia commersonii*), that adversely affect the fishing and grow rapidly in population, should be encouraged. In addition, appropriate measures for the protection of the ecosystem balance should be considered.
- ✓ Dolphins, caretta caretta and mediterranean seals are important for TRNC as tourism, diving activities with other coastal activities; so, the habitat protection should be protected by proper measures.
- ✓ The special habitats (*Vermitid terrace*) and the reefs along the coast should be effectively managed within the framework of a plan based on their classifications.
- ✓ In the areas where sea grass meadows spread, boat hoeing should be done in certain areas with vault systems, and fishing net should be limited, on the other hand spear fishing should be encouraged.
- ✓ Top level applications should be considered as; aquaculture should not be installed shallower than 50 meters, the systems should be off-shore, the cage areas' flow regimes should be identified, and at least 5 times the area should be leased for the purpose of fallow as relocation planning for each cage space.

Conclusion

Applicability of above-mentioned suggestions requires coordination between central and local administrations. For this reason, the application is only possible under

integrated area management principles. This means that the assessment of all legal, administrative, financial, etc. related to management of all activities in the area, will make it possible to have coordination between management units and require new legal arrangements based on technical issues. According to the fishing data obtained by the TRNC Department of Animal Husbandry Office, although the fishing and aquaculture productivity is not high, 90% of the products are exported to foreign countries. On the other hand, as a result of a low productivity in fisheries, a lot of fishing imports have been made into TRNC. It can be clearly understood that the main reason of this financial issue is the more cost effectiveness of the fishing products (less price, less tax, etc.) than other countries. As a result of this, foreign countries prefer to provide fisheries from TRNC rather than produce. Finally, there is a valuable resource from fishing and aquaculture in TRNC not only for economy but also for social life.

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