Hayri Deniz

Kilic Seafood Production Export-Import Inc.
Turkey

An expert in mariculture management, offshore farming and integrated coastal management, Dr. Hayri Deniz is director of overseas investment and international relations for Kilic Seafood Co., Kilic Holding.

He previously worked as an aquaculture researcher and director for several divisions of the Turkish Ministry of Agriculture and Rural Affairs.

Deniz served as a national coordinator for marine aquaculture zoning and sustainable development, and had administrative duties in several international fisheries organizations.
The Success Story Of Turkish Aquaculture

Hayri Deniz, Ph.D.
KILIC Holding – Kilic Seafood Company
SUCCESS STORY OF TURKISH AQUACULTURE

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KILIC Holding – Kilic Seafood Company

GOAL 2013, 7-10 October 2013, Paris / FRANCE
### AQUACULTURE POTENTIAL

<table>
<thead>
<tr>
<th>Resources</th>
<th>Numbers</th>
<th>Area (ha)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Natural Lakes</td>
<td>200</td>
<td>906.118</td>
</tr>
<tr>
<td>Dam Lakes</td>
<td>206</td>
<td>342.377</td>
</tr>
<tr>
<td>Man-made Lakes</td>
<td>952</td>
<td>27.032</td>
</tr>
<tr>
<td>Seas (total surface)</td>
<td>4</td>
<td>24.607200</td>
</tr>
<tr>
<td><strong>TOTAL</strong></td>
<td><strong>1.362</strong></td>
<td><strong>26.000.000</strong></td>
</tr>
</tbody>
</table>

Additional, 33 rivers 177,000 km in length and coastal line 8.333 km

Turkey has 2nd longest coast line in the Mediterranean
<table>
<thead>
<tr>
<th>Year</th>
<th>Total Production (tons)</th>
<th>Aquaculture (tons)</th>
<th>Contribution of Aquaculture (%)</th>
</tr>
</thead>
<tbody>
<tr>
<td>2002</td>
<td>627,847</td>
<td>61,165</td>
<td>9.74</td>
</tr>
<tr>
<td>2003</td>
<td>587,715</td>
<td>79,943</td>
<td>13.60</td>
</tr>
<tr>
<td>2004</td>
<td>644,492</td>
<td>94,010</td>
<td>14.59</td>
</tr>
<tr>
<td>2005</td>
<td>544,773</td>
<td>118,277</td>
<td>21.71</td>
</tr>
<tr>
<td>2006</td>
<td>661,991</td>
<td>128,943</td>
<td>19.47</td>
</tr>
<tr>
<td>2007</td>
<td>772,323</td>
<td>139,873</td>
<td>18.11</td>
</tr>
<tr>
<td>2008</td>
<td>646,310</td>
<td>152,186</td>
<td>24.00</td>
</tr>
<tr>
<td>2009</td>
<td>623,191</td>
<td>158,729</td>
<td>25.00</td>
</tr>
<tr>
<td>2010</td>
<td>653,080</td>
<td>167,141</td>
<td>26.00</td>
</tr>
<tr>
<td>2011</td>
<td>703,545</td>
<td>188,790</td>
<td>27.00</td>
</tr>
<tr>
<td>2012</td>
<td>644,852</td>
<td>212,410</td>
<td>33.00</td>
</tr>
</tbody>
</table>
FISHERIES PRODUCTION IN 2012 (tons)

(644,852 tons)

Aquaculture: 212,410

Fishey: 433,442
# Aquaculture Production by Sub-Sectors in 2012

<table>
<thead>
<tr>
<th>Sub-Sector</th>
<th>Production (tons)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Inland Aquaculture</strong></td>
<td>111.557</td>
</tr>
<tr>
<td>Trout</td>
<td>111.335</td>
</tr>
<tr>
<td>Carp</td>
<td>222</td>
</tr>
<tr>
<td><strong>Marine Aquaculture</strong></td>
<td>100.857</td>
</tr>
<tr>
<td>Trout</td>
<td>3.234</td>
</tr>
<tr>
<td>Sea bream</td>
<td>30.743</td>
</tr>
<tr>
<td>Sea bass</td>
<td>65.512</td>
</tr>
<tr>
<td>Other</td>
<td>1.364</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>212.410 tons</td>
</tr>
</tbody>
</table>
# Fish Farm Numbers and Capacities in 2012

(by 1st July 2012)

<table>
<thead>
<tr>
<th>Farm Type</th>
<th>Number</th>
<th>Capacity (tons/year)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inland fish farms</td>
<td>1,883</td>
<td>193,420</td>
</tr>
<tr>
<td>Marine fish farms</td>
<td>408</td>
<td>242,322</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>2,291</strong></td>
<td><strong>435,742</strong></td>
</tr>
</tbody>
</table>
AQUACULTURE GROWTH TREND IN THE PAST DECADE (tons)
REGULATIONS RELATED AQUACULTURE

✓ Fisheries Law (MoFAL - 1982)
✓ Environmental Law (MEU - 2006)
✓ Aquaculture Regulation (MoFAL - 2004)
✓ Environmental Impact Assessment Regulation (MEU - 2002)
✓ Regulations Governing the Control of Water Pollution (MEU - 1983)
✓ Notification on Site Selection (MEU - 2007)
✓ Communiqué on the Monitoring of Marine Fish Farms (MEU - 2009)

MoFAL: Ministry of Food Agriculture and Livestock
MEU: Ministry of Environment and Urbanism
PRIORITIES

- Implementation of environmentally sustainable aquaculture practice
- Integration of mariculture in coastal zone management plans
- Developing of environmental monitoring for aquaculture
- Diversification of species for aquaculture and restocking
- Improvement of market channels
- Developing of organic aquaculture
- Conservation of endangered species
- Improve the international cooperation
FUTURE AIMS

- **Production**
  
  2023  
  500,000 ton

- **Export**
  
  2023  
  1 billion US $

- **Consumption**
  
  2023  
  16 kg
The new mariculture zones entered into force as part of the overall coastal zone plans and management in 2008.
Marine aquaculture was started with sea bream and sea bass in closed and sheltered bays by using traditional, small size wooden cages in 1985.

Problems have been mainly occurred between mariculture and other sectors such as tourism, environmental protection, maritime, recreation etc. in Aegean and Mediterranean coasts which were already established most of sea bass and sea bream farms.

First marine aquaculture zones were determined in 1988 and were provided moving of sea farms in these zones.
NEW RULES AND PERSPECTIVES

- However, current allocated zones had been started deficient for new applications because of rapid developments of aquaculture technique; cage-made, fish feed technology.

- Therefore, studies on determination of aquaculture zones were reviewed several times because of the circumstances of aquaculture which were developed and alternated.

- After new Environmental Law in 2006, new aquaculture zones were determined once again with consensus of all related institutions according to the current regulatory provisions and inshore marine farms were moved to new allocated offshore mariculture zones.
Aquaculture sector faced several serious problems and conflicts with the other sectors using same seas and coastlines which are also suitable at same time for other coastal sectors by reason of advanced development.

Up to now, all progressed developments and encountered difficulties in the sector have been turned to advantage and restructuring themselves for either public bodies or private sector.

Recently, Turkish Government has developed a National Marine Aquaculture Development Plan (NMADP) to minimize conflicts and provide stable ground for the future growth of the aquaculture sector. To prevent impacts of the fish farms some measures were introduced with other stakeholders.
SUCCESSFUL SPATIAL PLANNING POLICY

✓ New regulations is into force and existing ones is amended which meet requirements and coherent with EU regulations.

✓ Aquaculture Legislation was amended and aligned with EU regulations including fish welfare in 2009.

✓ In addition, Notifications related site selection and monitoring for marine fish farms were put into effect 2007 and 2009 respectively.

✓ Eventually, all the parties realized that separate planning is not enough for sustainable management of sector and they decided to make integrated coastal plans by all stakeholders.
CONCLUSIONS

Although it is very young, there have been showed very important improvements in aquaculture sector:

✓ In 2002-2012, the increase on aquaculture production, as a volume was 247%.

✓ Turkey now has a 25% share of the European sea bream and sea bass market.

✓ Aquaculture was recorded fastest growing sector in Turkey in the past two years.

✓ Turkey is the 3rd fastest growing country in the World in the aquaculture.

✓ Turkey has occupied first place in trout and sea bass production, second place in sea bream among European countries.

✓ Approximately 25,000 people are employed in the sector.

✓ Latest developments in the aquaculture sector place Turkey in an important position both in the Mediterranean basin and among the European countries.
HIGHLIGHTS OF KILIC SEAFOOD COMPANY

- Leading regional aquaculture player with unique scale
- Vertically integrated and efficient platform with best-in-class operations
- Attractive sector dynamics
- Broad product portfolio
- Well-defined and executable growth strategy
- Strong and diversified geographic presence
- Proven track record of delivering top-line growth and profitability
- Experienced management and established corporate governance
LEADING REGIONAL AQUACULTURE PLAYER

- The leading aquaculture company in Turkey with a total capacity of 50,000 tons
- Core sea bass and sea bream businesses complemented by strategic trout and fast growing meager businesses
- Kilic Deniz constituted 29% and 12% of total Turkish sea bream and sea bass production in 2012, respectively
- Kilic Deniz accounts for more than half of the total juvenile capacity in Turkey with its capacity of 394 million units
- Significant biomass expansion achieved at the end of 2012 will result in substantial sales volume growth in 2014 without further considerable investment in juveniles and the need for marine merchandize fish
Kılıç Deniz has expanded its operations through new investments and capacity increases by implementing a fully vertically integrated business model.

Today, the vertically integrated operations extend from production of fish feed and juvenile fish to production of packaging boxes, processing and packaging of harvested fish.

Facilities are located in close proximity to each other, lowering logistics costs and making harvesting and processing flawless.

Flow of operations is tracked by the SAP system[^1] which was integrated in 2011.

Aqua Manager[^2] project has been launched and is expected to be up and running by June 2013. Aqua Manager optimizes the cage operations through accurate feeding and monitoring of biomass.

In addition to the fleet used in harvesting, Kılıç Deniz owns 3 large sea vessels to transport juveniles to Tunisia and other domestic players.

**Production span**
- Hatchery: 2 months
- Adaptation unit: 2 months
- Cages: 10-18 months (depending on species)

Notes:
1. The modules are: 1) material management, 2) product planning, 3) sales and distribution, 4) financial accounting, 5) controlling and 6) human resources.
2. An integrated ERP for cages, hatcheries and adaptation units.
Land based trout farm
Trout cage farm in dam lake
Offshore sea farming (sea bass & sea bream)