

## Country report from Turkey

Serpil SERDAR\*<sup>1</sup>

### General remarks on the grooved carpet shell clam fishery

Shellfish production in Turkey has been based on fishery from wild stocks and also production/collecting areas are classified into 3 three categories (similar in European Union) where are called A, B and C according to amount of *Escherichia coli* in 100 g shellfish flesh and intravalvular liquid. Nowadays, there are totally 32 shellfish production areas in Turkey and all of them are including category B, it means that less than 4,600 *E. coli*/100 g shellfish flesh in 90% of samples. Before marketing, these shellfish must be deputed, heat-treated or relayed to meet Category A requirement and the rest 10% must not be excess 46,000 *E. coli* in 100 g shellfish flesh and intravalvular liquid. The grooved carpet shell clam, *Ruditapes decussatus*, is distributed along the all coastline of Turkey except from the Black Sea. Furthermore, it has been collected mainly from the Aegean Sea, especially from the Izmir Bay and there are three monitored areas in the Izmir Bay and one region in the Candarli Bay. This species is commercially important in Turkey due to foreign trade. The first statistical data about collecting of clam (*Ruditapes decussatus* and *Venus gallina*) was recorded as 158 t in 1986 (Fig. 1). This amount had been increasing until 1994 and it reached to 31 869 t. From 1995 to 1998, production of clam decreased to lowest value to 3550 t in 1998. Production amount began to increase again in 1999 (3585 t), after that it was fluctuated until 2006 (TURKSTAT, 2006). Additionally, *Ruditapes decussatus* and *Venus gallina* were firstly recorded separately in statistical reports in 2006 and amounts of *Ruditapes decussatus* and *Venus gallina* were recorded 1 266 t and 48,344 t, respectively (Fig. 2). In 2007 and 2008, total

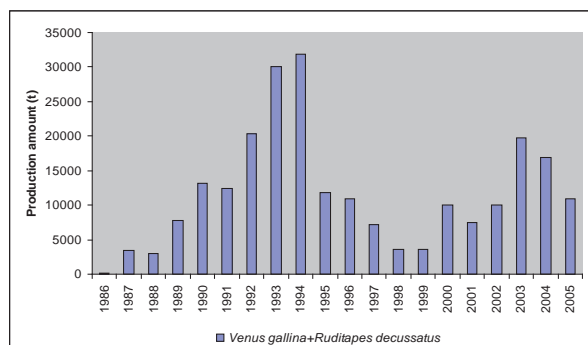


Fig. 1. *Venus gallina* and *Ruditapes decussatus* production in Turkey between 1986 and 2005.

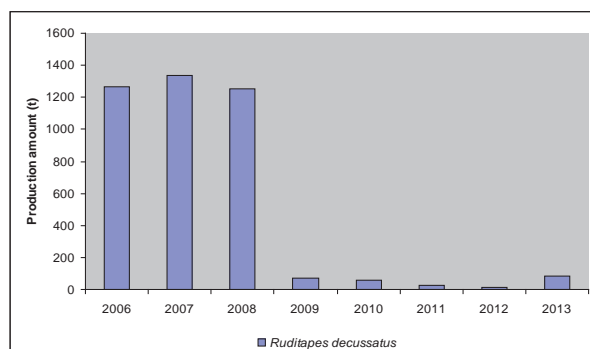


Fig. 2. *Ruditapes decussatus* production in Turkey from 2006 to 2013.

production of grooved carpet shell clam was the in similar with 2006. After 2008, this amount sharply reduced and it was collected 14.9 t in 2012. This value increased again in 2013 and production amount was determined 834 t (TURKSTAT, 2013). On the other hand, *Ruditapes decussatus* is native species along the Turkish coast but *Ruditapes philippinarum* is the foreign species and also it was firstly recorded in the both area which are Çanakkale (Dardanelles) Strait (2004) and in the Marmara Sea (2005) (Tuncer *et al.*, 2004; Albayrak, 2005).

At the end of 2014, four regions were determined for producing Manila clam in the Marmara Sea by Directorate of Provincial, Republic of Turkey Ministry of Food, Agriculture and Livestock (Fig. 3). It will be commercially collected from these areas in the near future.

#### Basic information on fishery

**Geography and geomorphological characteristics:** *Ruditapes decussatus* is distributed generally sandy-muddy area along the Turkish coast and production area is between 1 m and 1.5 m depth.

**Fishing method:** Fishers usually dive with air supply from surface (operating with from boat) and/or they collect clam using with shovel and sieve.

**Fishery management:** Shell size regulations (sieve mesh size must not be smaller than 24 mm), fishing closed season (collecting of grooved carpet shell clam is prohibited from May 15 to September 15).

**Standing stock assessment:** Statistical survey by local fishers.

#### Basic information on aquaculture

**Environmental characteristics:** There has not been

any aquaculture project for rearing grooved carpet shell clam but scientific studies approved that most of the lagoon areas in the Aegean Sea could be suitable for rearing of grooved carpet shell clam (Serdar and Lök 2007; Serdar *et al.*, 2007).

**Culture methods:** There is not any commercial size culture but scientific studies exhibited that net method could be used in the Izmir Bay for rearing clam seed especially using hard plastic net (Serdar *et al.*, 2007).

**Others:** As stated above, fishers usually collect clam from natural area by diving or using shovel-sieve, then they selected all clam by 24 mm sieve in land, remaining of clam under 24 mm are irregularly transferred and placed again in natural stock area for growing without project and controlled. This operation could be defined the hidden clam culture which are conducted for re-collection of clams by fishers and enhancement of natural stocks. On the other hand, scientific studies showed that reproductive activity (spawning stage) of grooved carpet shell clam is kept to continue throughout the year in the Izmir Bay where is very fruitful for growing natural population. But it needs fisheries management for sustainable production (Serdar and Lok, 2009; Serdar *et al.*, 2009; Serdar *et al.*, 2010).



**Fig. 3.** Production areas of *Ruditapes decussatus* (red color symbol), and planned production areas for *Ruditapes philippinarum* (green color symbol) in Turkey.

### Major constraints and countermeasures

**Habitat degradation:** Clam population decreased dramatically due to coastal landscaping activities in 1990's. Change of bottom substrata and water quality parameters drastically effected production of this species.

**Overfishing:** Over and illegal collection could be caused to decrease clam population in Izmir Bay.

**Diseases and parasites:** To date, there is no report of any disease in clam from routine monitoring.

**Climate change:** Chlorophyll, total particulate matter and salinity values have changed especially in lagoon areas. Additionally, salinity increases during the summer due to lack of rain and over evaporation.

**Others:** *Ruditapes decussatus* more sensitive species and grow relatively slower than *Ruditapes philippinarum*. As stated before, *Ruditapes philippinarum* is not native species, and there is no record for distribution of *Ruditapes philippinarum* in the Izmir Bay until 2015. However, the main preoccupation point is the spreading out of this species to the Aegean Sea and Izmir Bay due to dominant than *Ruditapes decussatus*.

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