Commercial shrimp landings of two penaeid shrimps in the main markets of Basrah Province, Iraq

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Abstract - Two penaeid shrimp species were found in the main fish markets of Basrah Province, *Penaeus semisulcatus* and *Metapenaeus affinis*. The quantities of the two species were recorded, the highest landings of *P. semisulcatus* in Al-Ashar market was $396 \pm 26$ kg during September, and the lowest during December ($159 \pm 16$ kg). In Basrah market, the highest landings was observed in July ($410 \pm 32$ kg), and the lowest was $200 \pm 22$ kg in January. As for *M. affinis*, the highest landings was $397 \pm 55$ kg in July at Al-Ashar market, and the lowest in December, which reached $205 \pm 19$ kg. In Al-Basrah market, the highest rate of landings was $597 \pm 68$ kg in July, and the lowest rate ($298 \pm 48$ kg) in November. The highest average monthly weight of *P. semisulcatus* was $80 \pm 7$ g during January and the lowest average was $40 \pm 6$ g in April. For *M. affinis* the highest average weight was $25 \pm 5$ g. in December and the lowest (12 \pm 6 g.) in May. The highest annual landings of *P. semisulcatus* in Al-Ashar market was 15.5 tones and in Al-Basrah market was 18 tones. While the highest annual rate of landings of *M. affinis* in Al-Ashar market was 12.7 tones and in Al-Basrah market 25.8 tones.

Key word: Shrimp, Landings , Basrah Markets.

Introduction

Shrimp is one of the most important marine products in the global markets, as the global production of shrimp reaches about six million tones, 60% of which come from fishing activities, equivalent to 3.4 million tones and 40% of breeding (FAO 2009). Iraq has a view on the Arabian Gulf with a coastline of 50 km in length (Ahmed and Hussain, 2000). Iraqi marine waters have importance in the multiplication of water resources such as fish and crustaceans (Bishop and Khan, 1991). Crustacean occupy an important part of the benthic fauna (Gibinkumar et al., 2012 ). The demand for shrimp consumption by the local population as food is increasing, and this has led to an increase in the exploitation of shrimp stocks, especially for the species that abound in our local environment, the most important of which *Penaeus semisulcatus*, *Metapenaeus affinis* and *Parapenaopsis stylifera* (Ali and Ahmed 2015; Ali et al., 2007). There are numerous activities of shrimp fishing in the Arabian Gulf, especially in Kuwait, Qatar, Saudi Arabia, Bahrain, Iran and Yemen (Price, 1975 ; Abdulqader 2002; Al-Yamani et al., 2004; Abdul-Wahab, 2005 and Al-Maslamani et al., 2007; Paighambari and Daliri, 2012; Kazemi et al., 2013). Ali (2001) recorded a number of species belonging to two different families, Penaediae and Palaemonidae and noted nine species of the first family and one species of the second family. *P. semisulcatus* and *M. affinis*, considered as the largest species that exploited in the fishing activities of Iraqi waters, the first species is mainly fishing in the marine waters, but the second species is fishing in the marine and inland waters (Salman et al., 1986). The current study aims to find a database on the quantities of shrimp offered in the local markets of Basrah Province and this helps to give an idea of the amount of exploitation of the shrimp wealth in Iraq.
Materials and Methods

Sampling was carried out monthly from January to December 2016, from two main markets in Basrah Province: Al-Ashar and Al-Basrah market. Shrimp samples were collected four times a month from the two most important markets in Basrah Provinces, namely Al-Ashar market and Al-Basrah market.

The estimates of landings offered in the markets was by direct questioning of fish sellers, and by taking samples to measure the weight of each species. The wet weight was recorded by using a sensitive balance (Sartorius BL-1500) and the average weight was calculated.

Results

Two penaeid shrimp species, were found in the main fish markets of Basrah Province, *Penaeus semisulcatus* and *Metapenaeus affinis*. The data on the total landings of the shrimps during the survey are summarized in Figures 1 and 2. In Al-Ashar market the highest landing rate was 296 ±26 kg during September and the lowest fishing quantities was during December, which amounted to 159 ±16 kg. As for Basrah market, the highest fishing rate was observed in July, which amounted to 410 ±32 kg, and the lowest amounted to 200 ±22 kg in January (Fig. 1).

As for *M. affinis*, the highest average landing quantities was 397 ±55 kg in Al-Ashar market in July, and the lowest rate in December, which reached 205 ±19 kg. As for Al-Basrah market, the highest rate of landings was 597 ±68 kg in July, and the lowest rate of 298 ±48 kg in November (Fig. 2). The highest annual rate of the shrimp *P. semisulcatus* was recorded in Al-Ashar market (15.5) tones and in Al-Basrah market was 18 tones. While the highest annual rate of *M. affinis* shrimp was observed in Al-Ashar market 12.7 tones and in Al-Basrah market 25.8 tones (Fig. 3).

The highest average weight of *P. semisulcatus* was 80 ±7g during January and the lowest average weight was 40 g ±6 g in April. As for *M. affinis* shrimp, the highest average weight was 25 g ±5 g in December and the lowest average weight was 12 g ±6 g in May (Fig 4).
Commercial shrimp landings of two penaeid shrimps in the main markets

Figure 2. Monthly changes of mean landings of *Metapenaeus affinis* in Al-Ashar and Al-Basrah markets during 2016.

Figure 3. Annual landings (tones) of *Penaeus semisulcatus* and *Metapenaeus affinis* in Al-Ashar and Al-Basrah markets during 2016.

Figure 4. Mean wet weight (g) of *Penaeus semisulcatus* and *Metapenaeus affinis* in Al-Ashar and Al-Basrah markets during 2016.
Discussion

Basrah Province occupies the first rank in shrimp fishing quantities and is almost the only province in Iraq in this aspect, and because of that it is overlook normally when counting shrimp producers in the Arabian Gulf. On the other hand, the Iraqi consumers in other provinces of Iraq did not tend to rely on shrimp as food, therefore, the fishing estimates in this province give a clear idea of the quantities of fishing in Iraq in general. Al-Ashar market and Al-Basrah market represent the most important and the largest markets in Basrah province, and they are considered the main source in supplying other markets. The daily and monthly shrimp quantities in both markets vary continuously, as the shrimp is presented in large or small batches depending on a number of factors, including fishing quantities and breeding times, temperature, salinity, natural changes and movement of shrimp into deeper waters, which makes fishing difficult (Haas et al., 2001). The decrease in landings of *P. semisulcatus* compared with *M. affinis* as being a species that only lives in the marine areas, that is the only source of its entry into the market and which is fishing in the marine environments, while the second species is a migratory species and lives both in inland and marine waters, and thus there is a high fishing efforts (Salman et al., 1990). Therefore, there is a higher fishing efforts on *M. affinis* compared to *P. semisulcatus*, which is confined to the marine waters (Mathews et al., 1987). Also, the nature of the depths of inland marine fishing waters, which did not exceed 10 meters in depth, while shrimps especially, *P. semisulcatus* preferred deeper waters (Bishop and Khan, 1991; Abdul-Wahab, 2005). Daliri et al. (2013) studied the effect of three different depths in fishing quantities of shrimp and observed the highest catch rate of 7.5 kg/hour occurred at depth ranges from 10 to 20 meters while the fishing rate in a depth of less than 10 meters reached 5.6 kg/hour and the catch rate was 3.9 kg/hour in the depths that ranged between 20 to 30 meters. Mathews et al. (1986) and Ye et al. (2000) indicated that shrimp catches in Kuwait decreased significantly during recent years, and this can be explained by overfishing as a result of the development of fishing methods that led to depletion of shrimp stocks, as well as the lack of entry of new gatherings into the catches, which may be due to poor bleaching season due to inappropriate environmental conditions, or as a result of an increase in fishing efforts that lead to a lack of mothers. FAO (2009) reported that one of the most important reasons of the deterioration of shrimp fishing is the overfishing, especially for small shrimps of subsequent environmental and economic importance, offensive to coastal environment areas, bottom trawling practices, and the distraction of the seaweed layer. The results also showed that the weights of both types decreased during the period from February to June, and this is due to the proliferative activities and the entry of new batches into the environment (Mathews et al., 1986). Shrimp prices in the markets of Basrah ranged 15,000 and 30,000 Dinar per kilogram (12-25 USD) for the first species, and between 4000 and 8000 Dinar per kilogram (3.5-7 $) for the second species and according to daily demands, and these prices are considered high compared to the marine products offered, especially fish. Thus the importance of maintaining shrimp stock in the regional waters is highlighted as a renewable natural resource that provides opportunities for many poor families. Accordingly O’Connor and Matlock (2005) mentioned a number of administrative measures to obtain continued high-quality shrimp fishing of which are: stop using trawling nets in fishing operations as they destroy the bottom environment and fishing capacity techniques by addressing the issue of a
limited access to and exploitation of shrimp fisheries. Mathews (1994) stated that setting periods to prevent fishing during breeding times contributed to raising fishing and strengthening shrimp batches.

**Conclusion**
From the results of the current study, the fishing landings in Al-Ashar market are less than the fishing landings in the Al-Basrah market for both species. The annual rate of shrimp landings in Al-Basrah market is higher than in Al-Ashar market.

**References**


كميات الصيد التجاري لنوعين من الروبيان البنانيدي في الأسواق الرئيسة لمحافظة البصرة

المستخلص - تم مراقبة كميات الصيد لنوعين من الروبيان البنانيدي وهما الروبيان البنيائي *Peneaus semisulcatus* والروبيان البنانيدي *Metapenaeus affinis* في سوق البصرة. سجل اعلى معدل كميات الصيد لنوع *P. semisulcatus* في شهر كانون الثاني 169±26 كغم، واقل كميات الصيد في شهر كانون الأول 127±16 كغم. بينما في سوق البصرة، سجل اعلى كميات الصيد في شهر تموز 221±32 كغم، واقل كميات الصيد في شهر كانون الثاني 159±16 كغم. بينما في سوق البصرة، سجل اعلى كميات الصيد في شهر تموز 272±22 كغم، واقل كميات الصيد في شهر كانون الثاني 190±22 كغم. 

وبلغ اعلى معدل وزن شهري للروبيان *P. semisulcatus* 65±9 غم في شهر كانون الثاني، واقل وزن شهري بلغ 39±1 غم في شهر كانون الثاني.

وبلغ اعلى معدل وزن شهري للروبيان *M. affinis* 118±17 غم في شهر كانون الثاني، واقل وزن شهري بلغ 51±12 غم في شهر كانون الثاني.

وبلغ اعلى معدل سنوي للروبيان *P. semisulcatus* 11.5 طن، واقل معدل سنوي بلغ 4.5 طن. أما اعلى معدل سنوي للROID *M. affinis* بلغ 19.5 طن، واقل معدل سنوي بلغ 14.5 طن.