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## The status of Inland Fishery in Dhi Qar Province during the period from 2017 to 2020

iD Noori A. Nasir<sup>1\*</sup> and Qasim M. Sultan<sup>2</sup>

1-Marine Science Center, University of Basrah, 2-Department of Livestock Services, Fisheries, Agricultural affairs Directorate, Dhi Qar, Iraq

\*Corresponding Author: e-mail : [noori.nasir@uobasrah.edu.iq](mailto:noori.nasir@uobasrah.edu.iq)

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**Abstract** - An investigation was carried out to overview the status of the inland fishery resources in Dhi Qar Province during the period from 2017 to 2020. The whole fish landed from five marshes throughout the study period was about 30833 tons using seine net, gill net, cast net and electro-fishing gears. The highest annual quantity landed was about 8502 tons in 2020 which formed about 27.6 % of total fish landed. In fact, this variation in fish stock from year to year could be related to overfishing, weather changes, pollution levels, water levels, market prices and environmental conditions (natural or human-made). This study also indicated that the majority of fish landed came from capture fisheries and the rest from fish farming. Eleven fish species were observed and *Cyprinus carpio* was dominant with 37 % of the total weight landed followed by *Planiliza abu* which comprised about 25% of the total. Six native species, two alien species and two migratory species were also found throughout this investigation which composed about 41.3 %, 56.5 % and 2.2 % of the total, respectively.

## دراسة حالة الثروة السمكية الداخلية في محافظة ذي قار خلال الفترة من 2017 الى 2020

نوري عبد النبي ناصر<sup>1</sup> و قاسم محسن سلطان<sup>2</sup>

1- مركز علوم البحار، جامعة البصرة، البصرة، 2- مديرية زراعة ذي قار، قسم تنمية الثروة السمكية، ذي قار، العراق

**المستخلص** - أجري تحقيق لاستعراض حالة الموارد السمكية الداخلية في محافظة ذي قار خلال الفترة من 2017 إلى 2020. بلغ حجم الأسماك التي أنزلت من خمسة أهوار خلال فترة الدراسة حوالي 30833 طناً باستخدام شبك الكرفة والشباك الخيشومية والسليبة والصيد بالكهرباء. كانت أكبر كمية قد أنزلت حوالي 8502 طناً في عام 2020، مما يمثل حوالي 27.6 % من إجمالي الأسماك التي أنزلت. في الواقع، يمكن أن يكون هذا الاختلاف في مخزون الأسماك من سنة إلى أخرى مرتبطاً بالصيد الجائر، وتغيرات الطقس، ومستويات التلوث، ومستويات المياه، وأسعار السوق والظروف البيئية (طبيعية أو من صنع الإنسان). كما أشارت هذه الدراسة إلى أن غالبية الأسماك المصطادة التي أنزلت قد جاءت من المصايد الطبيعية والباقي من مزارع تربية الأسماك. لوحظ وجود أحد عشر نوعاً من الأسماك إذ كان النوع السائد *Cyprinus carpio* وبنسبة 37% من إجمالي الوزن الذي تم إنزاله، يليه *Planiliza abu* الذي كان يمثل حوالي 25 % من الإجمالي. عثر على ستة أنواع محلية، نوعان غربيان ونوعان مهاجران من خلال هذا البحث بنسبة 41.3 % و 56.5% و 2.2% من الإجمالي على التوالي.

**الكلمات المفتاحية:** محافظة ذي قار، العراق، أنواع الأسماك، مراكز الإنزال.

### Introduction

Dhi Qar Province is one of the biggest towns in the south of Iraq. There are several fish landings and fish markets around this City. The fish arrived to the landing centers from the rivers, ponds, fish farmings and from other landing centers located out of the town border.

These centers are Al-Chibayish, Al-Fohood, Souk Al-Shoyokh market, Al-Eslaah, Germat Bani Saeed and the City center (Fig. 1).

These fishes then transported to the City center and to different parts of the town and other closed provinces using different transport facilities to get to the consumers by commission agents to wholesalers and then to the retailers. A number of mediators are engaged to gather fish from the fishermen and fish farmers in order to create a connection between fishermen/farmers and wholesalers or commission mediators. Those mediators have been taking the responsibility in providing the quality of fish to those places.

The marketing of fish needs substantial time to attain the landing centers and markets which make the loss of biofactors and from time to time caused deterioration in the nature of fish making them uneatable (BCAS, 2003; Nowsad, 2004).

Thirteen freshwater fish species, three marine fish species were available in the fish landing centers of Dhi Qar Province (Nasir and Sultan, 2018). *Palaniza abu* was recorded as the most abundant species followed by *Carasobarbus luteus*, *Carassius gibelio*, *Alburnus mossulensis* and *Leuciscus vorax* respectively in the reinstate East Al-Hammar Marshes (Mohamed *et al.*, 2009).

The gathering and analysis of commercial catches offer scientists and managers important information about the status of fish stocks (Nasir and Khalid, 2013). However, changes in the quantity and location of fish, environmental situation, labour, gear costs, fuel, additional expenses and market requests influence the differences in the commercial catches between years and between regions (Nasir and Khalid, 2017). The present work was therefore undertaken to highlight on the availability of species in fish landing centers and markets throughout the period between 2017 to 2020. The aim of the current study is to provide some information about fish species available in this region which will provide the authority with a good understanding of the health and productivity of the resource in order to take significant actions if necessary.

## Materials and Methods

The current study was conducted in the period between January 2017 to December 2020 to gain a monthly data on wet fish landing and distribution through the entire Dhi Qar Province, southern Iraq. The commercial fishing was made using small vessels and small technical gear, like seine nets (20 m long with a 25 mm mesh), fixed gill nets (100 to 500 m long with 25 mm to 100 mm mesh size), cast nets and electro-fishing gears were used to collect the fishes which were kept in chilled form.

### Study Area:

The fish catch data were monthly collected from five marshes (Central Marsh, Al-Hammar Marsh, Al-Taar Marsh, Al-Fuhod Marsh and Al-Senaf Marsh) located in Dhi Qar Province, southern Iraq (Fig. 1), from January 2017 to December 2020 by Department of Livestock Services/Fisheries, Agricultural Affairs of Dhi Qar Directorate, Ministry of Agriculture.

The fish landing centers are Al-Chibayish, Al-Fohood, Souk Al-Shoyokh market, Al-Eslaah, Germat Bani Saeed and City center. However, Fish are generally auctioned to wholesalers and the chilled fish from landing places are sent by buses, pickups and trucks to major city places for selling in the fish markets.

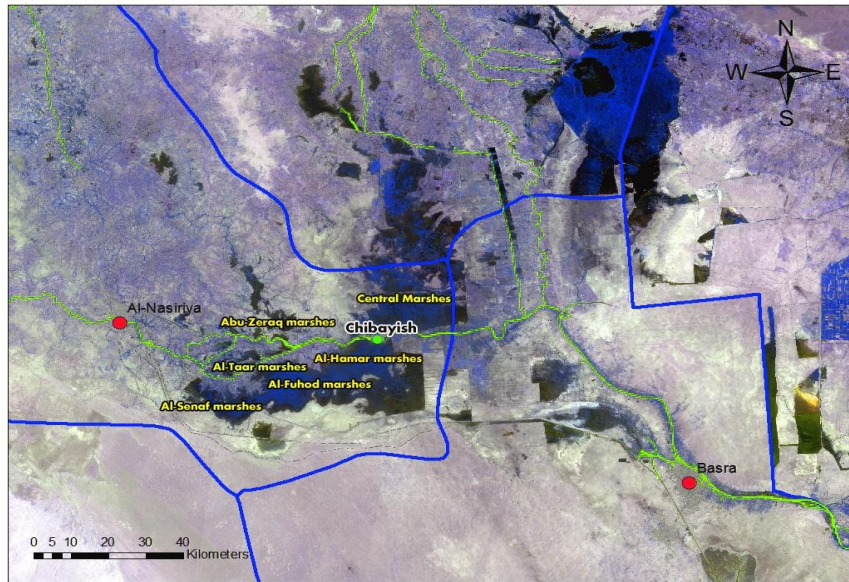


Figure 1. Map showing Dhi Qar Province and the marshes.

**Interview Plan:**

Two different types of interview plans had been done to collect the data during the period of the study, one for landing center manager and the second is the fish market manager with three Retailers.

**Data Analysis:**

Following data collection, the data were processed and subjected for statistical analysis. The collected data were statistically analyzed and presented in textual, tabular and graphical forms.

**Results**

The whole fish landed during the study period from 2017-2020 were about 30833 tons. The highest and the lowest amount landed were about 8502 tons in 2020 and 7210 tons in 2019 (Fig. 2) which comprised about 27.6 % and 23.4 % of the total landings, respectively (Fig. 3).

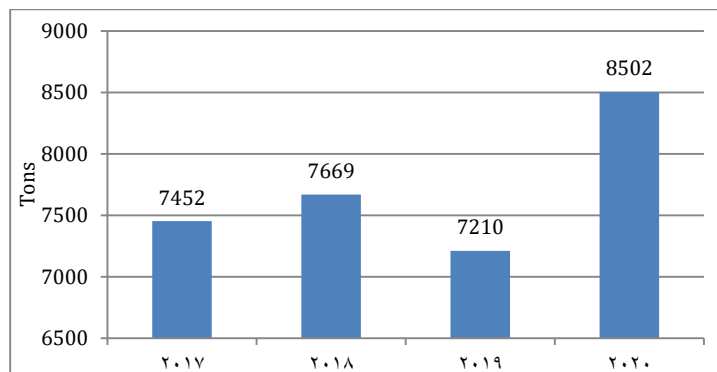


Figure 2. Fish landed (tons) in Dhi Qar Province from 2017 to 2020.

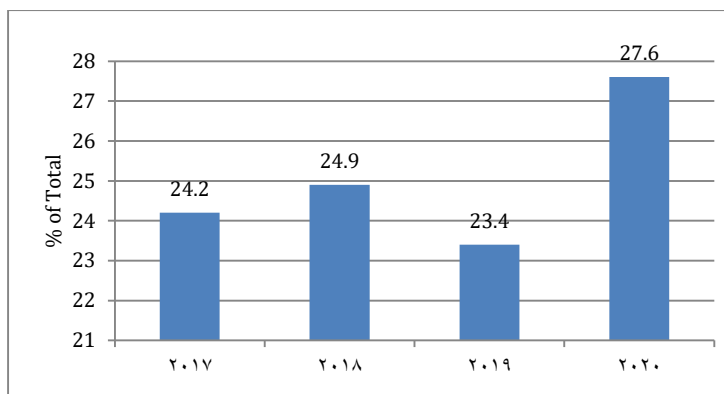


Figure 3. Fish landed (% of the total) in Dhi Qar Province from 2017 to 2020.

A total of 11 fish species belong to five families have been recorded in Dhi Qar Province (Table 1). *C. carpio* was the dominant species forming 52 % of the total weight landed and followed by *P. abu* which makes about 34 % of the total landings (Fig. 4). The majority of the fish landed in the fish markets coming from captured fisheries except *C. carpio* which was obtained from fish farming (Fig. 4).

Table 1. Details of fish landed in Dhi Qar Province from 2017 to 2020.

Scientific Name	Local Name	Family	Origin	Tolerance
<i>Leuciscus vorax</i> (Heckel, 1843)	Shalik	Leuciscidae	Native	Sensitive
<i>Arabibarbus grypus</i> (Heckel, 1843)	Shaboot	Cyprinidae	Native	Sensitive
<i>Carasobarbus luteus</i> (Heckel, 1843)	Hemri	Cyprinidae	Native	Sensitive
<i>Mesopotamichthys sharpeyi</i> (Gunther, 1874)	Bunni	Cyprinidae	Native	Sensitive
<i>Luciobarbus xanthopterus</i> (Heckel, 1843)	Gattan	Cyprinidae	Native	Sensitive
<i>Cyprinus carpio</i> (Linnaeus, 1758)	Carp	Cyprinidae	Alien	Tolerant
<i>Planiliza subviridis</i> (Valenciennes, 1836)	Biah	Mugilidae	Migratory	Tolerant
<i>Planiliza abu</i> (Heckel, 1843)	Khishni	Mugilidae	Native	Tolerant
<i>Silurus triostegus</i> (Heckel, 1843)	Jerry	Siluridae	Native	Sensitive
<i>Tenualosa ilisha</i> (Hamilton, 1822)	Soboor	Clupeidae	Migratory	Sensitive
<i>Coptodon zillii</i> (Gervais, 1848)	Bultee	Cichlidae	Alien	Tolerant

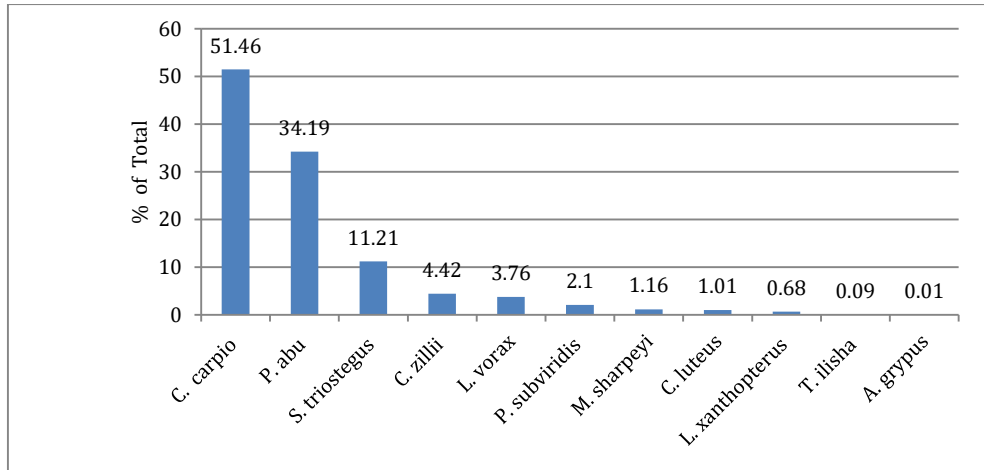


Figure 4. Percentage of the fish species landed in Dhi Qar Province during 2017 to 2020.

The present results showed that seven sensitive and four tolerant species were identified during the study (Table 1). As seen from Table (1), seven native fish species were recorded during the present study which composed about 41 % of the total catch. Two alien species and two migratory species were found with percentages of about 57 % and 2 % of the total catch, respectively (Fig. 5).

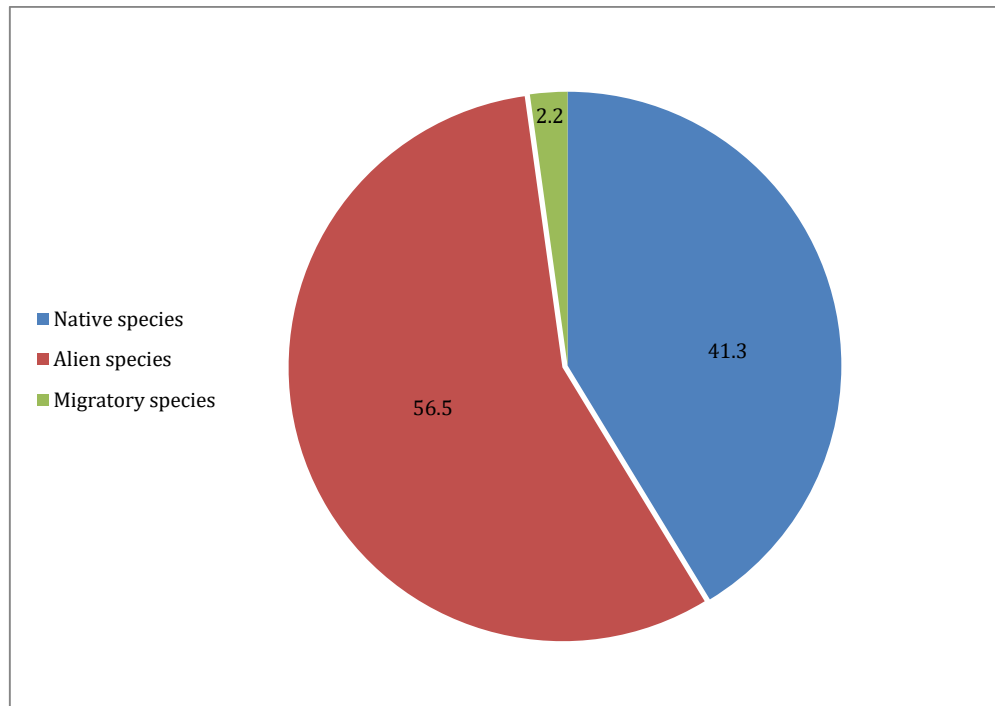


Figure 5. Percentage of the native, allen and migratory fish species landed in Dhi Qar Province during 2017 to 2020.

The yearly fish landings (Tons) in Dhi Qar Province for the period 2017-2020 are shown in Figures (6-9).

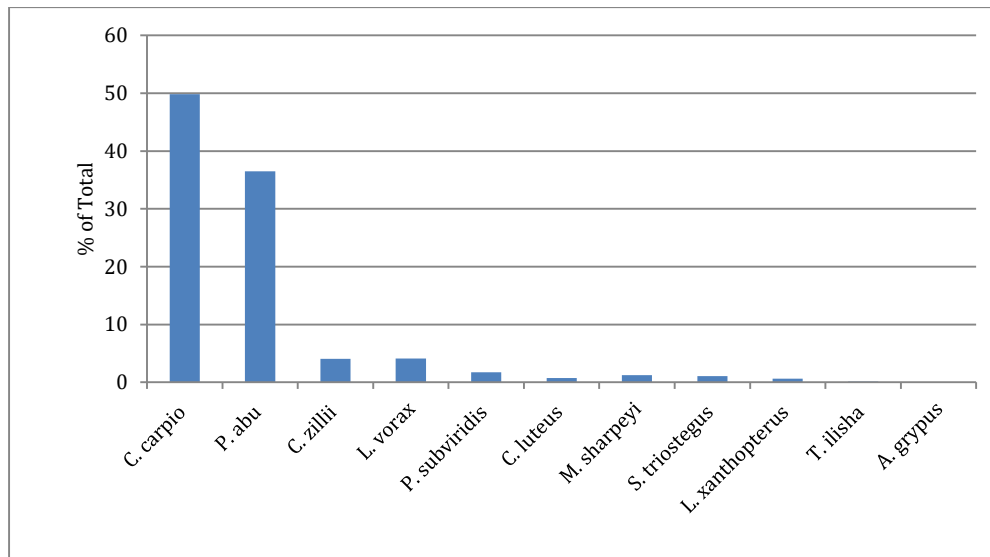


Figure 6. Percentage of the fish species landed in Dhi Qar Province during 2017.

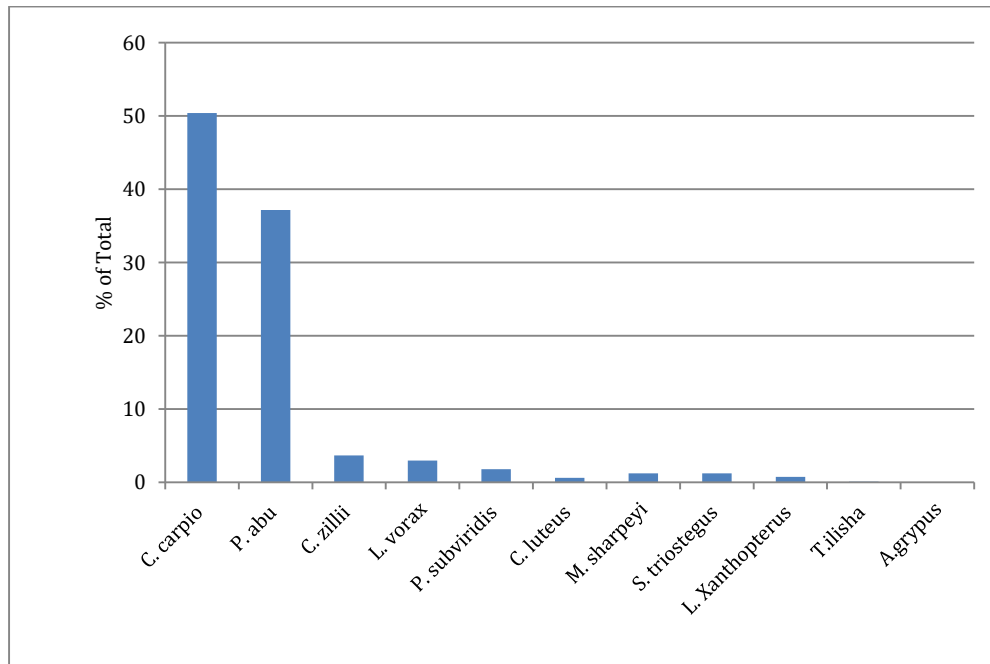


Figure 7. Percentage of the fish species landed in Dhi Qar Province during 2018.

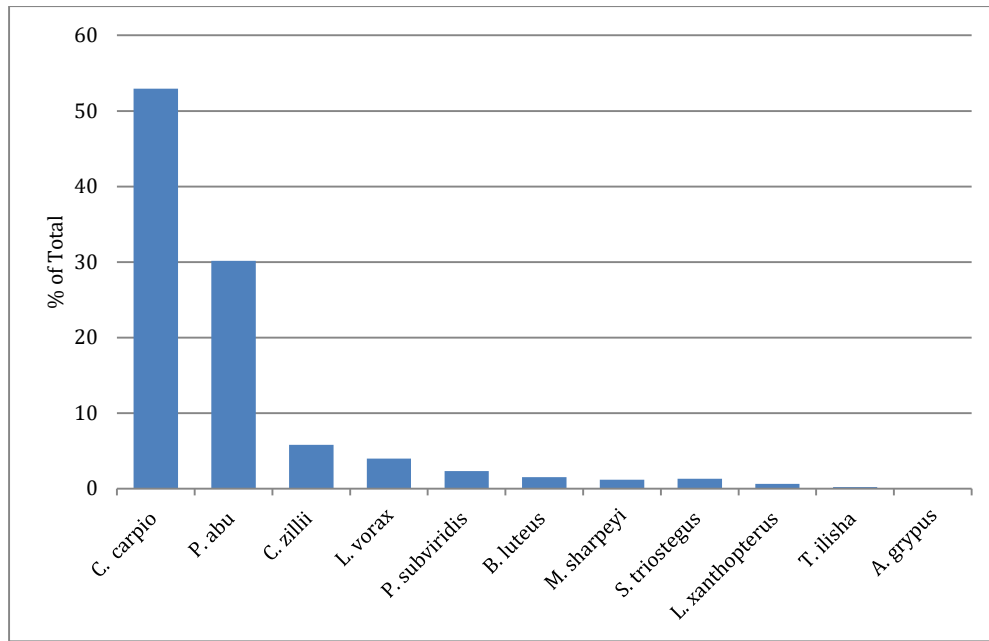


Figure 8. Percentage of the fish species landed in Dhi Qar Province during 2019.

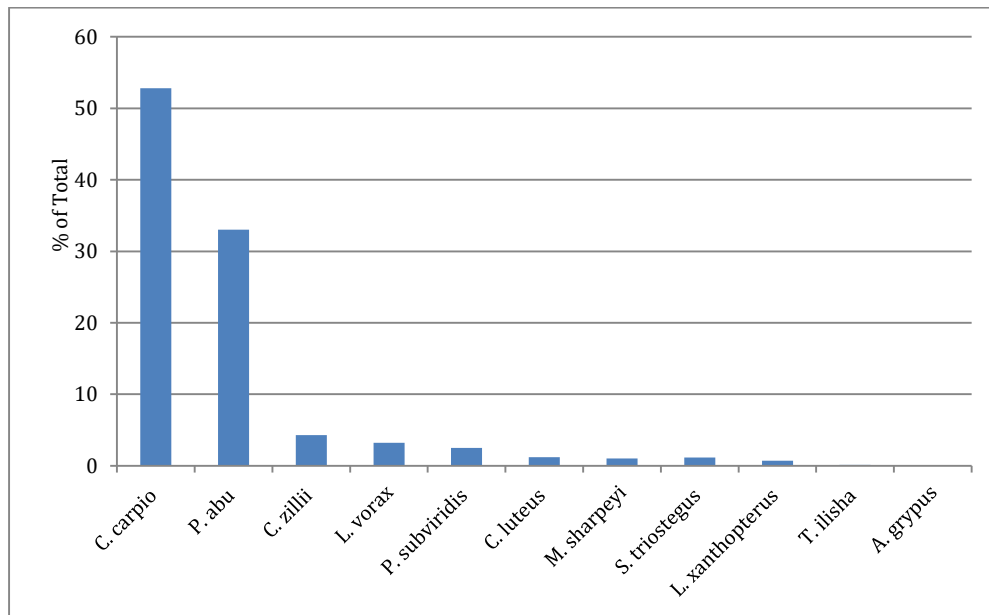


Figure 9. Percentage of the fish species landed in Dhi Qar Province during 2020.

### Discussion

The small-scale fisheries in Dhi Qar Province are described by comparatively low capitalization levels, furthermore, they are carried out by a single or a small group of fishers working in small-scale vessels and hand-gathering techniques on shallow waters (Nasir and Sultan, 2018).

The gathering and analysis of commercial fish landings data offer scientists and authorities with significant information required to create important decisions (Nasir and Khalid, 2013).

The commercial fish catches increased from 7210 tons in 2019 to a peak of 8502 tons in 2020. Changes in commercial catches might result from difference in the position and abundance of fish, environmental conditions, and economic factors influencing the fishing production such as labour, fuel, equipment costs and domestic and international market demands (Nasir and Khalid, 2013).

To keep a continuous high commercial fish landings with high values are of great assistance to the fishermen, fishing communities, and for the Iraqis who would like sustainable, healthy Dhi Qar fishes (Nasir and Sultan, 2018).

The most popular fish species landed during this study were *C. carpio* and *P. abu*. These fishes are considered as the most important fish for artisanal fisheries and are normally used for human consumption while the marketable price attained was 4,000 Iraqi Dinar/kilogram.

However, the most precious and economically important species, such as *M. sharpeyi*, *C. luteus*, *Tenualosa ilisha* and *L. xanthopterus* had been fished at a very low percentages of the total catches.

On the other hand, these fishes have profitable prices and consumed by the local people in Dhi Qar Province in a fresh condition. Therefore, the fishermen are under pressure to meet the increasing demand on these fish species. Alternatively, due to

the low reproduction rates continual overfishing, and environmental situations, prevent the fish stock from being able to recover rapidly enough to maintain market demands (Hilborn and Litzinger, 2009; Nasir and Sultan, 2018). Moreover, the increase in water salinity and pollution levels had a vital influence on the fish population and therefore, the enforcement of the policy for Environmental Pollution Control in this region is necessary.

Considerable harms resulting from overfishing and illegal fishing considered as severe threats to the fish stock. Nevertheless, the weather patterns, environmental situation and market prices have also significant consequences on fish stocks (Durance and Ormerod, 2007).

However, the authorities in Dhi Qar Province have set plans to reduce the pressure by restocking these important species; the present results, however, showed that these measures are not enough to meet the demands on these precious fish species. Consequently, a number of fishermen concentrated on other fish species to make earning from the fishing sector.

The fishery sector is assumed to be an important sector providing employment in Dhi Qar Province as there was a significant number of fishermen working on small unlicensed fishing vessels. (Nasir and Sultan, 2018). The legal fishing licenses were granted to about 2382 fishermen using traditional fishing boats according to Agriculture office at Dhi Qar Province. The fishermen use fixed gill nets, seine net, cast net and electro-fishing gears.

There is generally a high movement of fish between the different places in the Province and the country as a whole, depending on the supply and the demanding circumstances (Nasir and Sultan, 2018). A substantial amount of cultured carp fish is arrived at Dhi Qar fish markets from Waset and Babylon Provinces, both in live and chilled conditions. Machias *et al.* (2006) reported that increased fish-farming could indicate an increase in fisheries landings. Intense fish farming



might be a significant supportive factor concerning changes in fisheries production at certain regions.

The conclusion of the present work should also be considered in improving the landing sites in the studied Province and will offered an outline of the situation of the Province's fish stock with related research requirements. This would lead to increase in the quality of fish products which will be used for export and domestic consumption.

Therefore, improvement of fisheries landing sites is necessary and will be important for the community as it would add towards a better contribution for excellence in fish products for export and domestic use.

### **Conclusions**

The Dhi Qar fisheries sector can be a much better contributor to the economic development of Iraq and could offer increased benefits to the Iraqi people. Enhancing fisheries production would enhance food supplies to meet the shortages in animal protein, provide sustainable to food security measures, as well as decrease imports.

It might be a good opportunities to rural and urban populations, to increase the standard of living of small-scale fishermen, and fishing communities. In addition, with increased and improved fisheries activities, fisheries industries would develop the consumption of fish landings and endorse marketing distribution.

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