

Status of *Sepia officinalis* and 19 Main Fisheries Species Caught from Southeast Mediterranean Sea, North Sinai, Egypt.

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ABSTRACT

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The common cuttlefish (*Sepia officinalis* Linnaeus 1758) is considered one of the most important invertebrates (Class: Cephalopods) fishery resources that caught from the Eastern part of the Mediterranean Sea. In Egypt, *S. officinalis* has distinct importance from other fishes that come from natural resources, not only for its abundance in the total catch but for its marketable value as well. This study is the first investigation deal with the fishery status of common cuttlefish as a base on comparison with other main species, also to include catches analysis of 19 main species from the North Sinai fishery. North Sinai Fishery statistics for the period between 1997 and 2017 revealed that cuttlefish is the main cephalopod resource exploited by the fleet in the southeast of the Mediterranean Sea. During the last few seasons, cuttlefish production is increased with the increase of its value, marketable demand, and high price, where it raised from 37 tons in 1997 to 60.7 tons in 2017. Purse seine gear landings represent almost 50 % of the total catch followed by trammel net and long line, however, trawl is not registered gear in North Sinai as it produced 30% of the total catch. It could be concluded from the current study that fisheries in North Sinai need integrated management for the important species to accomplish a maximum sustainable production.

INTRODUCTION

The Sinai Peninsula is triangular, with shore lying on the southeast of the Mediterranean Sea, with around 200 kilometers (120 mi). The Mediterranean Sea is considered as the largest enclosed sea in the world with 46,000 km of coastline (WWF, 2019). In the Mediterranean region fishes and its products have traditionally been the most important commodity consumed, and fish consumption is always an integral part of people's diet. However, with the rapidly increasing demand for seafood (dramatic in recent decades) Mediterranean marine living resources have become more vulnerable.

Fishing efforts, the most effective operation in human activities in this region, have a great impact on marine living resources; consequently, it is necessary to monitor and regulate this important supply. The great increases in the global fishing efforts affect most of the world fisheries resources, in many cases, these efforts exceeded the limits of the maximum sustainable yield and leads to overfishing of the fish resources resulting in a steady decrease of the world catch. The first reports on the fisheries of Egypt date back to the beginning of the twentieth century (**Fouad, 1926; Wimpenny, 1934 and El-Saby, 1951**). But, in North Sinai fisheries the first reports date back to the beginning of the eighties of the twentieth century.

At the national level, the status of Egyptian fisheries has been first described by **Samy-Kamal, (2015)**. However, the status of southeast Mediterranean Sea fisheries has been no attempt to describe. On a European scale, cephalopod resources have traditionally been exploited in the Mediterranean Sea by Spanish, Italian, and Greek fishers as well as in the Atlantic Ocean by Portuguese and Spanish fishers (**Gras *et al.*, 2014**). In the English Channel stock, the most commercially important is cephalopod stock that exploited in the Northeast Atlantic (**Pierce *et al.*, 2010**). In the list of all English Channel fishery resources, cuttlefish are ranked third by both weight and value (**Engelhard, 2012**). Total production of the Common cuttlefish from the Egyptian Mediterranean Sea fisheries was 1515 tons in 2017 that represents 2.57% from its total catch with a net worth of 103 million EGP (**GAFRD, 2017**).

This work aimed to statistically analyzes the status of Common cuttlefish fishery (*Sepia officinalis*) and 19 main species produced by different fishing gears at the southeast Mediterranean Sea region, North Sinai, Egypt.

MATERIAL AND METHODS

Sampling

Records of *Sepia officinalis* and 19 main species (*Cartilaginous* spp., *Siganus rivulatus*, *Euthynnus alletteratus*, *Scomberornorus commerson*, *Sparidae* spp., *Sardinella* spp., *Pomadasys stridens*, *Mugillidae* spp., *Crabs*, *Alepes djedaba*, *Pomatomus saltator*, *Dicentrarchus labrax*, *Argyrosomus regius*, *Epinephelus* spp., *Mullus barbatus*, *Shrimps*, *Pagrus pagrus* and *Solea vulgaris*) that caught from North Sinai fishery during two fishing seasons of 2016 and 2017 were statistically analyzed.

Samples of different working fleets in the Southeastern Mediterranean Sea impressed some information about active gears along the coast of North Sinai; specially the purse seine gear with 48 and 44 registered vessels (average 16 m and 150 HP engine), the trammel net gear with 167 and 144 registered vessels (average 10 m and 10 HP engine), the long line gear with 11 and 10 registered vessels (average 14 m and 70 HP engine) in seasons 2016 and 2017, respectively.

Data collection and analysis

El-Arish seaport is the main landing site in the Southeast Mediterranean Sea of Egypt (along North Sinai coast), representing more than 95% of its landing. Consequently, all information about fleets,

gears and landings were collected from commercial fisheries of El-Arish seaport and North Sinai Zone for Fish Resources (NSZ) (The administration part of GAFRD that managing North Sinai fisheries).

The main management obligation of Egyptian fisheries is through the General Authority for Fish Resources Development (GAFRD) which is the organization that responsible for these records.

This paper primarily focuses on fisheries landings, fishing effort, and fish production characteristics. Therefore, some of this data collected from the GAFRD database covering the recent period at the end of the 20th Century and the beginning of the 21st Century from 1997 to 2017. However, not all data were obtained directly from this organization, other sources such as FAO statistics were used to perform a well-rounded analysis. According to GAFRD, fisheries in Egypt include five main areas: the Seas, the northern lakes, coastal lagoons, inland lakes, and the River Nile (GAFRD, 2017). Directed to fish species profusion in the southeast Mediterranean Sea, abundance analysis is a procedure to describe the status of major and minor fish stocks in this region. Catch composition is done with percentages by different gear types (purse seine, trammel net, and long line).

One way analysis of variance ANOVA was used to study the catch yield during two seasons 2016 and 2017.

RESULTS AND DISCUSSION

1. Southeast Mediterranean Sea fisheries

Annual total fisheries production during the period between 1997 and 2017 is graphically demonstrated (**Fig. 1**) from North Sinai Zone for Fish Resources (NSZ). The figure showed many fluctuations in total fisheries production during different seasons, additionally when exclude most rises to catch in season 1999, which was about 11 715 tons, it was stated unstable total production that rises up and down at consecutively seasons. In the previous century, from 1997 to 1999 total fisheries production was at its highest level represent at 2 851, 5 278, and 11 715 tons, respectively. At the beginning of this century, from 2001 to 2017 there are a dramatically decreases in total fisheries yield from North Sinai coast although it was some individually increases in catches as in seasons 2000, 2001, 2006 and 2008 which represent 3 901, 4 084, 3 458 and 3 596 tons, respectively. High fluctuation decreases in total fisheries yield were start between seasons 2002 to 2017, where total caught were 1 680, 1 400, 1 187, 1 069, 2 338, 1 665, 1 124, 1 297, 2 334, 1 570, 1 691, 1 215, 1 473 and 1 646 tons, respectively.

Unstable total production significantly decreased in recent years because wild fisheries have more challenges to overcome. Fisheries in Egypt are an underdeveloped activity. They remain a poorly managed sector compared to other large Western Mediterranean countries (e.g. Spain, France, and Italy) or even to neighboring Eastern Mediterranean countries e.g. Turkey and Greece (Samy-Kamal, 2015).

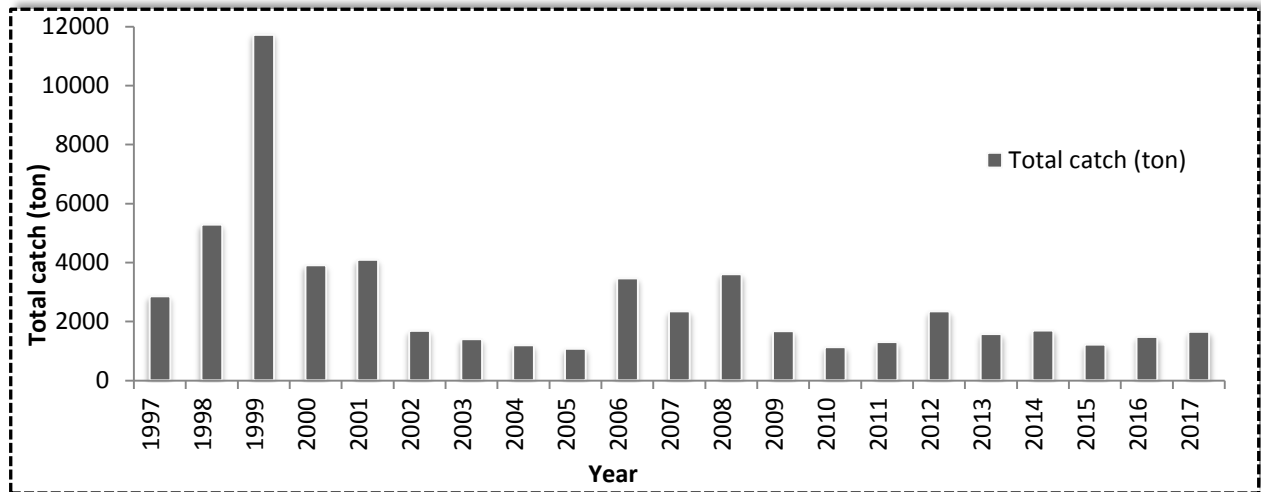


Fig 1. North Sinai annual total fisheries production from season 1997 to 2017.

2. Common cuttlefish in North Sinai fisheries

Common cuttlefish appear in the North Sinai coast annually during the last days of the summer until the middle of the spring season. During this period gears at North Sinai start to catch these mollusks in a reliable amount of catches (**Fig. 2**). At the beginning of this decade (between 1997 and 2002), the catch of *Sepia officinalis* was at the lowest quantity (37, 49, 25, 24, 22, and 49.1 ton, respectively). However, it has fluctuation high catch production from 2003 until 2012 where represented 93, 46.9, 70, 56, 74, 88, 74, 82, 46.4, and 87.5 ton, respectively. In the last 5 seasons 2013, 2014, and 2015 have the lowest catch amount then it increases to the normal levels in seasons 2016 and 2017 (about 60.6 and 66.7 ton).

For French Atlantic fishery of cuttlefish (**Denis and Robin, 2001**) landings by fishing gears indicate that the French catch in 1996 was taken mainly by trawlers (accounted for 80% of the catch). Furthermore, the total French catch from *S. officinalis* was about 2 700 tons from the central part of the English Channel and Iroise Sea. Common cuttlefish mainly caught by trawls gear for the correspondence between its demersal habitat on the sea bed and bottom trawl nets gear.

3. Species abundance analysis

The recent two-decades from 1997 to 2017 Sardines (*Sardinella* spp.) were the most dominant species that rise in total catch production. Usually, the majority of collected sardines were caught by purse seine fishing gear but little quantities of catch come with trammel net gear. Sardines catch decreased during recent 10 years as it's the first main species that caught in North Sinai fisheries presented about 90.1, 95.0 and 98.0% from the total catch at 1997, 1998 and 1999, respectively to become 79.9, 54.9, 33.0 and 20.5% of species abundance in 2014, 2015, 2016 and 2017.

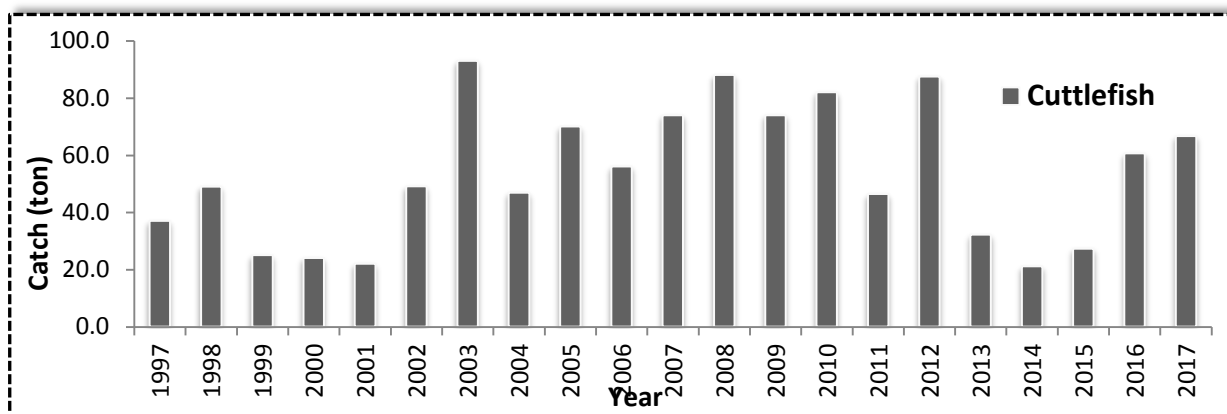


Fig 2. Total catch per ton of *S. officinalis* in North Sinai fishery from season 1997 to 2017.

Crabs (*Portunus armatus*) were not considered as a major important species in North Sinai fisheries until season 2001, it was less than 1% in the catch (**Fig. 3**). However, during the last 10 seasons from 2007 to 2017, it was achieved an incredible increase in total catch from fisheries for its high growth of total mass from 12 tons in season 2001 to 425.4 tons in season 2016. Since the season 2007, the catch of crabs was increased from 77 tons to 180, 258, 334.1, 217.9, 216.7, 96, 108.7, 168.5, 425.4, and 364.4 tons yearly. Present about 3.3, 5, 15.5, 29.7, 16.8, 9.3, 6.1, 6.4, 13.9, 28.9 and 22.1 % of abundance.

Common cuttlefish have remarkable fluctuation in abundance from past to present, the catch was increased rapidly from non-target species to become as target species in its season which appear in fisheries. Catch of *S. officinalis* tends to intensification in percent from 1.3% (37 tons) in season 1997 to reach 6.6 % (93 tons) in season 2003. Current status of catch was still at its constant level from season 2004 to 2017 as it was 46.9, 70, 56, 74, 88, 74, 82, 46.4, 87.5, 32.1, 21.1, 27.3, 60.6 and 60.7 tons respectively with percentage about 4, 6.5, 1.6, 3.2, 2.4, 4.4, 7.2, 3.6, 3.7, 2.0, 1.2, 2.2, 4.1 and 4.1% respectively from species abundance (**Fig. 3**).

Others are a category of non-commercial species that yield with small amounts, as we have noticed the rise of its total yield was a start in the fishing season of 2007 and it continues at a high level during the fishing season 2017. Present status of the catch is still at its increasing level from season 2007 to 2017 as it was 137.4, 225.2, 256.6, 388.6, 314.6, 322.9, 194.7, 150.2, 309.5, 357.1 and 720.4 tons with a percentage about 5.9, 6.3, 15.4, 34.6, 24.3, 13.8, 12.4, 8.9, 25.5, 24.2 and 43.8 % from the total catch respectively. Most of the others category is consists of very small shrimps and trash fish without any specific dominant species.

EL-Aiatt (2004) stated that the catch of Mediterranean coast of Sinai fishery during the period from 1989 to 2001 was composed of Sardines (86.51%), Shrimp scad (1.81%), Common cuttlefish (1.33%), Spanish mackerel (0.68%), Groupers (0.66%), Crabs (0.28%), White Seabream (0.19%), Meager (0.11%), and others (8.22%).

These fish groups were greatly varied according to their importance, availability, marketing demands, and in its total yield from this fishery during past and present.

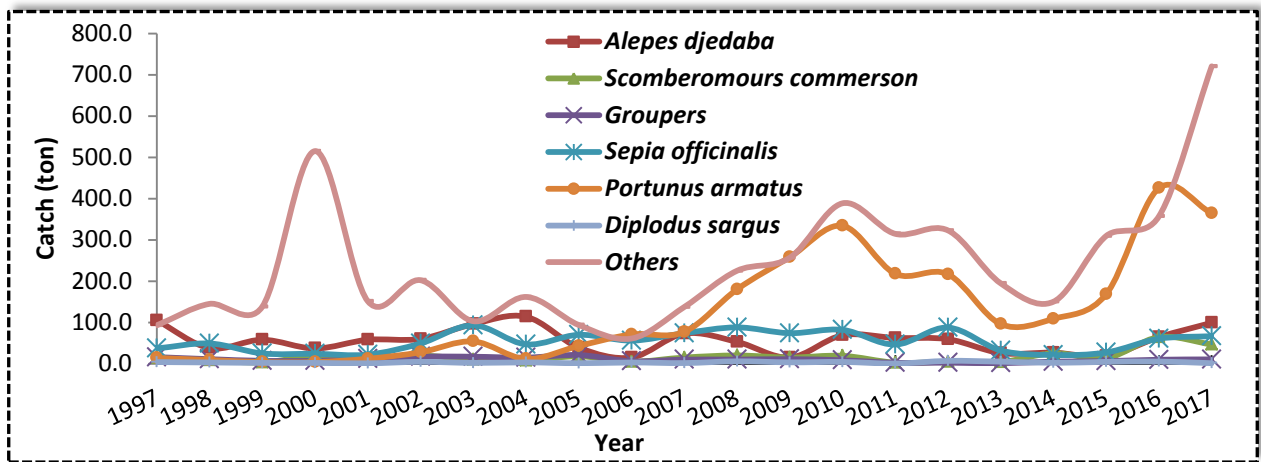


Fig 3. Total catch per ton of most important species in North Sinai fishery from season 1997 to 2017.

4. Fishing gears

Fish resources in the Mediterranean Sea coast of North Sinai exploited by three main fishing gears, the purse – seine nets, trammel nets, and long lines (Al-Beak, 2015). These gears are only one that authorized by North Sinai Zone for Fish Resources (NSZ), however, trawling gear comes from nearby provinces to exploit fish resources in the North Sinai coast. On the other hand, minor gears belong to these three main gears use small scale fisheries (seasonal gears) to catch specific species.

The Southeast Mediterranean Sea fisheries support an important fishery activity, comprising a total of 198 fishing vessels (~ 4.7 % of the Egyptian Mediterranean fleet in 2017), which land an annual weight of up to 2000 tons. The bulk of landings come from the purse seine fleet, which consists of 44 vessels that land around 700 ton per year which contribute about 50% from total fishes caught. The artisanal fleet (trammel net), composed of 144 units of vessels trammel net gear has the largest number of fleets in this area (Table 1), that land around 300 ton per year which contribute about 20% from total fishes caught. Then the long line gear consists of 10 vessels. Although trawls are not registered in gears category in North Sinai fisheries, it has a large amount of catch that equal or more than catch that comes from trammel net gear (about 500 ton yearly).

In general, the purse seine fleet mainly targets sardines as round sardinella (*Sardinella aurita*, Valenciennes, 1847), *Sardina pilchardus*, Walbaum, 1792) and anchovy *Engraulis encrasicolus* Linnaeus, 1758), occasionally landing, as by-catch, other species of low commercial value, such as the horse mackerel (*Trachurus* spp. Rafinesque, 1810) and the bogue *Boops boops*, Linnaeus, 1758). For the whole North Sinai's Mediterranean, the purse seine landings represent almost 50 % of the total catch. During the two seasons, 2016 and 2017 purse seine presented 672.02 and 839.90 tons about 45.64 and 51.02 %, respectively, from total yield that produced, thus, it has become the first gear producer in North Sinai fisheries.

Table 1. Different active gears and its total production from the North Sinai fishery (Southeast Mediterranean).

Gear	Year	Ton	%.	Var.	S. D.	F	P
Purse seine		672.02	45.64	2908	±53.92		
Trammel net		270.49	18.37	22.54	±9.27	8.65	> 0.0001
Long line	2016	18.66	1.27	0.82	±0.91		
Trawl		511.33	34.73	42.61	±12.12		
Total		1472.50					
Purse seine		839.90	51.02	4389	±66.26		
Trammel net		293.50	17.83	207	±14.38	8.22	> 0.0002
Long line	2017	20.90	1.27	0.55	±0.74		
Trawl		491.80	29.88	40.98	±14.89		
Total		1646.19					

In some cases, trammel net fleet and trawl gear share the same species as a target species, trammel net gear mainly targets mollusks as *Sepia officinalis* (Common cuttlefish) and crustaceans as *Portunus armatus* (Blue swimmer crab). Moreover, trammel net targets bony fish as family Mugilidae (*Mugil cephalus*, Linnaeus, 1758; Flathead grey mullet, *Liza aurata*, Risso, 1810 and *Chelon ramada*, Risso, 1827 the thinlip grey mullet), family Sparidae (*Diplodus sargus*, White Seabream) and family siganidae (*Siganus rivulatus*, the rivulated rabbitfish).

Trammel net gear mainly targets *Crabs*, *Sardinella* spp., *Scomberornorus commerson*, *Alepes djedaba*, *Sepia officinalis*, and *Sparidae* spp. Trammel net produce 270.49 and 293.50 tons that represent 18.37 and 17.83 % from total catch in 2016 and 2017, respectively (NSZ, 2016; 2017). Furthermore, trawling fishing gears take the same significant important where produce 511.33 and 491.80 tons that represent 34.73 and 29.88 % from total catch in 2016 and 2017, respectively.

Long line in North Sinai fishery hasn't the same importance as other fishing gears category; nevertheless, long line gear targets most expensive and high marketable fishes as *Sparidae* spp., *Dicentrarchus labrax*, *Argyrosomus regius* and *Epinephelus* spp. which produced about 18.66 and 20.90 tons that execute 1.27 % from total catch in 2016 and 2017, respectively.

All previous gears that work in North Sinai fisheries and landings in EL-Arish Seaport are motorized and have outboard engines start with 10 horsepower (HP) to 40 HP and inboard engines range between 75 horsepower and 230 HP. Trammel net gear is not authorized to work with engines that more than 40 HP. Nevertheless, purse seine and long line gears are authorized to work with engines that more than 40 HP.

Analyze of variation between total catch at season 2016 and 2017 by all gears type, the null hypothesis H_0 is rejected after $F = 8.648$ and $F_{0.05, 3, 44} = 2.8165$ ($F > F_{crit}$, $P < 0.0005$) that means there is a significant statistical difference between mean total catch for different gears at fishing season 2016 and 2017.

Compression with EL-Arish Seaport and other main landings sites in the Egyptian Mediterranean coastal in 2017 the trammel net were found as is the main registered gears that dominant in North Sinai fishery by 144 registered units and become like a second landing site after Abu-Qir which comprises about 20.6% from Egyptian Mediterranean trammel nets. On the other hand, Purse-seine with 44 units represents about 18.9% from Egyptian Mediterranean purse seine gears. The rarest gear in North Sinai fishery is the long line with 10 fleets that presents 0.9% from Egyptian Mediterranean long line gear.

The absence of trawl gear in North Sinai fishery was not based on GAFRD decision, but due to inattentive local fisheries-society for trawl technical procedures.

5. Landings and Catch composition

Total trips done by purse seine boats in 2016 were fluctuated with different seasons as it were high in summer but decreases in winter, autumn and spring (471, 600 and 480 trips in summer and 403, 299, 378, 394, 309, 431, 462, 370 and 200 in other seasons); the number of total landing by purse seine gear was 4797 trips. Furthermore, trammel net boats did trips once more in summer higher than other seasons (603, 730 and 710 trips in summer and 660, 600, 550, 600, 600, 570, 700, 740 and 500 in other seasons); the number of total landing by trammel net gear was 7563 trips. Also, long line boats did trips once more in autumn higher than other seasons (66, 70 and 58 trips in autumn and 38, 36, 38, 60, 68, 49, 61, 67 and 38 in other seasons); the number of total landing by long line gear was 680 trips (**Fig. 4**).

In 2017, total trips done by purse seine boats had wavering throughout different seasons as it were high in late summer and autumn but decreases in winter, summer and spring (612, 507, 488 and 409 trips in late summer and autumn and 398, 302, 361, 381, 400, 201, 207 and 233 in other seasons); the number of total landing by purse seine gear was 4499 trips. Additionally, trammel net boats did trips once more in summer higher than other seasons (750, 700 and 648 trips in summer and 570, 600, 550, 600, 600, 270, 403, 540 and 500 in other seasons); the number of total landing by trammel net gear was 6731 trips. Besides, long line boats did trips once more in winter higher than other seasons (71 and 59 trips in winter and 42, 47, 62, 71, 44, 51, 70, 50, 52 and 45 in other seasons); the number of total landing by long line gear was 664 trips (**Fig. 5**).

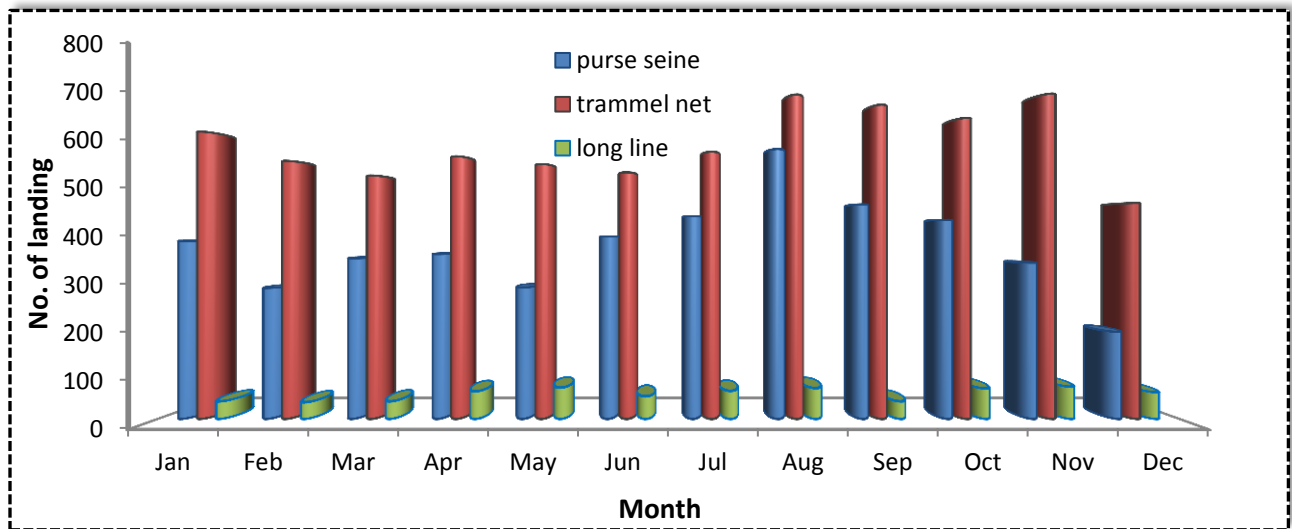


Fig 4. Monthly total landing of trammel net, purse seine, and long line gear in the East Mediterranean fishery, El Arish seaport, during season 2016.

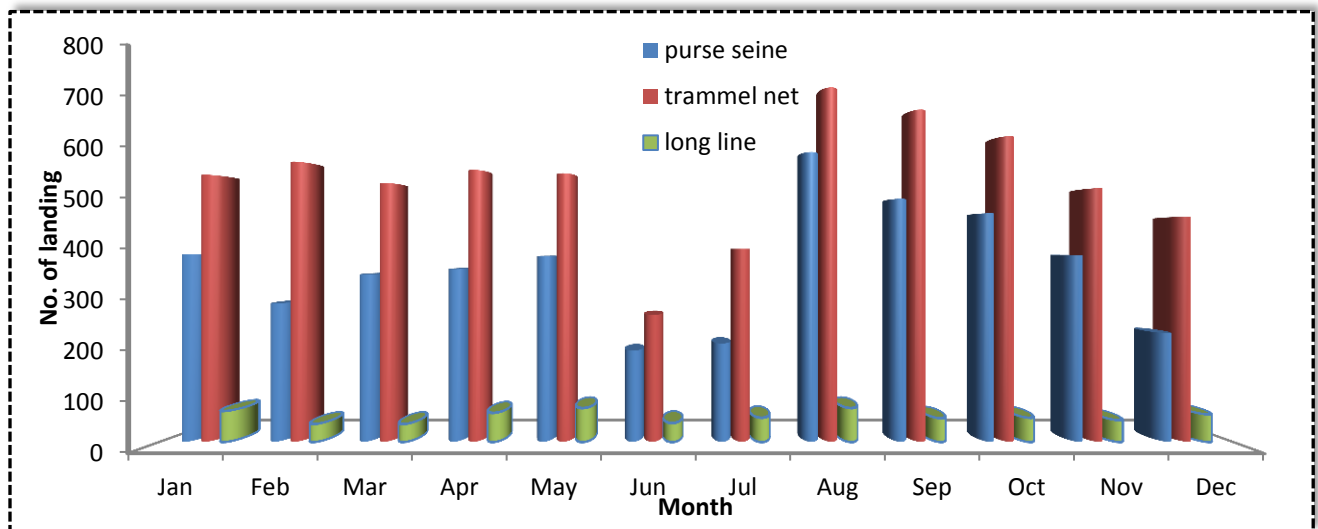


Fig 5. Monthly total landing of trammel net, purse seine, and long line gear in the East Mediterranean fishery, El Arish seaport, during season 2017.

Total catch not only different by gear type but also between target and non-target species, in 2016, trammel net target *Cartilaginous* spp., *Siganus rivulatus*, *S. commerson*, *Sparidae* spp., *Sardinella* spp., *Pomadasys stridens*, *Sepia officinalis*, *Crabs*, *Mugillidae* spp., *Alepes djedaba*, *Dicentrarchus labrax*, and *Solea vulgaris* which represented 20, 10, 30, 100, 10, 10, 30, 30, 40, 20, 100 and 100% from its total catch, respectively. Common cuttlefish caught by the trammel net are produced by 18.2 tons which represent about 30 % from the total catch of this species (**Table 2**).

Purse seine gear targets some species that similar to trammel net, also other that different as *Cartilaginous* spp., *Siganus rivulatus*, *Euthynnus alletteratus*, *S. commerson*, *Sardinella* spp., *Pomadasys stridens*, *Mugillidae* spp., *Pomatomus saltator*, *Trachurus* spp. and *Alepes djedaba* which they were represent 80, 90, 100, 70, 90, 90, 60, 100, 100 and 80.0%, respectively from its total catch.

Long line gear has a technique to catch fishes that is different than other gears which it mainly targets species that un-fished by others as *Argyrosomus regius*, *Epinephelus* spp. and others. In 2016 long line gear yield about 7.64, 9.66, and 1.36 tons that represent 100 % from the total catch of these species.

Trawl gear is mainly targeted demersal species that settle in the sea bottom at most or entirely its life as *Pagrus pagrus*, *Shrimps*, *Sepia officinalis*, *Crabs*, *Mullus barbatus*, *Saurida undosquamis* and Others which it yields 15.8, 58.2, 42.39, 297.8, 1.58, 2.98 and 92.58 tons respectively, that represent 100% from *Pagrus pagrus*, *Shrimps*, *M. barbatus*, *S. undosquamis* and Others total catch. Also, 70 % from both Crabs and *S. officinalis* total catch.

In fishing season 2017, trammel net target *Cartilaginous* spp., *Siganus rivulatus*, *S. commerson*, *Sparidae* spp., *Sardinella* spp., *Pomadasys stridens*, *Sepia officinalis*, *Crabs*, *Mugillidae* spp., *Alepes djedaba* *Dicentrarchus labrax* and *Solea vulgaris* which they represented 19.9, 10, 30, 100, 10, 10, 30, 30, 40, 20, 100 and 100% from its total catch, respectively. Common cuttlefish caught by trammel net is produced by 20 tons which represented about 30 % from the total catch of this species.

During fishing season of 2017, purse seine gear target some species that similar to trammel net, also other that different as *Cartilaginous* spp., *Siganus rivulatus*, *Euthynnus alletteratus*, *S. commerson*, *Sardinella* spp., *Pomadasys stridens*, *Mugillidae* spp., *Pomatomus saltator*, *Trachurus* spp. and *Alepes djedaba* were represent 80.1, 90, 100, 70, 90, 90, 60, 100, 100, and 80.0 % from its total catch, respectively (**Table 2**).

As in fishing season 2016, the long line targets the same species in the fishing season 2017 by some difference in total catch. On other hand, by the same percentage of total yield from fishery as *Argyrosomus regius*, *Epinephelus* spp. and others which yields 8.50, 10.50, and 1.90 tons that represent 100 %, respectively from the total catch of these species.

Without serious modification, trawl gear targets in fishing season 2017 revealed same species for the previous season as *Pagrus pagrus*, *Shrimps*, *Sepia officinalis*, *Crabs*, *Mullus barbatus*, *Saurida undosquamis* and Others which represented 100% from *Pagrus pagrus*, *Shrimps*, *M. barbatus*, *S. undosquamis* and Others total catch. Together with, 70 % from both Crabs and *S. officinalis* total catch.

Fishing effort in North Sinai fishery represents about 4.7% in 2017 from total Egyptian Mediterranean fisheries efforts, other landing locations as Port Said, Ezbet El-Borg, Baltim, Motobas, Rashid, Maadia, Abu-Qir, Alexandria, and Matrouh were represents 20.8, 23.6, 10.2, 2, 9.3, 9.6, 8.3, 10.5 and 1.1 % respectively. Thus, available data is a few different with efforts published by Samy-Kamal, 2015 which was 4.5, 10.78, 16.9, 4.73, 0.5, 4.77, 6.6, 7.64, 5.24 and 0.22%, respectively in 2012. The previous difference between efforts is due to some vessels registration transfer between fishing harbors and landing sites not for fish stock density or catch rates.

Table 2. Total catch by species for different gears during fishing seasons 2016 and 2017.

2016				2017			
Gea	Species	Catch	%.	Gea	Species	Catch	%.
<i>Trammel net</i>	<i>Cartilaginous spp.</i>	4.00	20	<i>Trammel net</i>	<i>Cartilaginous spp.</i>	11.9	19.9
	<i>Siganus rivulatus</i>	4.90	10		<i>Siganus rivulatus</i>	24.1	10
	<i>Scomberornorus</i>	19.32	30		<i>Scomberornorus</i>	14	30
	<i>Sparidae spp.</i>	10.47	100		<i>Sparidae spp.</i>	5.2	100
	<i>Sardinella spp.</i>	48.68	10		<i>Sardinella spp.</i>	33.8	10
	<i>Pomadasys stridens</i>	0.76	10		<i>Pomadasys stridens</i>	9.5	10
	<i>Sepia officinalis</i>	18.20	30		<i>Sepia officinalis</i>	20	30
	<i>Crabs</i>	127.62	30		<i>Crabs</i>	109.3	30
	<i>Mugillidae spp.</i>	14.82	40		<i>Mugillidae spp.</i>	28.9	40
	<i>Alepes djedaba</i>	12.89	20		<i>Alepes djedaba</i>	19.8	20
	<i>Dicentrarchus labrax</i>	7.59	100		<i>Dicentrarchus labrax</i>	15.7	100
	<i>Solea vulgaris</i>	1.24	100		<i>Solea vulgaris</i>	1.3	100
	Total	270.49	18.37%		Total	293.5	17.83%
	<i>Purse seine</i>	<i>Cartilaginous spp.</i>	16		80	<i>Purse seine</i>	<i>Cartilaginous spp.</i>
<i>Siganus rivulatus</i>		44.07	90	<i>Siganus rivulatus</i>	217		90
<i>Euthynnus alletteratus</i>		24.11	100	<i>Euthynnus alletteratus</i>	15.3		100
<i>Scomberornorus</i>		45.07	70	<i>Scomberornorus</i>	32.7		70
<i>Sardinella spp.</i>		437.46	90	<i>Sardinella spp.</i>	303.9		90
<i>Pomadasys stridens</i>		6.82	90	<i>Pomadasys stridens</i>	85.4		90
<i>Mugillidae spp.</i>		22.22	60	<i>Mugillidae spp.</i>	43.4		60
<i>Pomatomus saltator</i>		3.98	100	<i>Pomatomus saltator</i>	6.7		100
<i>Trachurus spp.</i>		20.74	100	<i>Trachurus spp.</i>	8.3		100
<i>Alepes djedaba</i>		51.55	80	<i>Alepes djedaba</i>	79.4		80
Total		672.02	45.64%	Total	839.9		51.02%
<i>Long Line</i>	<i>Argyrosomus regius</i>	7.64	100	<i>Long Line</i>	<i>Argyrosomus regius</i>	8.5	100
	<i>Others</i>	1.36	100		<i>Others</i>	1.9	100
	<i>Epinephelus spp.</i>	9.66	100		<i>Epinephelus spp.</i>	10.5	100
	Total	18.66	1.27%		Total	20.9	1.27%
<i>Trawl</i>	<i>Pagrus pagrus</i>	15.8	100	<i>Trawl</i>	<i>Pagrus pagrus</i>	12.9	100
	<i>Shrimps</i>	58.2	100		<i>Shrimps</i>	68.8	100
	<i>Sepia officinalis</i>	42.39	70		<i>Sepia officinalis</i>	46.7	70
	<i>Crabs</i>	297.8	70		<i>Crabs</i>	255.1	70
	<i>Mullus barbatus</i>	1.58	100		<i>Mullus barbatus</i>	3.5	100
	<i>Saurida undosquamis</i>	2.98	100		<i>Saurida undosquamis</i>	4.1	100
	<i>Others</i>	92.58	100		<i>Others</i>	100.7	100
	Total	511.33	34.73		Total	491.80	29.88
Total catch 2016		1472.50		Total catch 2017		1646.10	

CONCLUSION

This study is dealing with *S. officinalis* in North Sinai fishery status and Southeast Mediterranean Sea Egyptian fisheries. Sardines were the most dominant species that rise in total catch production followed by crabs, where, common cuttlefish catch increased rapidly from non-target species to become as target species for trammel net and trawl in this Southeast Mediterranean Sea. Purse seine is the most active fishing gear with 4797 landings and followed by trammel net.

Recommendation

As to the marketable and medical importance of *S. officinalis* and its high price, researchers are still inattentive to study this species and its benefits. Like many other fishery regions in Egypt at Mediterranean and Red Seas, North Sinai fishery management is requiring experiences and co-operation of competent to maintain this important part of Egypt.

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