

Communication

Insights on Illegal, Unreported and Unregulated (IUU) Fishing Activities by Egyptian Vessels in Neighbouring Countries

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Abstract: Illegal, unreported and unregulated (IUU) fishing is recognised as one of the largest threats to the sustainability of the world's fisheries. The fight against IUU fishing activities has recently become a high priority in the international fisheries management agenda. While a number of academic contributions have sought to improve the understanding of the problem, data are still limited, especially in developing countries. In the absence of any information in this regard in Egypt, this contribution is the first attempt to report the available information about cases of Egyptian fishing vessels detained for fishing illegally in neighbouring countries, including the Mediterranean and Red Seas. The highest number of cases was observed in 2015 (7 cases) followed by 2010, 2013, 2016 and 2020 (each with 5 cases). The highest number of detained vessels by far was observed in 2020 (44 vessels) followed by 2015 (19 vessels). Tunisia was the country with the highest number of cases (17 cases) followed by Libya (10 cases), while Somalia detained the highest number of vessels (42 vessels) followed by Libya (22 vessels). The results shed light on the problems that led to this situation, starting with depleted fisheries, a poor monitoring system and a difficult economic situation in the fishing sector.

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Keywords: IUU fishing; Mediterranean fisheries; monitoring; control and surveillance; Red Sea fisheries; small-scale fisheries; unreported catch

1. Introduction

Illegal, unreported and unregulated (IUU) fishing has been identified as one of the main threats to the sustainability of fisheries resources and therefore to food security and global resilience [1–4]. IUU fishing has received great attention and warnings from the FAO and intergovernmental organisations [5], as well as from the scientific community with many studies improving our understanding about its adverse effects and deterrence measures. The IUU fishing may lead to inaccurate information about the catch volumes harvested by fishing activities and the real magnitude of fish stock removal, and therefore underestimated input data (e.g., catch and effort) for stock assessments, compromising the scientific endeavours to estimate the future stocks and their recruitment capacities [6,7]. This in turn also leads to more uncertainties in the decision-making process and to inadequate measures and ineffective fisheries management [7,8]. The depletion of some fish stocks results in the increase in restrictions on legal fishing to recover these depleted stocks, however these management restrictions sometimes also exacerbate illegal fishing.

Threats of IUU to the sustainability of fish stocks and global fisheries are not limited to the previously mentioned biological aspects but also to socio-economic ones. IUU fishing generates tens of billions of \$US annual losses to the global economy. Based on the FAO estimates, the global loss from IUU fishing is about 11–26 million tonnes of fish each year, which costs roughly \$US 10–23 billion [9,10]. Its economic impacts are more accentuated in developing countries, where some studies have estimated that IUU fishing divests them of \$US 9 billion per year, of which \$US 1 billion is lost by the African

continent [11,12]. Another study showed that the economic loss resulting from IUU fishing in Angola, Sierra Leone, Namibia, Guinea, Liberia, Mozambique, Kenya, Seychelles, Somalia and Papua New Guinea reaches 19% of their total catch value (approximately \$US 372 million) [12]. Other effects of IUU may be observed in the local seafood markets, such as alternating seafood prices and increasing fluctuation. Additionally, it contributes to inequitable competition between those fishers abiding by management regulations and those who do not [13,14].

For these reasons, the elimination of the IUU activities has become a global priority and an important goal (SDG 14) of the 2030 Agenda for Sustainable Development, which states that: *“By 2020, effectively regulate harvesting and end overfishing, illegal, unreported and un-regulated fishing and destructive fishing practices and implement science-based management plans, in order to restore fish stocks in the shortest time feasible, at least to levels that can produce maximum sustainable yield as determined by their biological characteristics”* (United Nations 2015).

Fisheries are an important part of Egyptian culture and society [15]. Domestic fish supplies play an important role in national food security [15–17]. Its importance is significant in the coastal areas, where the fishing sector is the main source of income and creation of employment and provides a livelihood to many people. Its role is even more essential when considering the indirect employment created by the sector [15,16,18,19]. Recently, there has been a surge of news/media articles about repeated incidents of detention of Egyptian fishers in some Arab and African countries bordering the Mediterranean and Red seas, such as Saudi Arabia, Yemen, Eritrea, Tunisia and Libya, which necessitated the intervention of the Egyptian government for their release. Most recently, Eritrea detained about 100 Egyptian fishers who were on board several fishing vessels off its coast, according to Eritrean local media. These incidents come despite the Egyptian authorities' appeal to the fishers to refrain from entering the territorial waters of other countries, out of respect for their sovereignty, to preserve their lives, and to avoid falling under the laws of these countries. This has raised questions about the extent of IUU fishing by Egyptian vessels in neighbouring countries, and the reasons behind these repeated incidents.

Although the concept of IUU fishing refers to all types of fishing activity, most studies make reference to industrial and large-scale fisheries operating mainly in international marine areas. However, some studies e.g., [20,21] analysed the impacts of offshore IUU fishing activities on stocks and environment. Further, IUU fishing by small-scale fisheries (SSF) represents an unknown situation with very limited data. Estimates of the current extent of this activity remain uncertain. The collection of specific, accessible and reliable data about IUU is a common challenge among all fishery types, and even more challenging in the SSF context. The use of social media data is becoming increasingly widespread in ecological and fisheries research to better describe limited-data fisheries, and this trend is expected to continue as social media use increases globally [22,23]. Recently, researchers have sought to exploit novel data sources, including social media [24–27] and news articles [28–32].

Improving knowledge about IUU is an important step toward effective prevention strategies, and finding ways to deter it. However, no specific studies have been made to analyse IUU fishing in Egyptian fisheries, at a national level, or IUU fishing by Egyptian vessels in third countries. Recently, there has been a surge of news/media articles e.g., [33–35] about repeated incidents of detention of Egyptian fishers in neighbouring countries bordering the Mediterranean and Red Seas. Taking into account the absence of any information in this regard, this contribution is the first attempt to report the available information about cases of Egyptian fishing vessels detained for fishing illegally in neighbouring countries, including the Mediterranean and Red Seas. Additionally, taking into account the difficulty of obtaining official data from management authorities about the IUU issue due to confidentiality, and because there are several management and control agencies from different countries involved, it should be noted that this study is

preliminary and only tries to highlight this phenomenon, provide first data and analyse the possible reasons.

2. Materials and Methods

News/media articles were compiled (up to June 2021) and examined to extract the available information about Egyptian vessels detained for fishing illegally in neighbouring countries and the reasons for this repeated phenomenon. First, Google was used as a search engine, using the search terms “(Illegal fishing OR IUU fishing) and (Egyptian vessels OR Egyptian fishery OR Egyptian fisheries) and (detained Egyptian fishers) and (list of all neighbouring states and territories names—a single state name: e.g., Libya, Turkey, OR Saudi Arabia ... etc.)”, to compile all news/media articles (see the location of Egypt and neighbouring waters and countries in Figure 1). In addition, non-English news/media were compiled using the same search terms in 6 languages, including English, Arabic, Turkish, Greek, Italian and French, although nothing was found regarding this issue in Greek. The search resulted in a total of 153 news/media articles reporting cases and 15 news/media articles focused on the reasons. All the compiled articles were dated between 2009 and 2021.

Each article was coded and information when available was extracted for: geographic location, the date of the news, the date of the case (if not available—the date of the news was used instead), the number of vessels involved in the case, the number of fishers on-board, the imposed sanction and the amount or value of confiscated catch. All duplicated information was removed.



Figure 1. Map showing the location of Egypt, its surrounding water bodies (Mediterranean and Red Seas), and neighbouring countries.

3. Results

An increase in the number of media articles reporting cases was observed in the last 2 years, showing 85 articles in 2020 and 2021 out of the 153 articles (Figure 2A). Almost half of the articles (81 articles) were in Arabic, followed by English and Italian (Figure 2B). Almost half of the news items (70 articles) were reporting cases in Tunisia, which have been covered not only in Arabic but also in English, French and Turkish (Figure 2C). This was followed by Italy with 22 articles.

The extracted information from the collected articles is summarised in Table 1 with a total of 46 cases. In only 3 cases was the amount or value of the confiscated catch mentioned. Sanctions varied greatly among cases, depending on the judicial system of the country where vessels were detained. Some articles were reporting more than one vessel. The number of reported cases and the number of detained vessels is presented in Figure 2D. The highest number of cases was observed in 2015 (7 cases), followed by 2010, 2013, 2016, and 2020 (each with 5 cases) (Figure 2D). The highest number of detained vessels was in 2020 (44 vessels) followed by 2015 (19 vessels). Tunisia was the country with the highest number of cases (17 cases), followed by Libya (10 cases) (Figure 2E), while Somalia detained the highest number of vessels (42 vessels), followed by Libya (22 vessels) (Figure 2F).

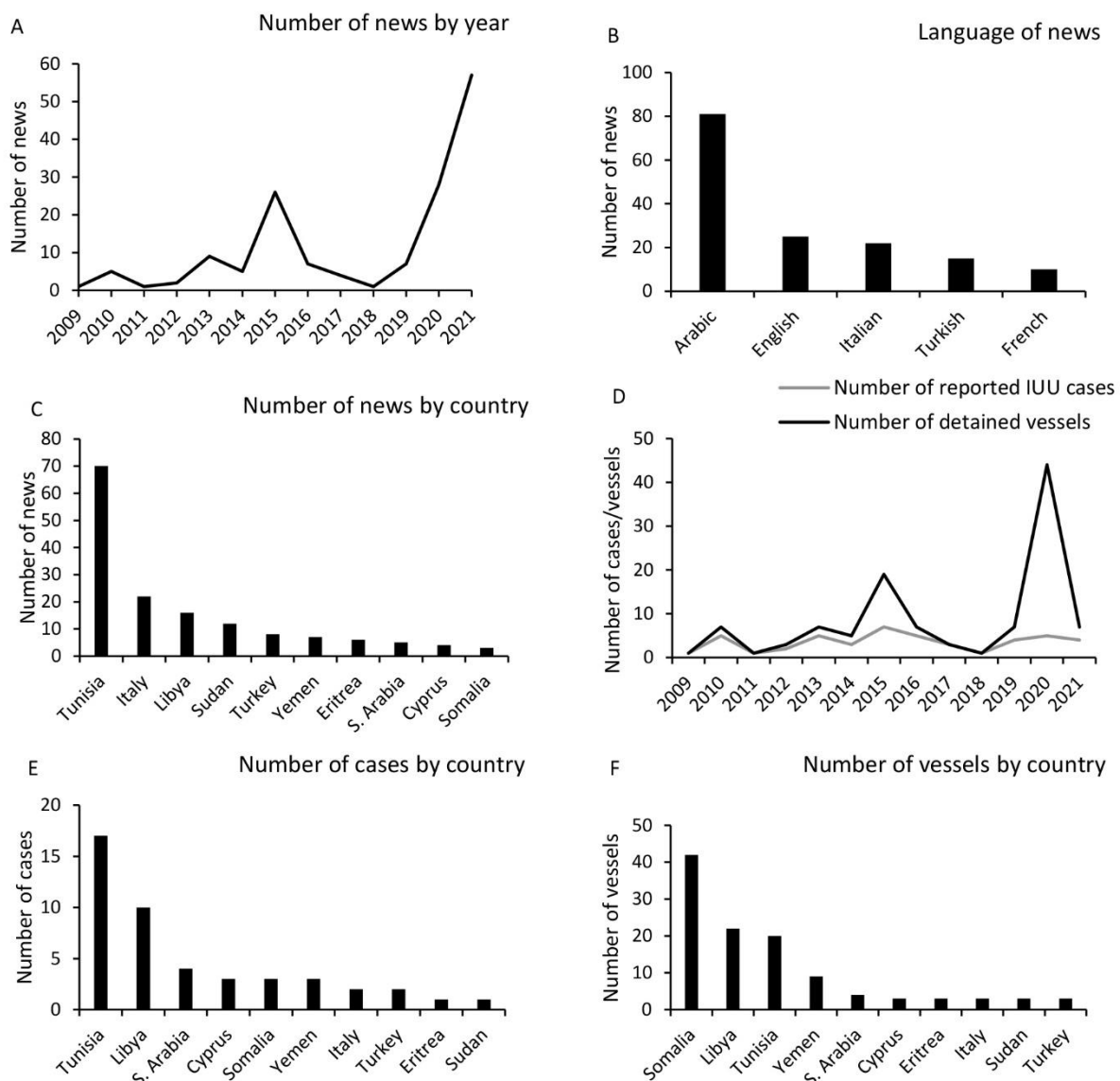


Figure 2. News/media articles reporting cases of Egyptian IUU fishing and the detention of Egyptian vessels in neighbouring countries. Number of news/media articles by year (A); number of news/media articles by language (B); number of news/media articles by location of the case (C); reported cases of IUU fishing by Egyptian vessels in neighbouring countries and detained vessels by year (D); number of cases by country (E); number of detained vessels by country (F).

Table 1. Summary of the available data about cases of IUU fishing by Egyptian vessels, and the detention of Egyptian fishers, in neighbouring countries reported by news/media articles. Libyan dinar (LYD), Saudi riyals (SAR), Sudanese pound (SDG), Tunisian dinar (TND), Turkish lira (TRY).

Year	Month	Location	Nº of Vessels	Nº of Fishers	Catch	Sanction
2009	February	Libya	1	6	NA	2 months Jail/LYD 50 for each fisher
2010	August	Tunisia	1	20	NA	NA
2010	October	Tunisia	2	27	NA	NA
2010	October	Libya	2	21	NA	3 months jail/vessel confiscation
2010	November	Tunisia	1	10	NA	NA
2010	December	Turkey	1	6	NA	NA
2011	August	Tunisia	1	14	NA	NA
2012	August	Libya	NA	90	NA	NA
2012	September	Tunisia	2	24	NA	NA
2013	February	S. Arabia	1	35	NA	NA
2013	March	S. Arabia	1	29	NA	SAR 50,000/vessel confiscation for 2 months
2013	May	Libya	3	51	NA	NA
2013	May	Libya	1	NA	NA	NA
2013	October	Tunisia	1	19	NA	NA
2014	August	Tunisia	1	18	NA	NA
2014	October	Yemen	3	NA	NA	NA
2014	December	Somalia	1	NA	NA	NA
2015	January	Libya	10	300	NA	NA
2015	January	Libya	1	15	NA	NA
2015	April	Sudan	3	106	NA	6 months Jail/SDG 5000 for each fisher
2015	August	Tunisia	NA	15	NA	NA
2015	August	Turkey	2	16	NA	TRI 105,119
2015	September	Tunisia	1	11	NA	NA
2015	December	Tunisia	1	16	NA	NA
2016	January	Tunisia	NA	13	NA	NA
2016	February	Libya	NA	18	NA	NA
2016	September	Tunisia	1	3		8 month jail
2016	October	Tunisia	NA	16	NA	TND 2000 (approx. \$890)
2016	December	Yemen	3	45	NA	€300,000
2017	January	Tunisia	NA	14	NA	NA
2017	April	S. Arabia	NA	6	NA	NA
2017	July	Libya	NA	7	NA	NA
2018	September	Cyprus	1	5	NA	NA
2019	May	Italy	1	NA	50 Kg	NA
2019	October	Cyprus	1	NA	1.290 Kg (value of €25,000)	€8500
2019	October	Cyprus	1	NA	640 Kg (value of €13,000)	€8500
2019	December	Somalia	4	10	NA	NA
2020	October	Somalia	37	NA	NA	NA
2020	December	Yemen	3	NA	NA	NA
2020	December	Tunisia	1	17	NA	NA
2020	December	Libya	1	7	NA	€35,000
2020	December	Tunisia	2	28	NA	NA

2021	January	Tunisia	1	15	NA	NA
2021	January	Eritrea	3	97	NA	Detained 100 days
2021	January	S. Arabia	1	35	NA	NA
2021	February	Italy	2	29	NA	€8000

4. Discussion

Despite the growing discussion in Egypt about the increasing cases, the reported cases have remained the same (± 5 cases per year) during the last decade. However, according to the results, this discussion has increased as a result of the increase in the number of news/media articles in the last two years. In some media articles, fishers have explained that they had become disoriented at sea, and had unintentionally crossed the territorial boundaries of neighbouring countries. However, in response to those claims, other media articles reported that officials from fisheries management authorities ruled out that the vessels would lose their way at sea, considering that most Egyptian fishing vessels are equipped with GPS devices.

One of the main reasons behind this situation is the low abundance of Egyptian coastal fisheries resources. The Mediterranean, in general terms, is a heavily overexploited sea [36,37], while a large part of the Egyptian Red Sea is protected for the conservation of many sensitive habitats (e.g., mangroves and coral reefs) except for the Gulf of Suez [18], which reduces the available fishing grounds, especially for trawling. The Egyptian landings from both the Mediterranean and Red Sea have shown a decline in the last two decades (Figure 3). Most of the stock assessments conducted in the last few years showed that many species in Egyptian fisheries are subject to overfishing, including sea bream *Sparus aurata*, Egyptian sole *Solea aegyptiaca*, striped red mullet *Mullus surmuletus*, cuttlefish *Sepia officinalis*, round sardinella *aurita*, brushtooth lizard fish *Saurida undosquamis*, puffer fish *Lagocephalus sceleratus*, rabbitfish *Siganus rivulatus* and two-barred seabream *Acanthopagrus Bifasciatus* [38–46]. Most of these assessments have recommended a reduction in fishing mortality through the adoption of adequate management measures [47]. Despite the scarcity of fisheries resources and the scientific recommendations to reduce fishing efforts, the number of licensed fishing vessels remains the same or is even increasing slightly, and their fishing capacity is greater than the available resources on the Egyptian coasts [15].

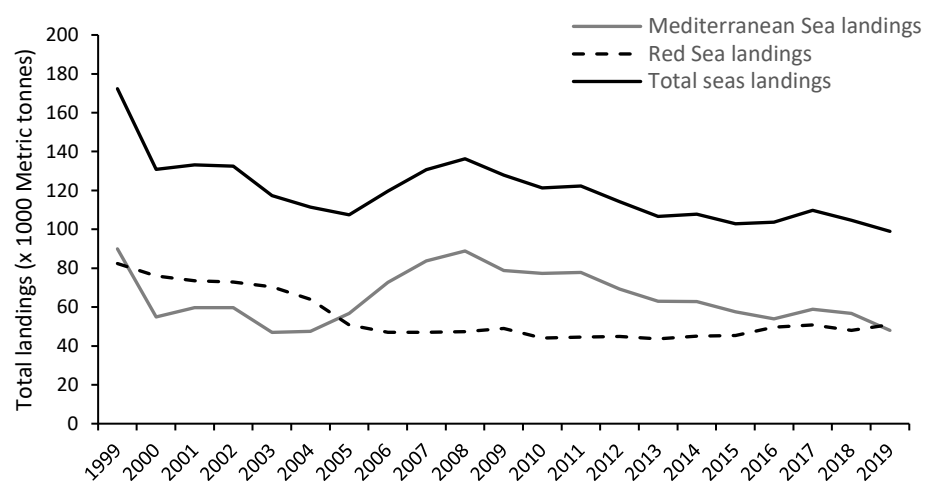


Figure 3. Evolution of total landings (x 1000 metric tonnes) in Egyptian marine fisheries, Egyptian Mediterranean Sea fisheries and Egyptian Red Sea fisheries in the last two decades (1999–2019).

Moreover, some fishers explained that the increase in the operating expenses of the vessel (including fuel, maintenance and ice) is the main driver that makes them go to fish in other countries, because these countries have more abundant fisheries resources,

enabling the achievement of an appropriate economic return, while fishing in Egyptian waters cannot cover these expenses, especially those of large vessels. It should be noted that the costs of fishing trips doubled by the end of 2016 due to the devaluation of the Egyptian pound to more than 50% of its previous value [16]. This has been exacerbated by the removal of governmental subsidies on fuel and the increase in inflation rates in the following years [15,16].

One of the tasks of the fisheries management authority is to improve the monitoring system, as well as to update the sanction schemes. The penalties stipulated in Fishing Law No. 124 of 1983 were insufficient and outdated, taking into account the inflation and devaluation of the currency. Amendments in the Fishing Law came into force a few months ago, stipulating the withdrawal of the fishing permit of any vessel detained in another country, and also setting more severe economic sanctions and penalties, including prison sentences if the violation is repeated [48]. In addition, the new law implements the creation of a Marine Communication Center to trace the activities of fishing vessels [48]. Toughening the penalties in the new amendments of fisheries law and having the ability to track vessels' positions are essential, but probably will not prevent fishers from fishing in third countries. Taking into account that illegal fishing is an economic activity, such repeated detentions of Egyptian fishers in neighbouring countries will not stop, unless the management authority intervenes to improve the economic conditions of fishers and reduce the operating costs of fishing vessels. In the past, there were agreements between Egypt and some neighbouring countries, such as Eritrea, Somalia, Yemen and Tunisia, that allowed Egyptian fishers with special permits to fish in these countries; however, such agreements are no longer in force. The Egyptian fisheries management authority should seek similar agreements with some countries in the region to allow the Egyptian fishing fleet to expand legally on the EEZ of those countries.

The lack of information on fishing fleets and poor implementation of port state controls are among the main barriers in place to deter IUU fishing in several coastal countries. Looking at the bigger picture, the creation of a regional (e.g., in the Red Sea) enforcement agency (e.g., similar to the European Union: European Fisheries Control Agency (EFCA)) is needed to promote the highest-level common standards in terms of control, inspection and monitoring, and to enhance capacity building and cooperation between all the parties involved (countries in the region), thus guaranteeing the effectiveness of its monitoring operations.

Useful studies have shown that social media can be used to compensate for the lack of field studies, for example, to identify new fish species in the Mediterranean [27]. By definition, IUU fishing activity is not observed, which complicates the work of fisheries scientists. Nonetheless, the highlighted incidences of IUU fishing in this case study, based on the review of media articles, reveals that there are some gaps in the scientific knowledge (e.g., the real magnitude of fish stock removal) and fisheries management at regional level. More accurate and accessible data should be provided by management and control agencies to facilitate the work of scientists. For example, the National Oceanic and Atmospheric Administration (NOAA) issues a biennial report on IUU Fishing, Bycatch and Shark Catch [49]. According to the last report, Egypt was among the countries that were identified as lacking a regulatory program comparable in effectiveness to the United States for reducing the bycatch of protected marine life in their fishing operations. Lessons also can be learned from how Spain, as a leading European and international fishing power, has been a pioneer in the adoption of national, European and international regulations and measures, in the fight against IUU fishing e.g., see [50]. Another example from the Mediterranean Sea is the Italian coastguard, which is responsible for fisheries monitoring, control and surveillance (MCS) at national level, and issues an annual report of fisheries control in Italy that is accessible on their website; see [51]. Further, NGOs such as "Global Fishing Watch" (released September 2016) provide open-access data and an online platform for visualisation and analysis of fishing activity at sea, and are working closely with various governments in Africa (e.g., Ghana) and with other NGOs to enhance

existing monitoring and surveillance efforts of enforcement authorities. Such data would be very useful for future studies to explore fishing effort and IUU activities. Finally, the absence and/or low capacity of scientific observer programs in the region cannot be ignored. The observers' role is very important. Observers can play a critical role being our eyes at sea to collect essential data for science and compliance, such as monitoring catches and ensuring fishermen are following the fishing regulations.

5. Conclusions

This contribution is the first attempt to provide preliminary and summary information on cases of Egyptian fishing vessels detained for fishing illegally in neighbouring countries, including the Mediterranean and Red Seas. The observations presented in this note provide preliminary information on IUU fishing, the extent of Egyptian vessels involved, the circumstances that cause it (including declining stocks in Egyptian waters, a poor monitoring system and the ending of agreements with other countries to allow Egyptian vessels to fish legally within their EEZs) and measures that might be taken to curb it, in a region where information is limited compared to large-scale fisheries in other regions.

The use of innovative methods, including news/media articles, to obtain preliminary data on this elusive topic produced a short but illuminating picture of the Egyptian case. This contribution presents this information together as a call to future work to advance scientific investigations on IUU in this region. While it is clear how challenging studying and obtaining data on IUU fishing (especially for SSF) can be, this note urges researchers to continue to increase information to provide the most robust and reliable data to fisheries managers.

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