

Catch enlargement and distribution expansion of the alien fish Hollowsnout grenadier *Coelorinchus caelorhincus* in the Syrian marine waters (Eastern Mediterranean)

Dr. Chirine Hussein*

(Received 9 / 3 / 2023. Accepted 24 / 4 / 2023)

□ ABSTRACT □

The aim of this research is to study the catch increase and habitat expansion of *Coelorinchus caelorhincus* (Risso, 1810) in the Syrian coast. Fish samples were collected on 25 Jan. 2023 in the marine waters facing Banyas city, Syria, using special gillnet (16mm mesh size), with assistance of a fishing boat (9.5m).

This species has interred from the western Mediterranean; It had been recorded in 2016 from the Syrian marine water (Lattakia coast) as a single individual. In this year, 2023, it appeared in Banyas coast of the Syrian waters, in a group of 30 individuals with an average length of (16.39 ± 1.75) cm. Catching such number of individuals at one fishing trip gives an indication that this species may have already established itself in the Syrian marine waters, and expanded its distribution to the south within the Syrian coast. Thus, this species may have become a threat to the native fish population through competition for food and for space.

Key words: *Coelorinchus caelorhincus*, Mediterranean, Invasive species, Syrian coast.

Copyright



:Tishreen University journal-Syria, The authors retain the copyright under a CC BY-NC-SA 04

* Associate Professor, Higher Institute of Marine Research – Tishreen University, Lattakia, Syria
chirine.hussein475@gmail.com

زيادة المصيد والتوسع في انتشار النوع السمكي الغريب *Hollowsnout grenadier Coelorinchus caelorhincus* في المياه البحرية السورية (شرق البحر المتوسط)

د. شيرين سليمان حسين*

(تاريخ الإيداع 9 / 3 / 2023. قبل للنشر في 24 / 4 / 2023)

□ ملخص □

الخلاصة الهدف من هذا البحث هو دراسة الزيادة في كمية المصيد والتوسع في انتشار النوع الغازي *Coelorinchus caelorhincus* (Risso1810) في المياه البحرية السورية. جمعت عينات الأسماك بتاريخ 25/1/2023 من المياه البحرية المقابلة لمدينة بانياس بسوريا باستخدام شبكة صيد غلصمية بفتحات 16 مم وبمساعدة قارب صيد بطول 9.5 م.

مصدر هذا النوع هو الحوض الغربي للبحر المتوسط، حيث ظهر لأول مرة في المياه البحرية السورية في العام 2016 على شكل فرد واحد في المياه البحرية المقابلة لمدينة اللاذقية. وفي هذا العام تمّ صيد هذا النوع من المياه البحرية المقابلة لمدينة بانياس في مجموعة من 30 فرداً (بمتوسط طول 16.39 ± 1.75) سم. إن صيد هذا النوع من المياه البحرية المقابلة لمدينة بانياس وبأعداد كبيرة نسبياً يعطي مؤشراً على أن هذا النوع قد استقر بالفعل في المياه البحرية السورية وزاد من رقعة انتشاره نحو الجنوب. زيادة أعداد هذا النوع وتوسيع رقعة انتشاره يعطي مؤشراً على احتمال أن يكون هذا النوع منافساً للأنواع المحلية، على الموائل وعلى الموارد الغذائية المتوفرة.

الكلمات المفتاحية: *Coelorinchus caelorhincus* ، البحر المتوسط ، الأنواع الغازية، المياه البحرية السورية.

حقوق النشر : مجلة جامعة تشرين- سورية، يحتفظ المؤلفون بحقوق النشر بموجب الترخيص



CC BY-NC-SA 04

*أستاذ مساعد - قسم الثروة السمكية - المعهد العالي للبحوث البحرية - جامعة تشرين - اللاذقية - سورية

chirine.hussein475@gmail.com

Introduction

Large numbers of marine organisms are newly recorded in the Mediterranean each year. These records reflect the environmental changes and the impacts of the ongoing human activities in the Mediterranean basin (Vallerga, 2003, Ibrahim, 2009, Doney *et al.*, 2011, Mannino *et al.*, 2017). These new species are scarcely encountered, or they establish themselves and breed in this part of the Mediterranean (Zenetos *et al.*, 2012). These records give evidence of the ability of the Mediterranean environment to accommodate new species, and may carry many threats to local species, to the extent that they may become invasive. It will compete with native species for habitat and food and threaten them through feeding on eggs and fingerlings of economic native species, which pose a threat to the local catches (Zenetos *et al.*, 2004; Ibrahim, 2008; Plan, 2009).

The Hollowsnout grenadier *Coelorinchus caelorhincus* (Risso, 1810) belongs to Macrouridae family, which exists in the western Mediterranean, and had been founded in the eastern Mediterranean as well (Golani, 2005, Filiz *et al.*, 2006, Bilecenoğlu *et al.*, 2014, Artüz *et al.*, 2010). It had been recorded in 2016, as a single individual, in the Syrian marine water, Lattakia coast (Ali *et al.*, 2016). Seven years after, i.e. in 2023, it appeared in Banyas coast of the Syrian waters, in a group. This document reveals the catch increase and habitat expansion of *Coelorinchus caelorhincus* in the Syrian coast.

Material and Methods:

On 25 Jan 2023, a fishing trip was performed in the marine waters facing Banyas city, Syria (N35°31'5.97", E: 35°42'48.57"; Fig.1) to collect fish samples using special gillnet (16mm), with assistance of 9.5m fishing boat. Individuals were identified according to Cohen *et al.*, (1990), photographed, and morphometric measurements (length to the nearest cm), preserved in 7% formaldehyde, and placed at the Fisheries Laboratory of the High Institute of Marine Research (Tishreen University - Lattakia, Syria) as a reference sample (HIMR23-2).

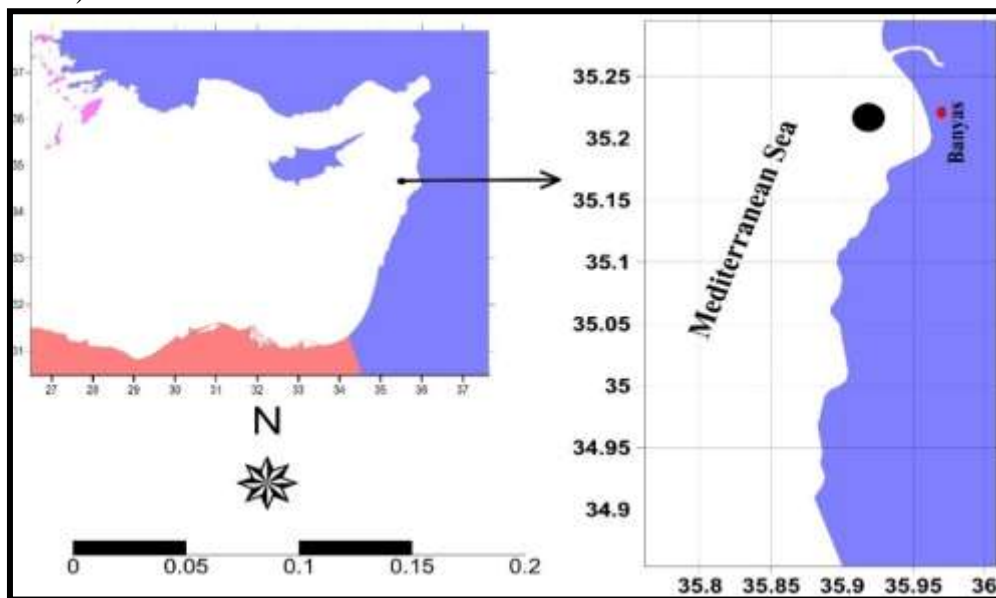


Fig.1. The collection site of *C.caelorhincus* specimens from Banyas coast

Results and Discussion:

Thirty individuals of Hollowsnout grenadier *Coelorinchus caelorhincus* (Risso, 1810) (Fig.2) were caught at 320m water depth off Banyas coast. They have large eyes, short snout and round bodies. The pelvic section and ends in a pointed shape, a black naked

fossa between and slightly anterior to the pelvic fin bases. The body is pale greyish-brown to swarthy, and anal fin edged with black stripe in some individuals. These features of *C. caelorhincus* totally come to an agreement with Cohen *et al.*, (1990). The individuals have total lengths ranged between 14.0-20.5 cm, with average (16.39±1.78) cm.

Catching this species in Banyas water gives an evidence that this species is spreading to the south in this area of the eastern Mediterranean. Syrian fishermen have repeatedly caught this species in their fishing nets but, in fact, it is for the first time this species, or any other species newly recorded in the Syrian marine water, has ever been fished in this such fairly large group. Catching such number at one fishing trip gives an indication that this species may have already established itself in the area.

The species *C. caelorhincus* lives in fairly deep waters (~200-500m), and feeds on gastropods, polychaetes, cephalopods and other smaller fishes (Cohen *et al.*, 1990). Accordingly, it competes with the local species for food and habitat, and may threatens the biological balance in this area.



Fig. 2 *C. caelorhincus* : 30 specimens caught on 25-1-2023 from Banyas coast, Syria.

Most previous records of this species were made in the western part of the Mediterranean, but in the recent years, this species, and many others, spread into the eastern part (Alshawy *et al.*, 2019, Ibrahim *et al.*, 2023). The spread in this direction indicates the changes in the marine environment of the eastern Mediterranean (Ibrahim *et al.*, 2020, Gerovasileiou *et al.*, 2022, Zittis *et al.*, 2022). This necessitates establishment of national and regional monitoring programs to identify the new species and their movement within the Mediterranean (Hussein *et al.*, 2019, Gerovasileiou *et al.*, 2022). In addition, the status of local fish populations, and the extent of the impact of alien species should be estimated (Ibrahim, 2008, Ben Haj *et al.*, 2009, Ibrahim *et al.*, 2019, Ibrahim *et al.*, 2020.).

Conclusion:

A group of *C. caelorhincus* have appeared in the Syrian marine waters. This species has interred from the western Mediterranean, its individuals has increased, spreading south in the Syrian water, and may have establishment itself in the area. Efforts are required to limit the impact of this behaviour and maintain the biological balance in the area.

Acknowledgment

The author thanks Tishreen University and the High Institute of Marine Research who provided the financial and logistic supports to this work.

References:

- ALI, M., SAAD, A., ALKHATEEB, M., RAFRAFI-NOUIRA, S. & CAPAPE, C. *First Record Of Hollownout Grenadier Coelorinchus Caelorhincus (Osteichthyes: Macrouridae) From The Syrian Coast (Eastern Mediterranean)/Prima Segnalazione Del Pesce Sorcio Coelorinchus Caelorhincus (Osteichthyes: Macrouridae) Lungo La Costa Della Siria (Mediterraneo Orientale)*. Annales: Series Historia Naturalis, 26,2016, 203-206.
- ALSHAWY, F., IBRAHIM, A., HUSSEIN, C. & LAHLAH, M. *New Distribution of the Serpent Eel Ophisurus serpens (Linnaeus, 1758) in Eastern Mediterranean: First Record from the Syrian Marine Waters*. SSRG International Journal of Agriculture & Environmental Science, 6,2019, 50-52.
- ARTUZ, L., ERDOGAN, Z., TORCU KOC, H., SÖNMEZ, B. & AYDEMIR, A. *First record of the hollowsnout grenadier, Coelorhynchus coelorhynchus (Risso, 1810), from the Sea of Marmara, Turkey*. Journal of Applied Ichthyology, 26,2010, 128-130.
- BEN HAJ, S., CEBRIAN, D., LIMAM, A., GRIMES, S., HALIM, Y., BITAR, G., BAZAIRI, H., IBRAHIM, A. & ROMDHANE, M., ED. *SPA (2009) Sub-regional report on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean, Arab Countries*. RAC, 2009, UNEP-MAP.
- BILECENOĞLU, M., KAYA, M., CIHANGIR, B. & ÇICEK, E. *An updated checklist of the marine fishes of Turkey*. Turkish Journal of Zoology, 38, 2014, 901-929.
- COHEN, D. M., T. INADA, IWAMOTO, T. & SCIALABBA, N. 1990. *Macrouridae., Gadiform fishes of the world (Order Gadiformes). An annotated and illustrated catalogue of cods, hakes, grenadiers, and other gadiform fishes known to date*, FAO.
- DONEY, S. C., Ruckelshaus, M., Duffy, J. E. *Climate change impacts on marine ecosystems*. Annual Review of Marine Science, 4, 2011, 11-37.
- FILIZ, H., BILGE, G., IRMAK, E., TOGULGA, M., UCKUN, D. & AKALIN, S. *Age and growth of the hollowsnout grenadier, Coelorinchus caelorhincus (Risso, 1810), in the Aegean Sea*. Journal of Applied Ichthyology, 2006, 22, 285-287.
- GEROVASILEIOU, V., BANCILA, R. I., KATSANEVAKIS, S. & ZENETOS, A. *Introduced species in Mediterranean marine caves: an increasing but neglected threat*. Mediterranean Marine Science, 23, 2022, 995-1005.
- GOLANI, D. 2005. *Checklist of the Mediterranean fishes*. Zootaxa, 947, 1–90–1–90.
- HUSSEIN, C., IBRAHIM, A. & ALSHAWY, F. *First record of Red cornetfish, Fistularia petimba Lacepède, 1803 (Actinopterygii: Fistulariidae) from the Syrian coast*. International Journal of Aquatic Biology, 7, 2019, 175-179.
- IBRAHIM, A. *Vulnerability Assessment and Possible Adaptation Measures of the Syrian Coastal Areas to Climate Changes*"; the National Communication Report to UNFCCC", 2008, UNDP. UNDP.
- IBRAHIM, A. *Impacts of urban activities on the coastal and marine ecosystems of Syria, and the adaptative measures. Impact of large coastal Mediterranean cities on marine ecosystems*. Alexandria, Egypt 10-12 February 2009, 2009, 1- 4.

- IBRAHIM, A., ALSHAWY, F. & HUSSEIN, C. *Stonefish Synanceia verrucosa* Bloch & Schneider, 1801 (Actinopterygii: Synanceiidae): the first record in the Syrian coast and the fourth in the Mediterranean. *International Journal of Aquatic Biology*, 7, 2019, 383-386.
- IBRAHIM, A., ALSHAWY, F. & HUSSEIN, C. *Confirmation records and new distribution of the red cornet fish *fistularia petimba* lacepède, 1803 (actinopterygii: fistulariidae) in the Syrian Marine Waters (Eastern Mediterranean)*. *Species*, 21, 2020, 95-100.
- IBRAHIM, A., ALSHAWY, F. & HUSSEIN, C. 2023. *A Western Mediterranean Fish, Pencil Cardinal *Epigonus denticulatus* Dieuzeide 1950, Newly Recorded from the Syrian Marine Waters (Eastern Mediterranean)*. *Species* 2023; 24: e25s1025.
- MANNINO, A. M., BALISTRERI, P., & DEIDUN, A. *The marine biodiversity of the Mediterranean Sea in a changing climate: the impact of biological invasions*, 2017.
- PLAN, M.A. *Synthesis of national overviews on vulnerability and impacts of climate change on marine and coastal biological diversity in the Mediterranean region*. RAC/SPA, Tunis. 2009, 111 p.
- VALLERGA, S., Drago, A., Aarup, T. *MAMA — Towards a new paradigm for ocean monitoring in the Mediterranean*. Elsevier Oceanography Series, 69, 2003, 46-56.
- ZENETOS, A., DOSI, A., ABATZOPOULOS, T., TRIANTAFYLLIDIS, A., BEJAOU, I N., SOUFI, E., AMMAR, I., IBRAHIM, A. *Study to investigate an invading bioindicator in the Mediterranean, *Pinctada radiata* (Leach, 1814)*, Study group on Ballast other ship vectors ICES/IOC/IMO, 2004, Cesenatico, Italy, 23.
- ZENETOS, A., GOFAS, S., MORRI, C., ROSSO, A., VIOLANTI, D., RASO, J.E. , GARCIA CINAR, M.E., ALMOGI -LABIN, A., ATEs, A.S., AZZURRO, E., BALLESTEROS, E., BIANCHI, C.N., BILECENOGLU, M., GAMBI, M.C., GIANGRANDE, A., GRAVILI, C., HYAMS -KAPHZAN, O., KARACHLE, P.K., KATSANEVAKIS, S., LIPEJ, L., MASTROTOTARO, F., MINEUR, F., PANCUCCI -PAPADOPOULOU, M.A., ESPLA, A. , RAMOS, C., SALAS, G., SAN MARTIN SFRISO, A., STREFTARIS, N., VERLAQUE, M. *Alien species in the Mediterranean Sea by. A contribution to the application of European Union's Marine Strategy Framework Directive (MSFD). Part 2. Introduction trends and pathways*. *Mediterranean Marine Sciences*, 2, 2012, 328 -352.
- ZITTIS, G., ALMAZROUI, M., ALPERT, P., CIAIS, P., CRAMER, W., DAHDAL, Y., FNAIS, M., FRANCIS, D., HADJINICOLAOU, P., HOWARI, F., JRRAR, A., KASKAOUTIS, D. G., KULMALA, M., LAZOGLOU, G., MIHALOPOULOS, N., LIN, X., RUDICH, Y., SCIARE, J., STENCHIKOV, G., XOPLAKI, E. & LELIEVELD, J. *Climate Change and Weather Extremes in the Eastern Mediterranean and Middle East*. 60, 2022, e2021RG000762.