

NOTE

Nerocila bivittata (Cymothidae, Isopoda) infestation on Syngnathid Fishes in the Eastern Black Sea

S. Kayis* and A. Er

Recep Tayyip Erdoğan University, Faculty of Fisheries Sciences 53100 Rize, Turkey

Abstract

Fifty seahorses and 50 *pipefish* were sampled from 2010 to 2011, and examined for the presence of parasites. Unusual isopod infestations (*Nerocila bivittata*) were observed on pouch of *Hippocampus guttulatus* from 60 meters sea depth and on the skin of *Syngnatus* sp. from 10 meters depth.

Syngnathidae is a family of teleost fishes which include the seahorses, pipefish, flagtailed pipefish and seadragons. They are found all over the world and most species inhabit shallow and coastal waters. However, little information is available about the open ocean syngnathids. The most distinctive characteristics of the family are elongated snouts, the absence of pelvic fins, and thick skin structure. However, syngnathidae populations have been reduced due to overfishing, bycatch and their habitat destruction in recent years (Lourie et al., 2004).

A list of bacterial, viral, parasitic and environmental information and diseases in seahorses and some diseases of pipefish were reported throughout the world (Lamont and Belli, 2006; Paladini et al., 2010; Birrer, 2011). But, there are very poor and deficient disease reports of syngnathid species in the Black Sea (particularly Turkish coast). There is only one study

presented about tunicate infestation of trunk part of the *Hippocampus guttulatus* in the area (Kayis, 2011). For these reasons, seahorse and pipefish from the coast of Eastern Black Sea were investigated for the presence of parasites.

Fifty live seahorses and 50 live pipefish were caught by gillnet from 2010 to 2011. The fish were sampled at depths from 0 to 60 meters. The identification of seahorse and pipefish species was performed based on their morphological characteristics (Lourie et al., 2004; Gürkan and Çulha, 2008).

All fish were examined externally and internally for the presence of parasites. Locations and lengths of the host fish were recorded. The identification of parasites was performed according to Bruce (1987) and Trilles et al. (1989).

The seahorse and pipefish were identified as

* Corresponding author's e-mail: aquasevki@msn.com

Hippocampus guttulatus and *Sygnatus* sp., respectively. Two *Nerocila bivittata* (sampled at 10 m) (Cymothidae, Isopoda) were observed on the skin of *Sygnatus* sp. (8.52 cm) in February (Figure 1). Body size of the parasites (isolated from pipefish) was measured as follows; length 4.2 mm by width 2.1 mm and 3.9 mm by 2.0 mm. One *N. bivittata* (sampled at 60 m) on pouch of *Hippocampus guttulatus* (length 8.25 cm) in March (Figure 2). Body size of the parasite (isolated from seahorse) was measured as follows; length 18.1 mm by width 7.2 mm. Deep lesions and hemorrhages were observed in the skin of the seahorse. Lesions and hemorrhages weren't observed on the *Sygnatus* sp. Although adult *N. bivittata* was observed on the *H. guttulatus*, larval stage of *N. bivittata* was observed on the *Sygnatus* sp. The parasites were preserved in the collection at the Recep Tayyip Erdoğan University Faculty of Fisheries Science.

Syngnathidae are very attention fish species due to their reproductive properties, fossil records, trade and external prospect (Wilson and Orr, 2011). Although syngnathids have these important features, there is little information about their basic biology and ecological role. Seagrass and corals are natural marine habitats for most syngnathids. Seahorses and pipefish feed on small crustaceans floating in the water or crawling on the bottom. *N. bivittata* (adult and larval stages) lives in the coastal water, particularly between 0 and 40 meters of deep water. Therefore, host and parasite interactions may occur at the time of feeding activities for the both isopods and fishes.

Nerocila spp. have been found on different fish species all over the world, such as; *Nerocila phaeopleura* from, *Rastrelliger kanagurta* (Ramesh-

kumar and Ravichandran, 2010), *N. orbigny* from *Liza aurata*, *Dicentrarchus labrax* and *Solea solea* (Öktener and Trilles, 2004; Horton and Okamura, 2001; Kayis and Ceylan, 2011), *N. bivittata* from *Siganus rivulatus* (Shakman et al., 2009). However, these parasites generally infect Mugilidae (*Liza aurata*, *L. ramada*, *Mugil cephalus*) (Bruce, 1987; Trilles, 1975; Trilles, 1994). Our study shows that *N. bivittata* infestation can occur also on seahorse and pipefish.

Boltachev et al. (2009) stated that *Syngnathus acus* is a non native species for the Black Sea, and some researchers claimed that there are different pipefish species in this region. Because of these confused reasons, the species of the pipefish in this study was determined as *Sygnatus* sp. Although species of pipefish are indefinite, *N. bivittata* infestation on *Sygnatus* is firstly reported in the study.

In conclusion, our study has shown that *N. bivittata* can infect *Hippocampus guttulatus* and *Sygnatus* sp. in the Black Sea.

Acknowledgements

I would like to thank Dr. Semih Engin and fisherman Mr. Bayram Rakici for providing the fish samples.



Figure 1. *Nerocila bivittata* on the skin of *Sygnatus* sp.



Figure 2. *Nerocila bivittata* on the pouch of *Hippocampus guttulatus* in water.

References

- Birrer S (2011). How salinity affects the pipefish-Vibrio interaction. Thesis, Swiss Federal Institute of Technology Zürich, 66p.
- Boltachev AR, Karpova EP and Danilyuk O (2009). Findings of new and rare fish species in the coastal zone of the Crimea (the Black Sea). *Journal of Ichthyology* **4**, 277-291.
- Bruce NL (1987). Australian species of *Nerocila* Leach, 1818, and *Creniola* n.gen. (Isopoda: Cymothoidae), crustacean parasites of marine fishes. *Records of the Australian Museum* **39**, 355-412.
- Gürkan S and Çulha M (2008). Sinop Yarımadası Kıyısı Sularında (Güney Karadeniz) Bazı Syngnathid Türlerinin Bölgesel ve Mevsimsel Dağılımları. *Journal of Fisheries Sciences.com* **2(3)**, 536-544.
- Horton T and Okamura B (2001). Cymothoid isopod parasites in aquaculture: a review and case study of a Turkish sea bass (*Dicentrarchus labrax*) and sea bream (*Sparus auratus*) farm. *Diseases of Aquatic Organisms* **47**, 181-188.
- Kayis S (2011). *Ascidian Tunicate, Botryllus schlosseri* (Pallas, 1766) infestation on Seahorse. *Bulletin of the European Association of Fish Pathologists* **31**, 81-84.
- Kayis S and Ceylan Y (2011). First report of *Nerocila orbigny* (Crustacea, Isopoda, Cymothoidae) on *Solea solea* (Teleostei, Soleidae) from Turkish Sea. *Turkish Journal of Fisheries and Aquatic Sciences* **11**, 169-171.
- Lamont M and Belli M (2006). **“Working notes 2: A guide to seahorse diseases”**. Creative Licence Publishers, ISBN-10: 1904830013, USA.160 pp.
- Lourie SA, Foster SJ, Cooper EWT and Vincent ACJ (2004). **“A guide to the identification of seahorses-Project Seahorse and TRAFFIC North America”**. Boston University and the World Wildlife Fund, Washington D.C.
- Oktener A and Trilles JP (2004). Report on cymothoids (Crustacea, Isopoda) collected from marine fishes in Turkey. *Acta Adriatica* **45**, 145-154.
- Paladini G, Cable J, Fioravanti ML, Faria PJ and Shinn AP (2010). The description of *Gyrodactylus corleonis* sp.n. and *G. neretum* sp.n. (Platyhelminthes: Monogenea) with comments on other gyrodactylids parasitising pipefish (Pisces: Syngnathidae). *Folia Parasitologica* **57(1)**, 17-30.
- Rameshkumar G and Ravichandran S (2010). New Host Record, *Rastrelliger kanagurta*, for *Nerocila phaeopleura* Parasites (Crustacea, Isopoda, Cymothoidae). *Middle-East Journal of Scientific Research* **5 (1)**, 54-56.
- Shakman E, Kinzelbach R, Trilles JP and Bariche M (2009). First occurrence of native cymothoids parasites on introduced rabbitfishes in the Mediterranean Sea. *Acta Parasitologica* **54(4)**, 380-384.
- Trilles JP (1975). Les Cymothoidae (Isopoda, Flabellifera) des collections du Muséum national d'Histoire naturelle de Paris. II. Les Anilocridae Schioedte et Meinert, 1881. Genres *Anilocra* Leach, 1818 et *Nerocila* Leach, 1818. *Bulletin du Muséum National d'Histoire Naturelle* **290**, 303-346.
- Trilles JP (1994). Les Cymothoidae (Crustacea, Isopoda) du Monde (Prodrome pour une Faune). *Studia Marina* **21/22**, 1-288.
- Trilles JP, Radujkovic BM and Romestand B (1989). Parasites des poissons marins du Monténégro: Isopodes (Fish parasites from Montenegro: Isopods). *Acta Adriatica* **30(1/2)**, 279-306.
- Wilson AB and Orr JW (2011). The evolutionary origins of Syngnathidae: pipefishes and seahorses Publications, Agencies and Staff of the U.S. Department of Commerce. Paper 331.