

OCEAN DECADE EXHIBITION

Non-indigenous Marine Species from the Turkish Part of the Aegean and Mediterranean Seas



22'nd Meeting of the Contracting Parties to the Barcelona Convention (COP 22); Exhibition by TUDAV



7-10 December 2021, Antalya, TURKEY



TURKISH
MARINE
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***Halophila stipulacea* (Forsskål) Ascherson, 1867**

Green Turtle (*Chelonia mydas*) feeding on the invasive seagrass, *H. stipulacea*, in the Antalya, SE Mediterranean Coast of Turkey. The seagrass is rapidly invading existing seagrass meadows and altering key foraging habitat of this endangered marine reptile throughout the eastern Mediterranean. We expect that more records of green turtles feeding on this invasive species will gradually follow from throughout the region and that the green turtle might alter its foraging behavior in response to the changing species composition of its foraging habitat.



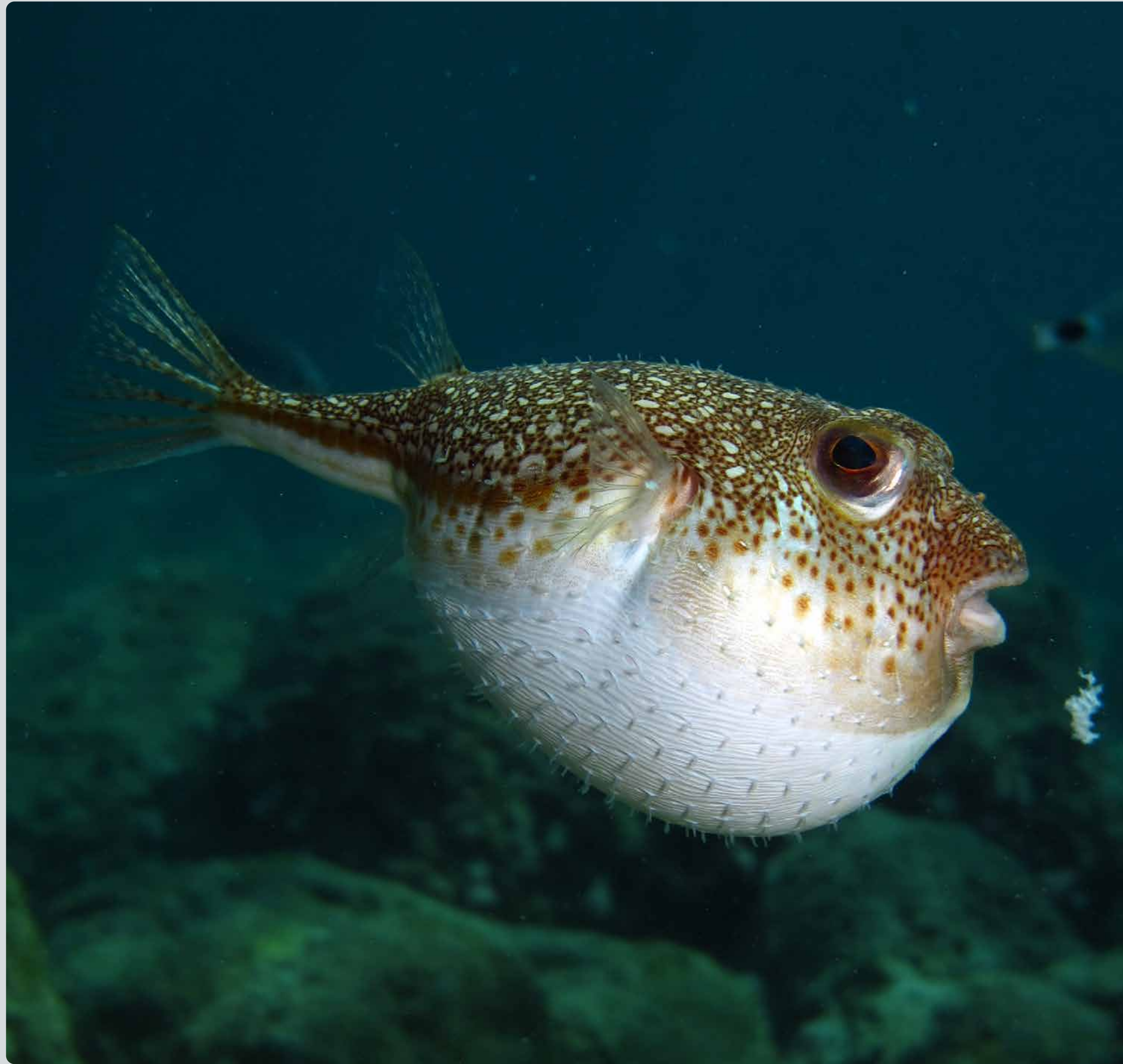
***Rhopilema nomadica* Galil, Spanier & Ferguson, 1990**

R. nomadica off the eastern Mediterranean coast of Turkey poses a potential risk to human health, tourism and fisheries. In August 1995, many swimmers were stung and sought medical treatment. Local fishers claimed that the catch from gillnet fisheries had decreased and that the jellyfish entangled in their nets presented a major nuisance.



***Sargocentron rubrum* (Forsskål, 1775)**

S. rubrum invaded the eastern Mediterranean via the Suez Canal. It has occupied the ecological niches left free by the Mediterranean species which had, for centuries, ignored the zone because little inclined to the high temperatures and the low salinity connected with the strong flow rate of the Nile, which has reduced only with the Aswan Dam.



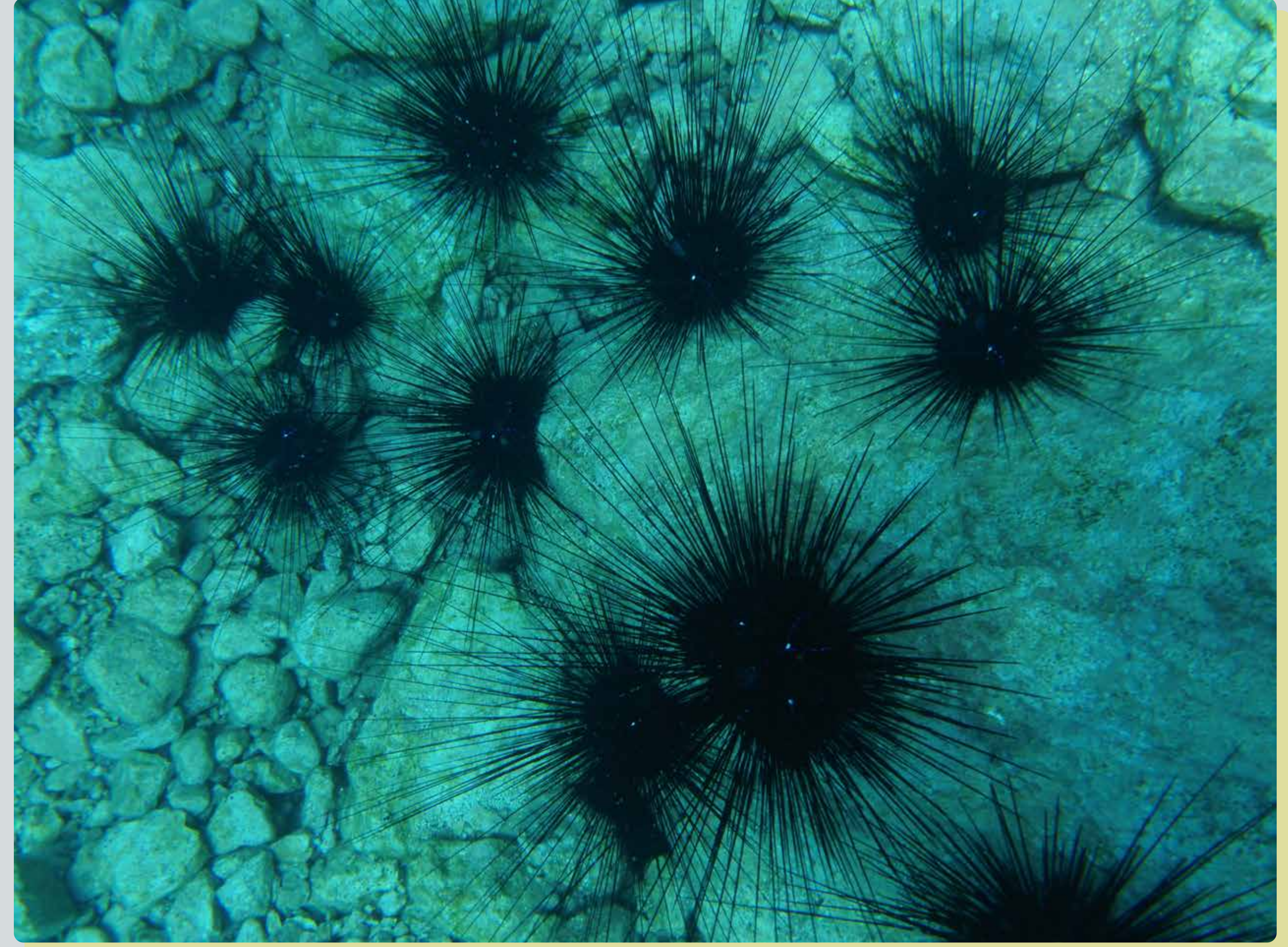
***Torquigener flavimaculosus* Hardy & Randall, 1983**

The Yellow spotted puffer is one of the seven non-native puffer fish found in Mediterranean Sea. The species is a lessepsian migrant, currently displaying an expansion towards the north and the west of the basin, similar to other lessepsian immigrant species.



***Pempheris mangula* Cuvier, 1829**

The history of the identification of the Indo-Pacific sweepers is complex and this species has been identified as the "*Pempheris vanicolensis*" which has colonised the Mediterranean Sea from the Red Sea via the Suez Canal by Lessepsian migration but this identification is not universally accepted. This fish experienced a population explosion almost immediately after invading the Mediterranean probably due to the paucity of nocturnal competitors.



***Diadema setosum* (Leske, 1778)**

The non-indigenous echinoderm species, needle-spined urchin, *D. setosum* poses a threat to bathers in shallow waters due to its venomous spines. In the eastern Mediterranean, it is omnipresent in rocky habitats with large numbers that needs to be the subject of future research of its grazing effect on algae and outcompete native species during the process of colonization.



***Synaptula reciprocans* (Forsskål, 1775)**

The Indo-Pacific holothurian, *S. reciprocans*, is an omnivore echinoderm species that was reported in the Mediterranean Sea for the first time back in 1986. Since then, there have been numerous reports, following the species' gradual expansion and establishment in the eastern Mediterranean basin. The species is frequently found in shallow water, on rocky and sandy bottom substrates.



***Caulerpa scalpelliformis f. denticulata* (Decaisne) Svedelius 1906**

The alien algae *C. scalpelliformis f. denticulata* has been only observed in Israeli coasts in Mediterranean, except Turkey. This taxon has been covered property as other invasion species. It may negatively affect biological diversity when didn't take measure.



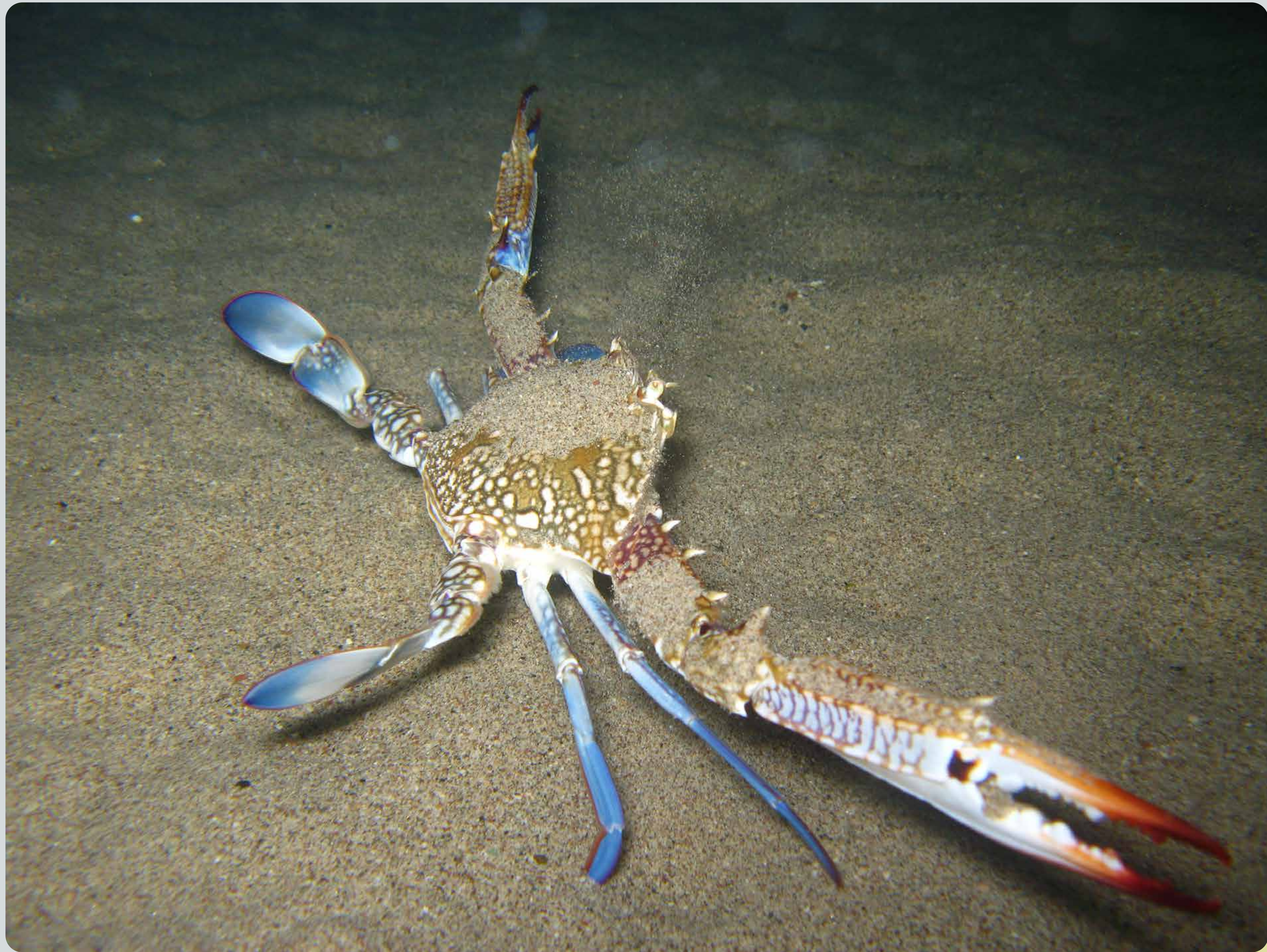
***Fistularia commersonii* Rüppell, 1838**

Bluespotted cornet fish, *F. commersonii* has spread rapidly through the Mediterranean from its origin in the Suez Canal, since the first record in 2000 and it had reached the southern coast of Spain and as far north as the Gulf of Lions by 2007. Indeed, it has colonized almost the entire Mediterranean region within only seven years of its first sighting.



***Alepes djedaba* (Forsskål, 1775)**

Shrimp scad, *A. djedaba* is a pelagic member of the family Carangidae that is widespread in tropical and warm temperate areas of the Indo-Pacific, and immigrant to the Mediterranean (Levant coast) through the Suez Canal. It is also reported from the Marmara Sea. Swarms of *Rhopilema nomadica* may be contributing to growing populations of this commercially important fish, whose juveniles shelter among the jellyfish tentacles.



***Portunus segnis* (Forskål, 1775)**

The blue swimming crab, *P. segnis* has become invasive in the Mediterranean through the Suez Canal from the Indian Ocean. It has proved very destructive to fish stocks. Tunisian fishermen nickname it “Daesh” because of its invasiveness and destructiveness. Global warming is expected to favour the spread of this tropical species. It is commercially important in its native range as well as now in the Mediterranean Sea.



***Pteragogus trispilus* Randall, 2013**

P. trispilus is a lessepsian migrant to eastern Mediterranean Sea and now widespread throughout the region. It is a small non-commercial fish that lives on the bottoms of coastal zones where brown algae, seaweed, and coral patches are abundant. A very cryptic species, hence difficult to photograph underwater.



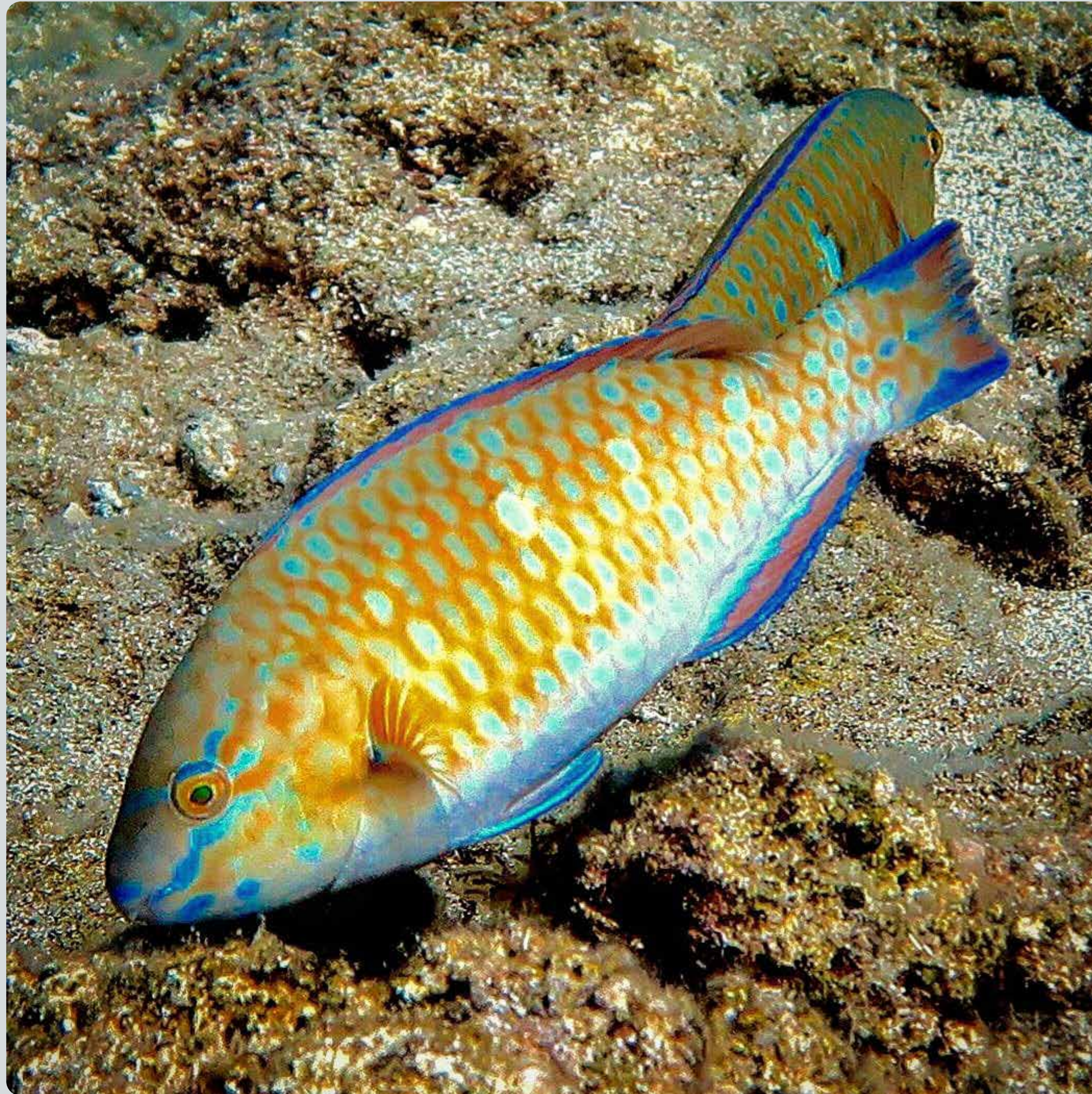
***Cheilodipterus novemstriatus* (Rüppell, 1838)**

The Indian Ocean twospot cardinalfish from the Indian Ocean, has colonised the eastern Mediterranean Sea by way of the Suez Canal since 2011. Common in shallow protected water, sheltering among the spines of *Diadema* sea-urchins in groups of up to about 30 individuals, although this depends on the relative sizes of the urchin to those of the fishes. Its nocturnal habits may have facilitated its successful invasion of the eastern Mediterranean, as few indigenous nocturnal competitors exist.



***Cassiopea andromeda* (Forskål, 1775)**

The upside-down jellyfish, *C. andromeda* is the first Levantine species to be recorded from the Mediterranean since the opening of the Suez Canal in 1869 and considered an established alien within the eastern Mediterranean Sea, but the species exhibits a highly sporadic occurrence further west within the basin. It has established in the eastern Mediterranean Sea and damaged local economies to some extent, by becoming entangled in fishing nets or being stranded on beaches and frightening visitors.



***Scarus ghobban* Forsskål, 1775**

The blue-barred parrotfish, *S. ghobban* is widespread throughout the Indo-Pacific and likely having entered the Mediterranean by way of the Red Sea as a Lessepsian migrant. It is a commercially important species both for fisheries and aquarium trade. It occurs in places with sandy bottoms and in areas with seagrass. It is also known to live in marginal reefs and in deeper waters.



***Pterois miles* (Bennett, 1828)**

The impacts of the devil firefish, *P. miles* on non-native ecosystems can be summarized as: **i)** predation on a wide range of native organisms, consuming up to 2.5–6 percent of its body weight per day; **ii)** occupation of native species' key habitats, especially for juveniles, **iii)** increases in algal dominance due to a reduced abundance of herbivorous fish, **iv)** predation on, and competition with, commercial and endangered fish that may negatively impact fisheries and related incomes, and **v)** humans being injected with venom.



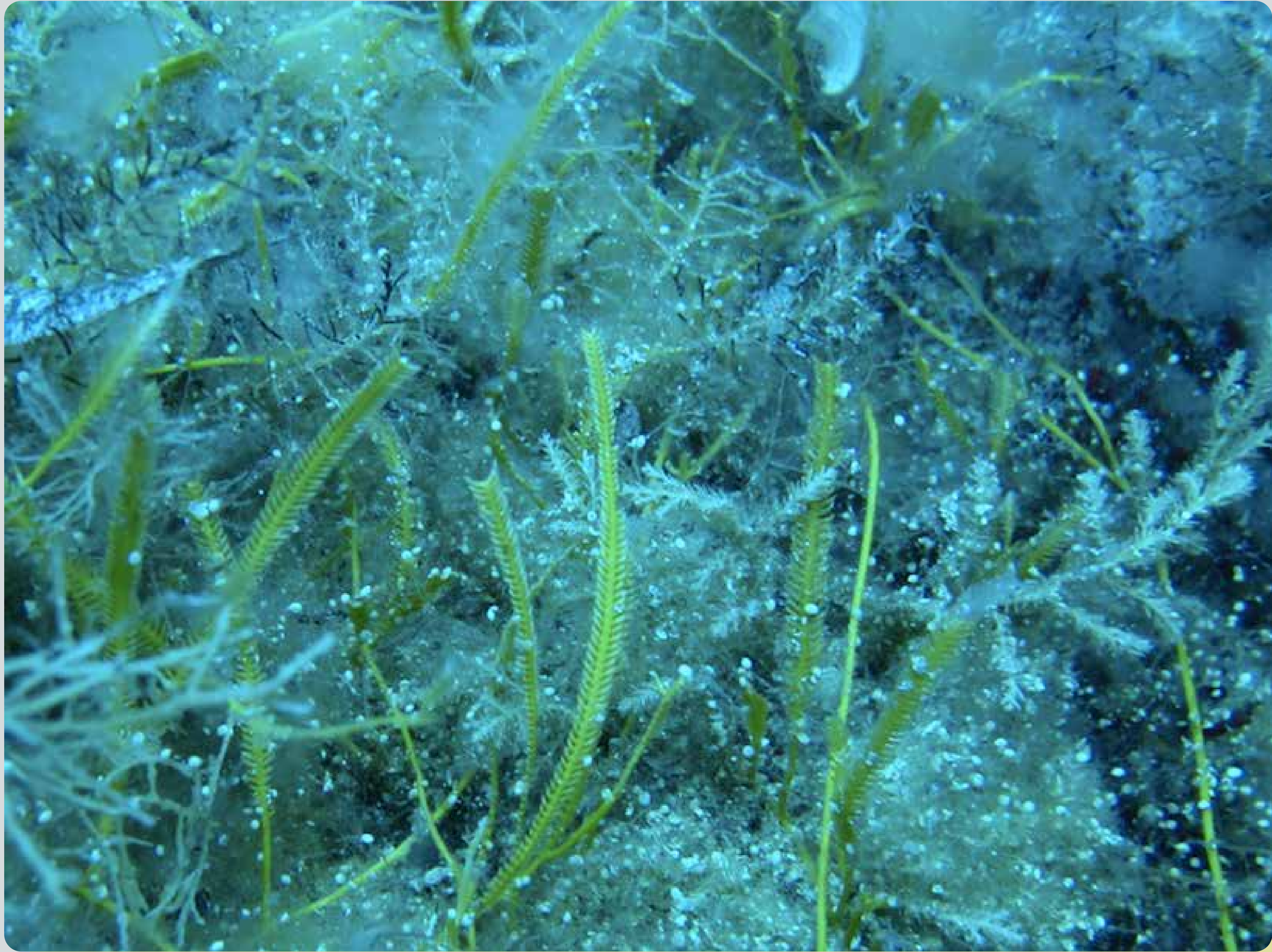
***Parupeneus forsskali* (Fourmanoir & Guézé, 1976)**

The number of alien mullid species increased to four in the Mediterranean Sea with the introduction of the Red Sea goatfish *P.forsskali*. Through the Suez Canal it is established in the eastern Mediterranean. They spend most of their time moving slowly in small groups over shallow sandy bottoms with a depth range 1-45 m searching for prey with their barbels.



***Atergatis roseus* (Rüppell, 1830)**

The rosy egg crab, *A. roseus* is a reef crab that has colonised the eastern Mediterranean by Lessepsian migration through the Suez Canal. The flesh of this crab, like many other species in the family Xanthidae, is toxic. It inhabits coral reefs and rocky substrata, from the low tide mark to a depth of 30 metres.



***Caulerpa taxifolia* var. *distichophylla* (Sonder) Verlaque, Huisman & Procaccini 2013**

The spread of green algae belonging to the genus *Caulerpa* in the Mediterranean is considered one of the most important examples of biological invasion in recent years. In particular, *C. taxifolia* which is not invasive in tropical regions, is known in the Mediterranean as an invasive lineage, the so called “aquarium strain”, which spreads on a variety of substrata and forms dense beds that represent a threat to benthic assemblages.



***Lagocephalus sceleratus* (Gmelin, 1789)**

The silverstripe blaasop, *L. Sceleratus* have invaded the Mediterranean Sea and caused severe problems for the local people who consumed them, due to the TTX poison contained in the fishes' internal organs and flesh. It is considered a major nuisance by fishers not only due to the damage it can do to fishing gear when attacking fish caught in nets and lines, but also because of the reduction in local stocks of squids and octopus it effects through predation.



***Penaeus japonicus* Spence Bate, 1888**

The kuruma prawn, *P. japonicus* is a non-indigenous crustacean species which is commercially valuable. *Penaeus kerathurus* was previously caught in substantial numbers by fishers but it had since been replaced by *P. japonicus*.



***Pomadasys stridens* (Forsskål, 1775)**

The striped piggy, *P. stridens* has been caught commercially in large quantities in the Eastern Mediterranean coasts of Turkey since 2016. The recent records show that it is advancing westward step by step and already established in the Aegean Sea.



***Siganus luridus* (Rüppell, 1829) & *Siganus rivulatus* Forsskål & Niebuhr, 1775**

These two non-indigenous herbivorous and venomous fish from the Red Sea have a significant impact on benthic communities, which show extremely low biomass on the Turkish coast. The shift from well-developed native algal assemblages to “barrens” implies a dramatic decline in biogenic habitat complexity, biodiversity and biomass. A targeted *Siganus* fishery could therefore help to restore the macroalgal beds of the rocky infralittoral zone on the Turkish coast.

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