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Aliens of Xamayca

A newsletter on non-indigenous species in Jamaica

MUSSEL MADNESS
THE INVASION OF THE ASIAN GREEN MUSSEL

Inside this Issue

Perna viridis (Asian Green Mussel)

Description

Perna viridis, commonly referred to as the green mussel, is an oval shaped bivalve known to reach lengths of up to 0.16 m (McGuire & Stevely, 2012). Belonging to the phylum Mollusca, the shellfish is native to the Indo-Pacific region. Characterised by a distinct green colour that gradually transitions to brown at the point of growth, the mollusc showcases a smooth exterior surface that is typically covered by a layer of thin organic matter known as the periostracum (Figure 1) (Texas Invasive Species Institute, 2014; Buddo, 2003).

Figure 1: Picture of interior and exterior surface of Perna viridis

Distribution and Invasion

P. viridis was initially introduced into Caribbean waters in Trinidad in 1990, and subsequently in Venezuela in 1993 (Buddo, Steele, & D'Oyen, 2003; Gracia & Rangel-Buitrago, 2020). The initial sighting in Jamaica was within the Port Royal mangroves. It is believed that the mussel was introduced in its larval stage via

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ballast water from ships arriving in Kingston Harbour (Buddo, 2003). The current range of the mussel is unknown but is believed to be less than its initial introduction and proliferation.

Figure 2: Picture of a cluster of green mussels

Impacts

Acknowledged as an economically valuable mussel, the shellfish holds significance in human consumption and aquaculture due to its remarkable capacity for rapid reproduction, forming dense colonies of up to 35,000 individuals per square meter (Figure 2) (Gracia & Rangel-Buitrago, 2020; McGuire & Stevely, 2012). Additionally, due to the filter feeding nature of shellfish, it has the potential to accumulate toxic chemicals, which may result in health risks such as Paralytic Shellfish Poisoning (Texas Invasive Species Institute, 2014; Buddo, Steele, & Webber, 2012). This risk is further exacerbated in highly polluted waters similar to that of Kingston Harbour (Buddo, Steele, & Webber, 2012). Consequently, the species is utilized as a bioindicator of pollution by heavy metals and hydrocarbons (Gracia & Rangel-Buitrago, 2020).

To date, the green mussel has been introduced into several regions worldwide, including China, Japan, Indonesia, The Caribbean and south-eastern United States (McGuire & Stevely, 2012). The highly dispersal nature as well as the lack of predation and high tolerance of environmental conditions of the bivalve, enables its ability to displace other native benthic species, such as oysters. This can lead to a disruption of the marine food chain and the endangerment of many ecologically and economically important marine species. This, in turn, can impact the food sector and the livelihoods of individuals that depend on these sectors for a source of living. Furthermore, *P. viridis* is a known bio fouler with the potential to easily attach itself to surfaces such as marine vessels, buoys, drains and power plants by means of a byssal thread excreted from its body (Texas In-

vasive Species Institute, 2014; McGuire & Stevely, 2012) (Figure 3). This accentuates the potential ecological and economic risks associated with the expanding distribution of the species.

Figure 3: Picture showing a group of Perna viridis attached to a rocky substrate

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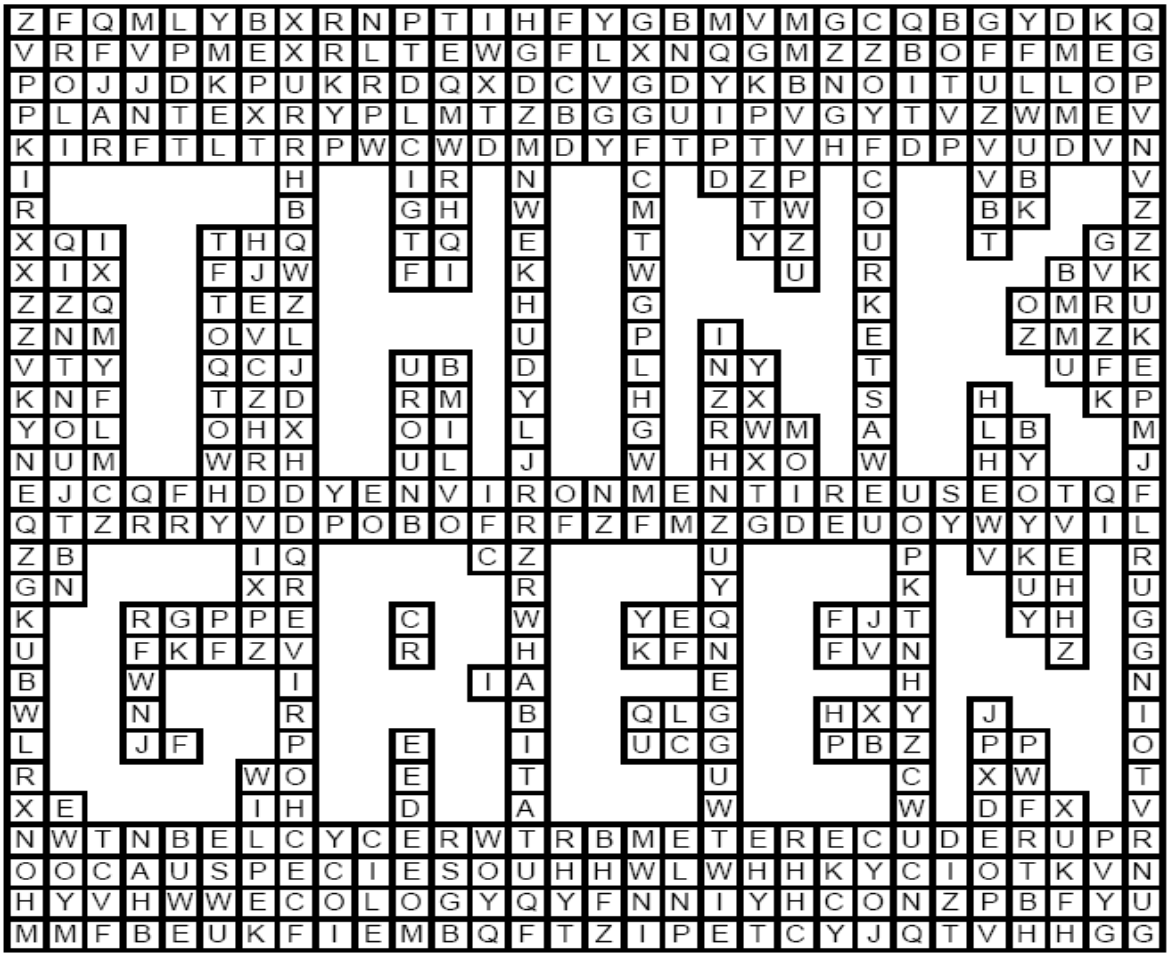
Children's Corner

Recycling



ECOLOGY ENVIRONMENT HABITAT PLANT
POLLUTION RECYCLE REDUCE REUSE
RIVER SPECIES WASTE WATER

The Aliens of Xamayca is a quarterly newsletter that features non-native species in Jamaica.
Persons interested in writing articles for the newsletter may submit them to the editor at samantha.grant@nepa.gov.jm.