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SCYPHOZOA *PELAGIA NOCTILUCA* (FORSSKAL, 1775): BLOOMING ON THE COAST OF GUJARAT, INDIA AND ITS PREDATION BY *ANEMONIA VIRIDIS* (FORSSKAL, 1775)

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Abstract. The jellyfish bloom, i.e. the aggregation of *Pelagia noctiluca*, which occurred in January 2016 along the Shivrajpur coast facing the Arabian Sea, is reported. The jellyfish population was studied based on the *Pelagia noctiluca* individuals that were stranded in low tide pools and those that were washed ashore. Transects were laid to collect data on the jellyfish density. The oceanographic and physicochemical parameters at the time of bloom were studied. The probability of correlation between the time of bloom and the movement of *P. noctiluca* was considered. Additionally, mating and predation on the species were documented. We assume that the jellyfish bloom might have drifted to this coast due to the landlocked characteristics of the Arabian Sea and northward movements of sea currents. So far, jellyfish has been known to be the dietary preference of several vertebrate predators. Here, we report an interesting event of *Anemonia viridis* feeding on *Pelagia noctiluca* during their blooms in several intertidal pools on the coast.

INTRODUCTION

Jellyfish, a class of marine cnidarians found in every ocean from the surface to the deep sea, form an important component of oceanic food webs (Canepa et al. 2014). These attractive, colorful, fluorescent and bell-shaped groups with stinging cells cnidocytes are of great importance due to their occasional blooming, which poses threat to swimmers and tourists, fishing, power plant operations (Purcell et al. 2007; Mariottini et al. 2008), aquaculture, energy, and ecosystem functioning (Canepa et al. 2014) etc. Mauve stinger (*Pelagia noctiluca*), a holoplanktonic scyphozoan, is known to populate various oceans including the warm subtropical waters of the Gulf of Mexico and the Mediterranean Sea

noctiluca (Figure 1) have been observed as present/absent for several years with a periodicity of 10−12 years since the beginning of the 1980s (Goy et al. 1989; Canepa et al. 2014). It was considered that optimal climatic conditions favour its growth and reproduction, while such established conditions as mild winter, low rainfall, high temperature and high atmospheric pressure its blooms (Canepa et al. 2014). They are potential indicators of ecosystem and/or climate changes (Hays et al. 2005; Hay 2006). As they move to deeper layers during the day (Franqueville 1971) with pulsating vertical movements, they are believed to play an important role in the mixing of ocean layers (Katija and Dabiri 2009; Leshansky and Pismen 2010). The role of such organelles in carbon capture and advection to the deep

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Some important sightings of marine fauna in Southern Gulf of Kachchh, Gujarat, India

Ruzbeh Mirza, Ankita Viradiya, Sunita Salunke and Geeta Padate

Abstract
Coral reef ecosystem is higher in productivity in terms of diverse fauna, providing food and shelter to various marine organisms. Several marine organisms existing are being under threat due to coral bleaching and climate change during recent years. Gujarat, located on west coast of India is the northern most coral reef in the country. Southern Gulf of Kachchh comprises of total 42 islands in the Gulf of Gujarat. The present paper gives a report on six species and two genera not reported so far from the Southern Gulf of Kachchh. Some of these species are new to the region of Gujarat and Mainland India. These species were encountered in the intertidal pools in the Marine National Park, Jamnagar, Gujarat India during field surveys carried out while studying biodiversity of southern Gulf of Kachchh with reference to coral bleaching and climate change.

Keywords: Gulf of kachchh, *Bolinopsis spp.*, *Aequorea forskalea*, *Stichodactyla tapteum*, *Heteractis magnifica*, *Phymanthus spp.*

1. Introduction
Of the four major coral reefs of India the one in Marine National Park (Southern gulf of Kachchh, Jamnagar, Gujarat) is assumed to be comparatively less threatened by Global Warming and Climate Change (Annonymous, 2018, Unpublished data) [2] as it has been facing high temperatures, high salinity, higher turbidity and higher tidal fluctuations over the centuries. We have reported 10 new records from the area (Mirza *et al*., 2017, Padate *et al*., 2018) [21, 23]. Here, we report few more records from the same study area. This reef in the Gulf of Kachchh is the northern most reef of India, with an abundantly rich diversity of marine

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Short Communication a SciTechnol journal

Additional Records of Macrobenthic Fauna in and Around Marine National Park and Sanctuary, Gujarat, India

Geeta Padate, Ankita Viradiya, Sunita Salunke and Ruzbeh Mirza*

Abstract

Coral reefs serving as shelter and food to many marine organisms' world over are under the threat of bleaching due to global warming and climate change. Hence documenting the rare fauna from such habitats becomes important. The Gulf of Kachchh with its 42 islands, in western Gujarat, India has been rich in terms of marine diversity. Since, the Southern Gulf of Kachchh has its mouth opening towards the Arabian Sea the place has opportunity of having species that might migrate towards the gulf along with the tidal flow, Arabian Sea currents as well as the movement of vessels from world over. During our studies at Shivrajpur, Poshitra and Narara coastal reefs we have encountered three species i.e. *Botrylloides diegensis, Marivagia stellata, Heteractis malu* and three genera i.e. *Neozoanthus* spp., *Ecteinascidia* spp., *Thysanozoon* spp. that are new to the Southern Gulf of Kachchh region and Gujarat coast. We report the same over here.

Keywords

Gulf of Kachchh; *Botrylloides diegensis; Marivagia stellate*; *Neozoanthus* spp.; *Ecteinascidia* spp.; *Thysanozoon* spp.; *Heteractis malu*

Introduction

ecosystems [2] that harbor rich species diversity with abundance of live coral cover along with dead rubbles in the intertidal zones [3]. Hence, it attains a distinct pattern of biotic assemblages including the rare and the endangered species. The Diversity of the coral reef fauna in the region as Marine Zoology of Okhamandal has been published in two volumes as early as 1909 [4]. In recent years, the intertidal macro fauna of the Narara and Sikka have been described [5] with an ecological assessment of the Narara reef [6] and corals and some faunal associates in Marine National Park and Sanctuary (MNP& S) [7]. Surveys on coral diversity and coral implantation have been carrying out in the area of the Southern Gulf of Kachchh [8]. The unique characteristics of Gulf of Kachchh reef have been explored under several other studies [9-11]. During our surveys in Marine National Park and Sanctuary, Gulf of Kachchh and Shivrajpur coastal reef facing Arabian Sea, we encountered some interesting marine fauna that were founds to be new to the region. We here report three species and three genera to the area. As the Gulf of Kachchh, located towards the northwestern region of the Indian coastline, is also under the threat of rapid industrialization [12,13] present reporting becomes significant.

Study sites

A study has been conducted at Poshitra and Narara Coastal reefs in Gulf of Kachchh and Shivrajpur (Kachigadh) coastal reef (Figure 1).

Poshitra coastal reef: This reef lies around 22°24'02" N and 69°12'04" E at the inner side of mouth of Gulf (Figure 2). It is a coastal reef with small embayment at Laku point. This reef facing east has good numbers of corals spread in wide area. Reef is rocky towards the shore and sandy towards the sea with extensive rocky tidal pools. The rocks are cover with sharp edged barnacles in large numbers. The coastal area also has mangrove vegetation.

Narara coastal reef: The reef lies around 22°25'8" N and 69°42" E (Figure 3). This area was previously an island that later became a part of mainland due to human encroachment. This reef is a popular tourist place and nature education campsite for the marine flora and fauna. The reef is sandy and has mangroves i.e. *Avicennia* spp. and *Rhizophora* spp. spread towards the coast.

Mirza et al., J Mar Biol Oceanogr 2017, 6:3
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Short Communication A SCITECHNOL JOURNAL

Report of Four Imperative Marine Macrobenthic Fauna from the Gulf of Kachchh, Gujarat, India

Ruzbeh Mirza, Ankita Viradiya, Sunita Salunke and Geeta Padate*

Abstract

The coral reef ecosystems world over are in danger of bleaching due to climate change and global warming. These coral reefs because of their high productivity support huge diversity of fauna. These fauna are also likely to face dangers due to coral bleaching and climate change. Hence documenting the rare fauna becomes important. Gulf of Kachchh bestowed with coral reef fauna, forms one of the four major reefs in India. Though the study of Coral reef fauna from Gulf is more than a century old, it is one of the least studied reefs in India. During our visits to Pirotan, Kalumbhar and Asaba peer Islands in the Southern Gulf of Kachchh, we encountered some interesting species; three Sea anemone i.e. *Anemonia viridis* (Forsskal, 1775), *Aiptasia diaphana* (Rapp, 1829), *Heteractis crispa* (Hemprich & Ehrenberg in Ehrenberg, 1834) and one Crab i.e. Actaea savignyii (Milne Edwards, 1834). The sea anemones have not been reported form Gulf of Kachchh reef whereas Crab that was reported in 1970 had not been discovered in recent studies. The present report is probably 2nd record with photographic evidence. This paper describes presence of above four species from islands in the region.

Keywords

Anemonia viridis; Aiptasia diaphana; Heteractis crispa; Actaea savignyii; Gulf of Kachchh

Introduction

Coral reefs, the rainforests of ocean [1] are mainly distributed in the tropics. Amongst these India has four major reefs located at Andaman and Nicobar Islands, Lakshadweep group of islands, Gulf of Munnar and Gulf of Kachchh. In Gulf of Kachchh the southern Hornell's [5] work describing some of the important groups of the reef diversity such as Hydroids, Polyzoans, Nudibranchs and Poriferan is the extensive base on which several small studies are being conducted. The major studies in recent years include intertidal macro fauna of the Narara and Sikka intertidal area [6], ecological assessment of Narara reef [7] and corals and some associates in Marine National Park [8]. During same period GEER Foundation, Gandhinagar also conducted surveys and worked on coral implantation in the area as well [9]. Gulf of Kachchh because of its unique characteristics has been explored under several other studies on biodiversity too [10,11]. In our studies on "Biodiversity in southern Gulf of Kachchh with reference to coral bleaching/climate change" we have come across some interesting species whose documentation seems to be important with biodiversity perspective. Here we report these remarkable species, which can be new records for the area.

Study site

The species recorded were observed at three islands in Southern Gulf of Kachchh/Gujarat (Figure 1). These are:

Pirotan island: The island is located 12 km away from the coastline and lies between 22˚24.4'N - 22˚27.5'N and 69˚35.3'E - 69˚39.4'E (Figure 2). The island is well known for its rich biodiversity.

Figure 1: Satellite image of Southern Gulf of Kachhh, Gujarat.