

Marine Biodiversity

REPORT

JUNE 21, 2019

CLASSIFICATION OF STONY CORALS(SCLERACTINIA) AND SOFT CORALS: SEA FANS (GORGONIANS) AND FAMILY PLEXAURIDAE FOUND ON MUMBAI'S ROCKY SHORES



Above: Reef- Building Corals at Haji Ali | Shaunak Modi, 2019

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1. ABSTRACT

Stony Coral (Scleractinia) and Soft Coral from the Sea Fans (Gorgonian) family have been included under Schedule I of the Wildlife Protection Act, 1972. The status of corals into classification of this report has been conceptualised on the basis to understand the different species of corals found on Mumbai's rocky shores through existing observations and documentation of these species on an online portal known as *iNaturalist* that has recorded observations of about **8 species** which include **2 reef growing** and non-reef growing stony corals and soft corals which include **1 species of sea fans from Gorgonians** and also the family Plexuaridae of a total **130 observations**.

2. INTRODUCTION & BACKGROUND

LITERATURE REVIEW ON CORALS OF MUMBAI:

Coral reefs are some of the most diverse and valuable ecosystems of India. The coral reefs not only provide a sanctuary to a myriad of marine life but also play a key role in protecting the coastline from erosion. (Jyoti Saroj et.al 2016)

In India coral reefs are being damaged and destroyed at an increasing rate. They face a number of worsening anthropogenic threats, including bleaching, destructive fishing practices, pollution and climate change. The Reef condition is generally poor and declining in nearshore waters and areas of high population density. Sedimentation, dredging and coral mining are damaging near shore reefs, while the use of explosives and bottom nets in fishing are damaging offshore reefs in specific sites. Although institutions and laws are sufficient in theory to manage and protect the reefs in India, authorities in the field have taken little effective action in implementing these laws. (Jyoti Saroj et.al 2016)

Like other parts of the world, Indian reefs are also in huge peril. Not only consumerist anthropogenic impacts on coral reefs have augmented dramatically for various reasons since the last century, but the global climate change is also scratching in Indian coral reefs as well. By the end of the previous century, except reefs of the A&N Islands, hardly any reefs of mainland India were pristine. (Kalyan De, K. Venkataraman, Baban Ingole; CSIR-National Institute of Oceanography, National Centre for Sustainable Coastal Management, 2017)

The west coast of India between Bombay and Goa is reported to have submerged banks with isolated coral formations (Nair and Qasim, 1978). Coral patches have been recorded in the intertidal regions of Ratnagiri, Malvan and Redi, south of Bombay (Qasim and Wafer, 1979) (Jyoti Saroj et.al 2016)

It is assumed that there may be more patch or submerged reefs scattered across the Indian waters which are yet to be discovered. Therefore, research should be encouraged by providing necessary facilities, long-term funding, and infrastructure. (Kalyan De, K. Venkataraman, Baban Ingole; CSIR-National Institute of Oceanography, National Centre for Sustainable Coastal Management, 2017)

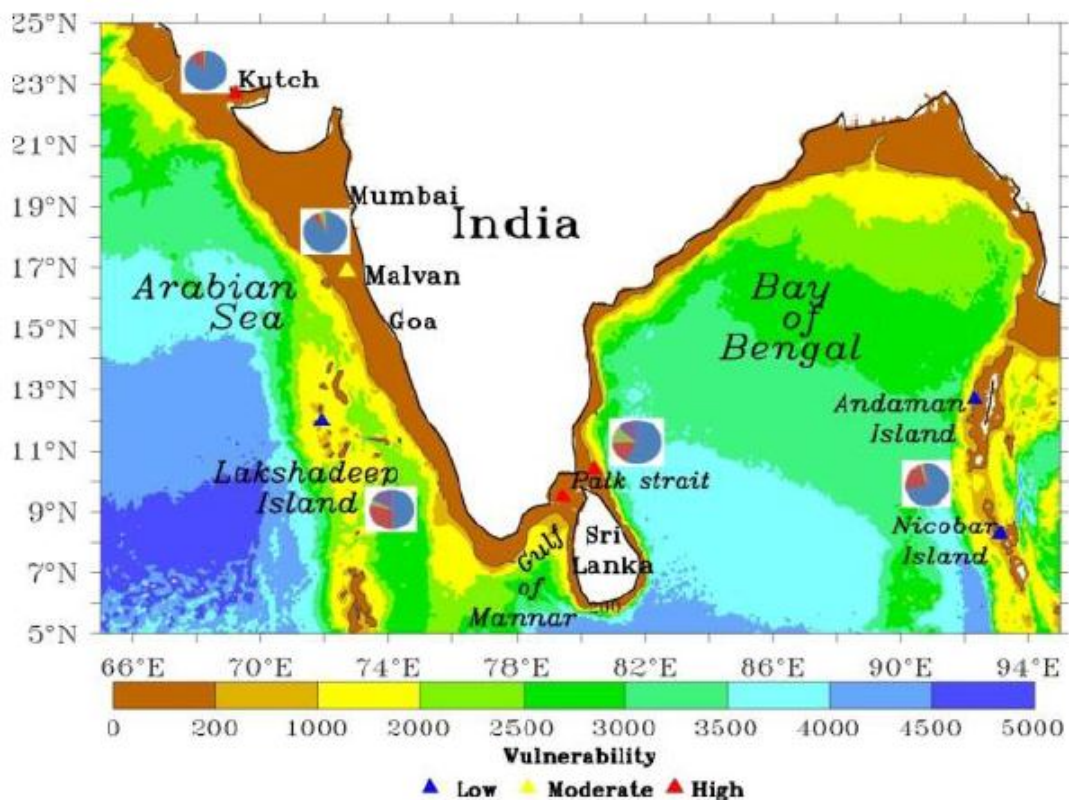


Fig. 1- Indian coral reefs and major theme of coral reef study in India (%)

- Biodiversity and ecology
- Coral bleaching and other threats
- Disease
- Microbiology and biotechnology

Image 1: Excerpt image from the “Current status and scope of Coral Reef research in India: A Bio-ecological perspective” by Kalyan De, K. Venkataraman, Baban Ingole; CSIR-National Institute of Oceanography, National Centre for Sustainable Coastal Management, 2017

3. METHODS:

1. Secondary data from iNaturalist was used to classify this report of Stony coral (Scleractinia) : Reef building and Non-reef building and Soft Corals: Gorgoniidae and Plexauridae.
2. The data is classified into two main chapters, under species categories, some of which had observations identified upto the genus and some which had observations identified only up to the family.
3. These observations that are classified into the report are observations only recorded in Western Coast of the City of Mumbai, Maharashtra, India. The Observations classified in the report have been documented between 2014 -2019.
4. iNaturalist is an online software platform to record, document and observe species of various plants and animals. iNaturalist.org is a joint initiative of the California Academy of Sciences and the National Geographic Society.

About iNaturalist:

One of the world's most popular nature apps, iNaturalist helps you identify the plants and animals around you. Get connected with a community of over 750,000 scientists and naturalists who can help you learn more about nature! What's more, by recording and sharing your observations, you'll create research quality data for scientists working to better understand and protect nature. iNaturalist is a joint initiative by the California Academy of Sciences and the National Geographic Society.

4.RESULTS:

1. **STONY CORALS (SCLERACTINIA):** According to iNaturalist Observations, a total of 101 observations of corals have been conducted by 10 identifiers and 12 observers across 5 different reef building and non-reef building coral species.
2. **SOFT CORALS : FAMILY GORGONIANS (SEA FANS) AND FAMILY PLEXAURIDAE:** According to iNaturalist observations, a total of 29 observations of corals have been conducted by 8 identifiers and 5 observers across 3 different coral species.

CHAPTER 1:
CLASSIFICATION OF
OBSERVATIONS OF
STONY CORALS
(SCLERACTINIA)

I. CLASSIFICATION OF OBSERVATIONS OF STONY CORALS (SCLERACTINIA):

ANIMALS	CNIDARIANS	CORALS	HEXACORALLIANS	SCLERACTINIA
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1. **STONY CORALS (SCLERACTINIA) : NON-REEF BUILDING:** Cuffe Parade, Marine Drive, Napean Sea Road, Mahalaxmi, Haji Ali, Worli, Bandra Bandstand, Khar Danda and Juhu Koliwada.



Image 2:Stony Coral(Scleractinia) | Nikhil Sathe, 2018 || Image2.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.981201 Lon: 72.808761 Accuracy: 22m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
 India (Country)
 Maharashtra, IN (State)
 Mumbai City, MH, IN (District)

Community Curated:

Haji Ali Intertidal, Mumbai, MH, IN (Open space)
 Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
 Greater Bombay, MH, IN (County)
 Konkan, MH, IN (Division)
 Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

2. STONY CORAL (SCLERACTINIA) : **NON-REEF BUILDING**



Image 3:Stony Coral(Scleractinia) | Nikhil Sathe, 2019 || Image3.1 : Lat-Long co-ordinates of observed stony coral

Lat: 19.048168 Lon: 72.818665 Accuracy: Not recorded Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Bandstand Intertidal, Mumbai, MH, IN
(Open space)
Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

3. STONY CORAL (SCLERACTINIA) :NON- REEF BUILDING



Image 4:Stony Coral(Scleractinia) | Shaunak Modi, 2018 || Image4.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.95916 Lon: 72.800653 Accuracy: 210m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

4. STONY CORAL (SCLERACTINIA) : **NON-REEF BUILDING**



Image 5:Stony Coral(Scleractinia) | Abhishek Jamalabad, 2018 || Image5.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.958464 Lon: 72.797971 Accuracy: 31m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Napean Sea Road Intertidal, Mumbai, MH, IN (Open space)
Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

5. STONY CORAL (SCLERACTINIA) : **NON-REEF BUILDING**



Image 6:Stony Coral(Scleractinia) | Pradip Patade, 2016 || Image6.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.934309 Lon: 72.822337 Accuracy: 1.03km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Greater Bombay, MH, IN (County)
Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

II. CLASSIFICATION OF OBSERVATIONS OF STONY CORALS (SCLERACTINIA):

ANIMALS	CNIDARIANS	CORALS	HEXACORAL LIANS	STONY CORAL	FAMILY SIDERASTREIDAE	GENUS PSEUDOSIDERASTREA
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FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (SCLERACTINIA: STONY CORALS) : REEF BUILDING

Found at: Cuffe Parade, Marine Drive, Haji Ali. They're also 'Near Threatened' under IUCN's Red List.



Image 1:False Pillow Coral(Pseudosiderastrea tayamai) | Pradip Patade, 2019 || Image1.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.929724 Lon: 72.988286 Accuracy: 30.62km Geoprivacy: Obscured

Encompassing Places

Standard:

Asia (Continent)
 India (Country)
 Maharashtra, IN (State)
 Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
 MH, IN (Local administrative area)
 Konkan, MH, IN (Division)
 Tropical Asia (Unknown)

2. FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (**SCLERACTINIA: STONY CORALS**) :
REEF BUILDING

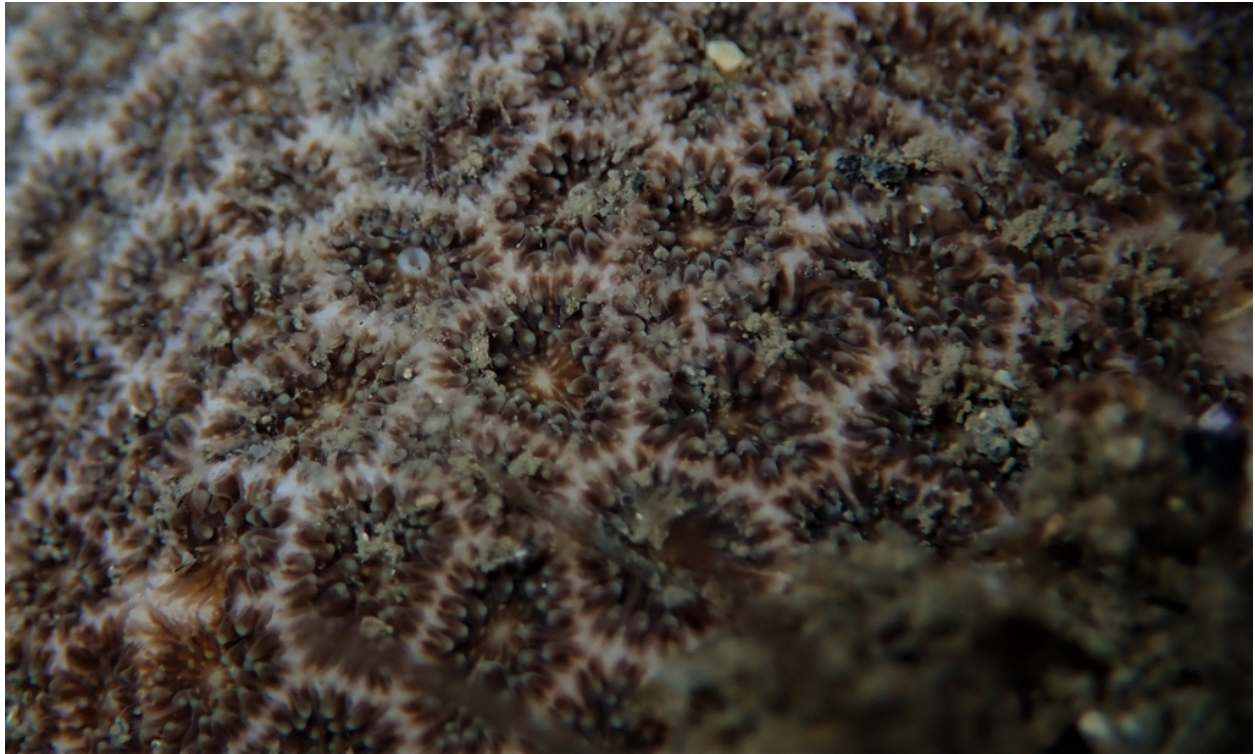


Image 2:False Pillow Coral(*Pseudosiderastrea tayamai*) | Nikhil Sathe, 2018 || Image2.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.93937 Lon: 72.999804 Accuracy: 30.62km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)

India (Country)

Maharashtra, IN (State)

Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,

MH, IN (Local administrative area)

Konkan, MH, IN (Division)

Tropical Asia (Unknown)

3. FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (**SCLERACTINIA: STONY CORALS**) :
REEF BUILDING



Image 3:False Pillow Coral(*Pseudosiderastrea tayamai*) | Nikhil Sathe, 2018 || Image3.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.862551 Lon: 72.985725 Accuracy: 30.62km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

4. FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (**SCLERACTINIA: STONY CORALS**) : **REEF BUILDING**



Image 4:False Pillow Coral(*Pseudosiderastrea tayamai*) | Shaunak Modi, 2019 || Image4.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.928653 Lon: 72.816143 Accuracy: 30.62km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

5. FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (**SCLERACTINIA: STONY CORALS**) :
REEF BUILDING



Image 5:False Pillow Coral(*Pseudosiderastrea tayamai*) | Jessica Luis, 2017 || Image5.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.901528 Lon: 72.824364 Accuracy: 30.62km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)

India (Country)

Maharashtra, IN (State)

Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,

MH, IN (Local administrative area)

Konkan, MH, IN (Division)

Tropical Asia (Unknown)

6. FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (**SCLERACTINIA: STONY CORALS**) :
REEF BUILDING



Image 6:False Pillow Coral(*Pseudosiderastrea tayamai*) | Sayee Girdhari, 2018 || Image6.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.88823 Lon: 72.844087 Accuracy: 30.62km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)

India (Country)

Maharashtra, IN (State)

Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)

Konkan, MH, IN (Division)

Tropical Asia (Unknown)

7. FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (**SCLERACTINIA: STONY CORALS**) :
REEF BUILDING



Image 7:False Pillow Coral(*Pseudosiderastrea tayamai*) | Nikhil Sathe, 2019 || Image7.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.936107 Lon: 72.956473 Accuracy: 30.62km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

8. FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (**SCLERACTINIA: STONY CORALS**) :
REEF BUILDING



Image 8:False Pillow Coral(*Pseudosiderastrea tayamai*) | Trish Gonsalves, 2018 || Image8.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.807202 Lon: 72.870462 Accuracy: 30.62km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)

India (Country)

Maharashtra, IN (State)

Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)

Konkan, MH, IN (Division)

Tropical Asia (Unknown)

9. FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (**SCLERACTINIA: STONY CORALS**) :
REEF BUILDING



Image 9:False Pillow Coral(*Pseudosiderastrea tayamai*) | Gaurav Patil, 2018 || Image9.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.986259 Lon: 72.854889 Accuracy: 30.62km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

10. FALSE PILLOW CORALS (PSEUDOSIDERASTREA TAYAMAI) (SCLERACTINIA: STONY CORALS) :
REEF BUILDING



Image 10:False Pillow Coral(*Pseudosiderastrea tayamai*) | Samuel Prakash, 2018 || Image10.1 : Lat-Long co-ordinates of observed stony coral

Lat: 18.808521 Lon: 72.985626 Accuracy: 30.62km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)

India (Country)

Maharashtra, IN (State)

Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)

Konkan, MH, IN (Division)

Tropical Asia (Unknown)

III. CLASSIFICATION OF OBSERVATIONS OF STONY CORALS (SCLERACTINIA):

ANIMALS	CNIDARIANS	CORALS	HEXACORAL LIANS	STONY CORAL	FAMILY PORTIDAE	GENUS Goniopora
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FLOWERPOT CORALS (GONIOPORA) (SCLERACTINIA: STONY CORALS) : REEF BUILDING

Found at: Cuffe Parade and Marine Drive.

1. FLOWERPOT CORALS (GONIOPORA) (SCLERACTINIA: STONY CORALS) : REEF BUILDING

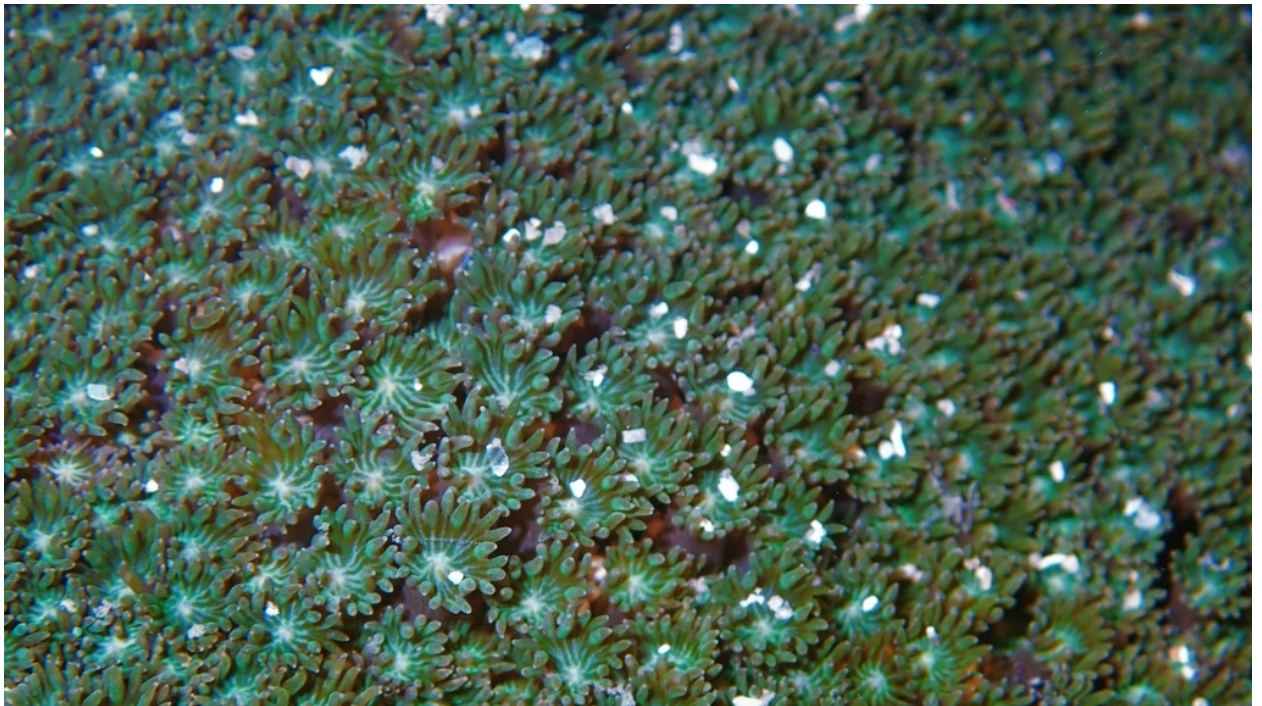


Image1:Flowerpot Coral | Nikhil Sathe, 2019 || Image1.1 : Lat-Long co-ordinates of observed flowerpot corals

Lat: 18.911703 Lon: 72.803894 Accuracy: Not recorded Geoprivacy: Open

Encompassing Places

Standard:	Community Curated:
Asia (Continent)	Eastern Cuffe Parade Intertidal, Mumbai, MH, IN (Open space)
India (Country)	Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Maharashtra, IN (State)	Greater Bombay, MH, IN (County)
Mumbai City, MH, IN (District)	Konkan, MH, IN (Division)
	Tropical Asia (Unknown)

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2. FLOWERPOT CORALS (GONIOPORA) (SCLERACTINIA: STONY CORALS) : REEF BUILDING



Image 2: Flowerpot Coral | Nikhil Sathe, 2019 || Image 2.1 : Lat-Long co-ordinates of observed flowerpot corals

Lat: 18.911692 Lon: 72.803894 Accuracy: Not recorded Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Eastern Cuffe Parade Intertidal, Mumbai,
MH, IN (Open space)
Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

3.

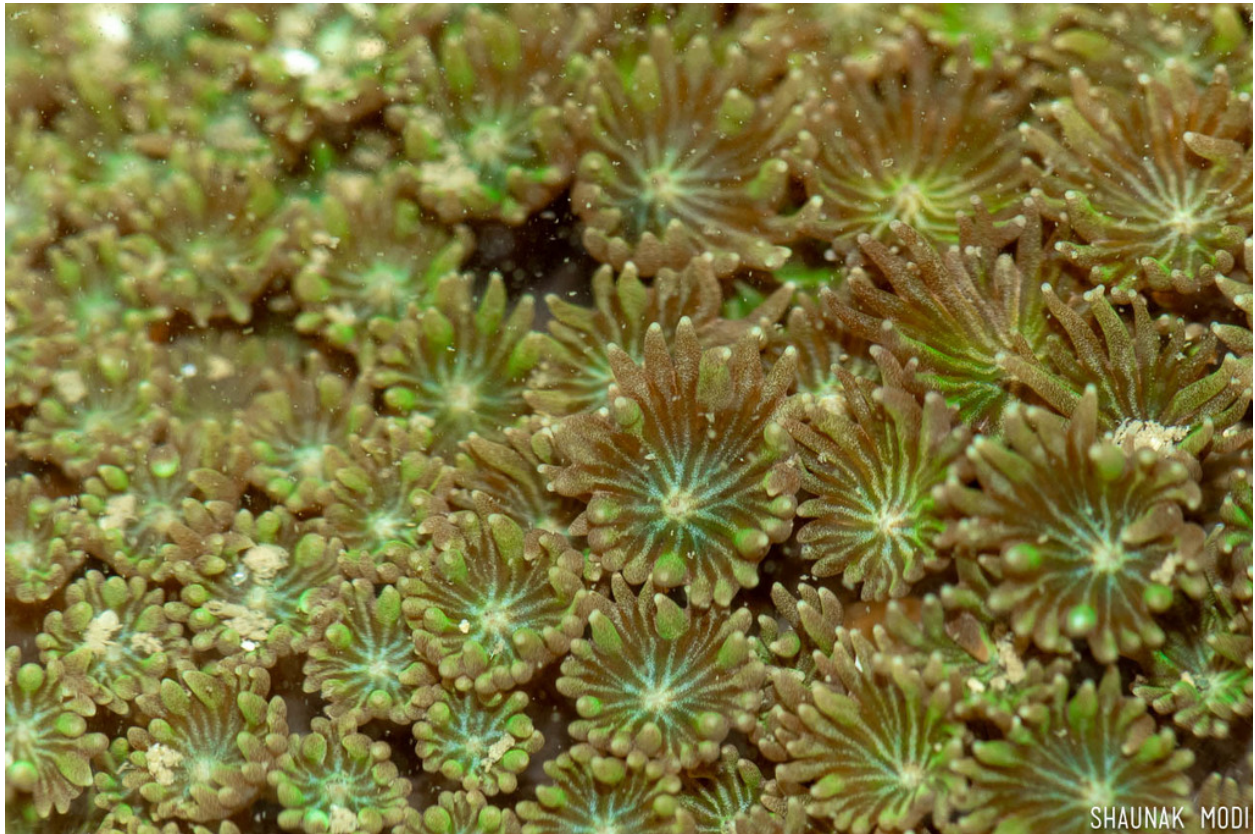


Image 3: Flowerpot Coral | Shaunak Modi, 2019 || Image 3.1 : Lat-Long co-ordinates of observed flowerpot corals

Lat: 18.941458 Lon: 72.823629 Accuracy: 209m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

I. CLASSIFICATION OF NON REEF-BUILDING STONY CORALS

ANIMALS	CNIDARIANS	CORALS	HEXACORAL LIANS	STONY CORAL	FAMILY RHIZANGIIDAE	GENUS Multiple species (no baseline data of observations)
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1.STONY CORALS (RHIZANGIIDAE) (RHIZANGIIDAE: STONY CORALS) : NON- REEF BUILDING

Found at: Marine Drive, Napean Sea Road (PDP), Mahalaxmi, Haji Ali, Worli, Bandra, Khar, Juhu.



Image 1:Rhizangiidae Stony Coral | Abhishek Jamalabad, 2017 || Image 1.1 : Lat-Long co-ordinates of observed rhizangiidae corals

Lat: 19.072299 Lon: 72.820998 Accuracy: 15m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Carter Road Intertidal, Mumbai, MH, IN
(Open space)
Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

2. STONY CORALS (RHIZANGIIDAE) (RHIZANGIIDAE: STONY CORALS) : NON- REEF BUILDING



Image 2:Rhizangiidae Stony Coral | Gaurav Patil, 2018 || Image 2.1 : Lat-Long co-ordinates of observed rhizangiidae coral

Lat: 18.931369 Lon: 72.821135 Accuracy: 15m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Marine Drive Intertidal, Mumbai, MH, IN
(Open space)
Greater Bombay, MH, IN (County)
Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

3. STONY CORALS (RHIZANGIIDAE) (RHIZANGIIDAE: STONY CORALS) : NON-REEF BUILDING



Image 3:Rhizangiidae Stony Coral | Gaurav Patil, 2017 || Image 3.1 : Lat-Long co-ordinates of observed rhizangiidae coral

Lat: 18.930054 Lon: 72.819339 Accuracy: 8m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Marine Drive Intertidal, Mumbai, MH, IN
(Open space)
Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

4. STONY CORALS (RHIZANGIIDAE) (**RHIZANGIIDAE: STONY CORALS**) : **NON-REEF BUILDING**

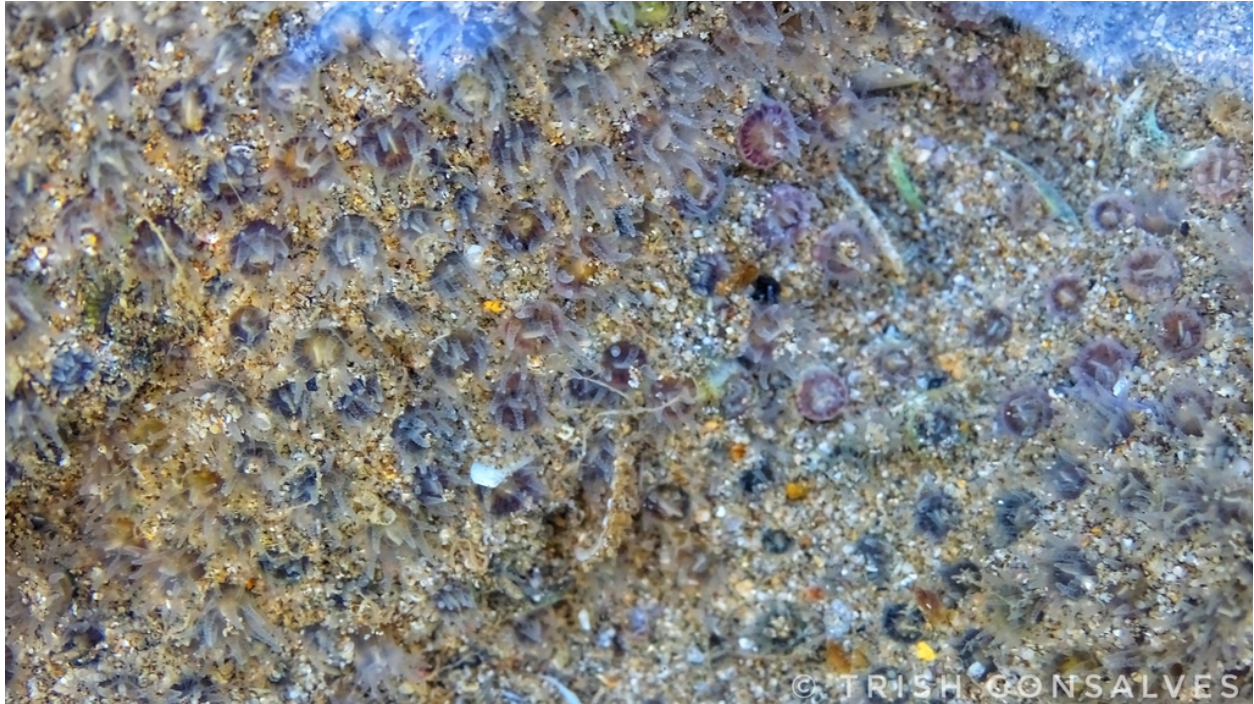


Image 4:Rhizangiidae Stony Coral | Trisha Gonsalves, 2019 || Image 4.1 : Lat-Long co-ordinates of observed rhizangiidae coral

Lat: 19.108155 Lon: 72.823348 Accuracy: 132m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Juhu Intertidal, Mumbai, MH, IN (Open space)
Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

5. STONY CORALS (RHIZANGIIDAE) (RHIZANGIIDAE: STONY CORALS) : NON- REEF BUILDING



Image 5:Rhizangiidae Stony Coral | Prathamesh Khedwan, 2019 || Image 5.1 : Lat-Long co-ordinates of observed rhizangiidae coral

Lat: 19.049939 Lon: 72.820652 Accuracy: 17m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Bandstand Intertidal, Mumbai, MH, IN (Open space)
Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

6. STONY CORALS (RHIZANGIIDAE) (RHIZANGIIDAE: STONY CORALS) : NON-REEF BUILDING



Image 6:Rhizangiidae Stony Coral | Vighnesh, 2019 || Image 6.1 : Lat-Long co-ordinates of observed rhizangiidae coral

Lat: 18.952684 Lon: 72.812737 Accuracy: Not recorded Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Girgaon Chowpatty Intertidal, Mumbai, MH, IN (Open space)
Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

II. CLASSIFICATION OF NON REEF-BUILDING STONY CORALS

ANIMALS	CNIDARIANS	CORALS	HEXACORALLIANS	STONY CORAL	FAMILY RHIZANGIIDAE	GENUS CULICIA
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1.CUP CORALS (CULICIA) (**RHIZANGIIDAE: STONY CORALS**) : **NON- REEF BUILDING**

Found at: Juhu.



Image 1:Cup Coral | Shaunak Modi, 2017 || Image 1.1 : Lat-Long co-ordinates of observed cup coral

Lat: 19.020227 Lon: 72.817505 Accuracy: 206m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
 India (Country)
 Maharashtra, IN (State)
 Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
 MH, IN (Local administrative area)
 Greater Bombay, MH, IN (County)
 Konkan, MH, IN (Division)
 Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

2. CUP CORALS (CULICIA) (RHIZANGIIDAE: STONY CORALS) : NON- REEF BUILDING



Image 2:Cup Coral | Shaunak Modi, 2018 || Image 2.1 : Lat-Long co-ordinates of observed cup coral

Lat: 19.096903 Lon: 72.826565 Accuracy: 2.71km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

3. CUP CORALS (CULICIA) (RHIZANGIIDAE: STONY CORALS) : NON- REEF BUILDING



Image 3:Cup Coral | Abhishek Jamalabad, 2018 || Image 3.1 : Lat-Long co-ordinates of observed cup coral

Lat: 19.082587 Lon: 72.820613 Accuracy: 61m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

III. CLASSIFICATION OF NON REEF-BUILDING STONY CORALS

ANIMALS	CNIDARIANS	CORALS	HEXACORALLIANS	STONY CORAL	FAMILY CARYOPHYLLIIDAE	GENUS
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1.SMOOTH FLOWER CORAL (CARYOPHYLLIIDAE) (CARYOPHYLLIIDAE: **STONY CORALS**) : **NON-REEF BUILDING**

Found at: Khar, Juhu.



Image 1:Smooth Flower Coral | Nikhil Sathe, 2019 || Image 1.1 : Lat-Long co-ordinates of observed smooth flower coral

Lat: 18.977009 Lon: 72.805237 Accuracy: 11m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mahalaxmi Intertidal, Mumbai, MH, IN (Open space)
Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

2.SMOOTH FLOWER CORAL (CARYOPHYLLIIDAE) (CARYOPHYLLIIDAE: **STONY CORALS**) : **NON-REEF BUILDING**



Image 2:Smooth Flower Coral | Pradip Patade, 2019 || Image 2.1 : Lat-Long co-ordinates of observed smooth flower coral

Lat: 19.107445 Lon: 72.976586 Accuracy: 30.6km Geoprivacy: Obscured

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Greater Bombay, MH, IN (County)
Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

3.SMOOTH FLOWER CORAL (CARYOPHYLLIIDAE) (CARYOPHYLLIIDAE: **STONY CORALS**) : **NON-REEF BUILDING**



Image 3:Smooth Flower Coral | Abhishek Jamalabad, 2017 || Image 3.1 : Lat-Long co-ordinates of observed smooth flower coral

Lat: 19.082709 Lon: 72.817982 Accuracy: 2.71km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

4. SMOOTH FLOWER CORAL (CARYOPHYLLIIDAE) (CARYOPHYLLIIDAE: **STONY CORALS**) : **NON-REEF BUILDING**



Image 4:Smooth Flower Coral | Abhishek Jamalabad, 2017 || Image 4.1 : Lat-Long co-ordinates of observed smooth flower coral

Lat: 19.082123 Lon: 72.820787 Accuracy: 4.13km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

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III. CLASSIFICATION OF NON REEF-BUILDING STONY CORALS

ANIMALS	CNIDARIANS	CORALS	HEXACORALLIANS	STONY CORAL	FAMILY DENDROPHYLLIIDAE	GENUS
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1. DISK CORAL (DENDROPHYLLIIDAE) (DENDROPHYLLIIDAE: **STONY CORALS**) : **NON- REEF BUILDING**

Found at: Marine Drive



Pradip Patade

Image 1: Disk Coral | Pradip Patade, 2016 || Image 1.1 : Lat-Long co-ordinates of observed disk coral

Lat: 18.93434 Lon: 72.822665 Accuracy: 1.03km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
 India (Country)
 Maharashtra, IN (State)
 Mumbai City, MH, IN (District)

Community Curated:

Greater Bombay, MH, IN (County)
 Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
 Konkan, MH, IN (Division)
 Tropical Asia (Unknown)

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CHAPTER 2:
CLASSIFICATION OF
OBSERVATIONS OF
SOFT CORAL
(ALCYONACEA) FROM
SEA FANS
(GORGONIANS) AND
FAMILY PLEXAURIDAE

I. CLASSIFICATION OF SOFT CORALS : SEA FANS (GORGONIANS)

ANIMALS	CNIDARIANS	CORALS	OCTOCORALS	SOFT CORAL	FAMILY GORGONIIDAE	GENUS PSEUDOPTEROGORGIA FREDERICKI
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1.SOFT CORAL/ SEA FAN (PSEUDOPTEROGORGIA FREDERICKI) (PSEUDOPTEROGORGIA FREDERICKI: **SOFT CORALS/ SEA FANS)**

Found at: Worli, Juhu



Image 1:Soft Coral/Sea Fan | Gaurav Patil, 2018 || Image 1.1 : Lat-Long co-ordinates of observed disk coral

Lat: 18.936551 Lon: 72.820813 Accuracy: 8m Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
 India (Country)
 Maharashtra, IN (State)
 Mumbai City, MH, IN (District)

Community Curated:

Marine Drive Intertidal, Mumbai, MH, IN (Open space)
 Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
 Greater Bombay, MH, IN (County)
 Konkan, MH, IN (Division)
 Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

2.SOFT CORAL/ SEA FAN (PSEUDOPTEROGORGIA FREDERICKI) (PSEUDOPTEROGORGIA FREDERICKI: **SOFT CORALS/ SEA FANS**)



Image 2:Soft Coral/Sea Fan | Jessica Luis, 2017 || Image 2.1 : Lat-Long co-ordinates of observed disk coral

Lat: 19.096903 Lon: 72.826565 Accuracy: 2.64km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai Suburban, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

3.SOFT CORAL/ SEA FAN (PSEUDOPTEROGORGIA FREDERICKI) (PSEUDOPTEROGORGIA FREDERICKI: **SOFT CORALS/ SEA FANS**)



Image 3:Soft Coral/Sea Fan | Sejal Mehta, 2019 || Image3.1 : Lat-Long co-ordinates of observed disk coral

Lat: 19.198581 Lon: 72.876216 Accuracy: 30.6km Geoprivacy: Obscured

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

II. CLASSIFICATION OF SOFT CORALS (PLEXAURIDAE)

ANIMALS	CNIDARIANS	CORALS	OCTOCORALS	SOFT CORAL	FAMILY PLEXAURIDAE	GENUS
---------	------------	---------------	------------	-------------------	--------------------	-------

1.SOFT CORAL :(PLEXAURIDAE: **SOFT CORALS**)

Found at:



Image 1:Soft Coral(Plexauridae) | Pradip Patade, 2018 || Image 1.1 : Lat-Long co-ordinates of observed disk coral

Lat: 18.928003 Lon: 72.771125 Accuracy: 4.13km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

2.SOFT CORAL :(PLEXAURIDAE: **SOFT CORALS**)



Image 2:Soft Coral(Plexauridae) | Pradip Patade, 2016 || Image 2.1 : Lat-Long co-ordinates of observed disk coral

Lat: 18.926811 Lon: 72.789726 Accuracy: Not recorded Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)

India (Country)

Maharashtra, IN (State)

Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)

Greater Bombay, MH, IN (County)

Konkan, MH, IN (Division)

Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

3.SOFT CORAL :(PLEXAURIDAE: **SOFT CORALS**)



Image 3:Soft Coral(Plexauridae) | Pradip Patade, 2014 || Image 3.1 : Lat-Long co-ordinates of observed disk coral

Lat: 18.935279 Lon: 72.79809 Accuracy: 4.13km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai, MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

4.SOFT CORAL :(PLEXAURIDAE: **SOFT CORALS**)



Image 4:Soft Coral(Plexauridae) | Pradip Patade, 2014 || Image 4.1 : Lat-Long co-ordinates of observed disk coral

Lat: 18.934325 Lon: 72.822829 Accuracy: 1.03km Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Greater Bombay, MH, IN (County)
Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

5.SOFT CORAL :(PLEXAURIDAE: **SOFT CORALS**)

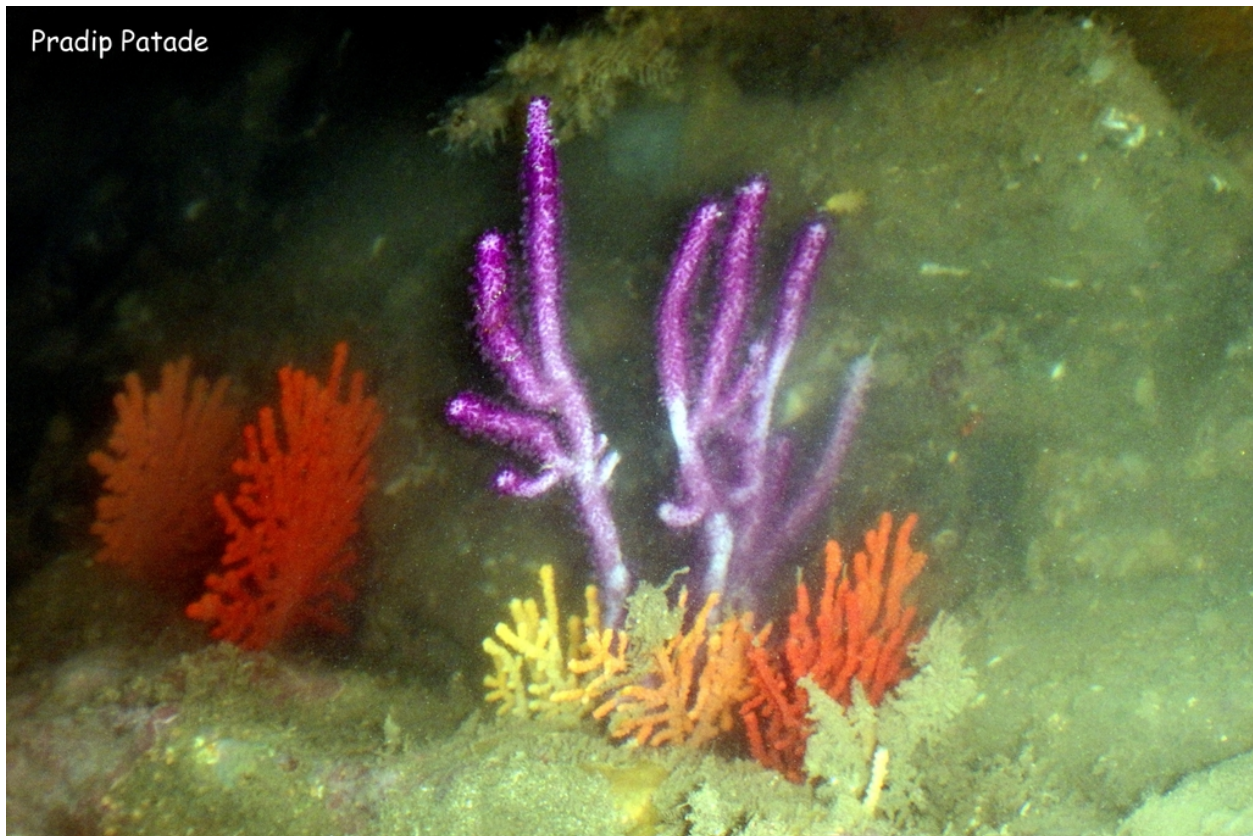


Image 5:Soft Coral(Plexauridae) | Pradip Patade, 2016 || Image 5.1 : Lat-Long co-ordinates of observed disk coral

Lat: 18.926727 Lon: 72.790657 Accuracy: Not recorded Geoprivacy: Open

Encompassing Places

Standard:

Asia (Continent)
India (Country)
Maharashtra, IN (State)
Mumbai City, MH, IN (District)

Community Curated:

Mumbai Metropolitan Region, Mumbai,
MH, IN (Local administrative area)
Greater Bombay, MH, IN (County)
Konkan, MH, IN (Division)
Tropical Asia (Unknown)

View on [Google](#) · [OpenStreetMap](#)

7. COASTAL ROAD RECLAMATION AND ECOSYSTEM-WIDE DESTRUCTION OF CORALS ON THE INTERTIDAL ROCKY SHORES



Image 1. : Reclamation at the Worli Rocky intertidal | March 2019

BASED ON OBSERVATIONS

- The Coastal Road's proposed reclamation presents a direct threat to the habitat and survival of the total 8 species of documented stony and soft corals on iNaturalist across Mumbai's intertidal shores
- The road is proposed to reclaim the entire intertidal rocky shores of Juhu, Khar, Bandra, Worli to Marine Drive where these observations were made.
- The extent of damage beyond species destruction is unknown and requires scientific inquiry.
- The reclamation also includes crushing of the widespread oyster beds and sea sponge habitats, including stony and soft coral habitats for an underground parking as claimed by the BMC contractors during the shorewalk survey. These habitats apart from the former having economical value, are also habitats for gastropods and a wide number of species that inhabit these oyster and sponge beds.
- The area towards Worli Dairy (seaward side), Mahalaxmi, Haji Ali and Priyadarshini Park has already been reclaimed and the process of ongoing reclamation has begun towards the other areas.



Image 2: Reclamation in the intertidal rocky shores of Worli| March 2019

8. RECOMMENDATIONS:

- I. The observations of species indicated an urgent and imperative need of conducting scientific marine research and inquiry into these species and documentation of their unique characteristics.
- II. The impact the coastal road reclamation would have on the intertidal habitats is observed as a potential ‘extinction risk’ of all intertidal species on Mumbai’s rocky shores
- III. The construction of the road by completely reclaiming the area for parking and recreational purposes stands ‘unsustainable’ as the intertidal shore of Mumbai is the habitat for all 8 and/or more species of stony (scleractinia) and soft corals (gorgonians) documented.

- IV. The survey report recommends a study of sustainable methods of the coastal road construction, as observed the reclamation by dumping non-oceanic mud poses as a permanent extinction risk of all intertidal marine species in Mumbai's rocky shores.

9. CONCLUSION: The report's purpose is to serve as an urgent data set on the vast bioreserve of Worli's intertidal rocky shores that are protected under several coastal and wildlife laws to be preserved and safeguarded from current ongoing and future 'unsustainable' and 'extinction risk' activities.

NOTE: All images presented as primary data in the report are the copyrights of iNaturalist marine experts who have uploaded their observations.

REFERENCES:

1. https://www.inaturalist.org/observations?place_id=6681&project_id=marine-life-of-mumbai&subview=grid&taxon_id=47532 (accessed June 21, 2019)
2. https://www.inaturalist.org/observations?place_id=6681&project_id=marine-life-of-mumbai&subview=grid&taxon_id=51015 (accessed June 21, 2019)
3. Jyoti Saroj; Ravi Kumar Gautam; Arti Joshi and Panja Tehseen " *Review of Coral Reefs of India: Distribution, Status, Research and Management*" College of Fisheries, Junagadh Agricultural University, 2016 (Veraval)
4. Kalyan De, K. Venkataraman, Baban Ingole " *Current status and scope of Coral Reef research in India: A Bio-ecological perspective* " ; CSIR-National Institute of Oceanography, National Centre for Sustainable Coastal Management, 2017

REPORT PRESENTED AND COMPILED BY:



