

# Reef-forming corals



Reef-forming corals are colonial marine invertebrates. They usually form compact colonies of many identical polyps. The main feature of reef-forming corals is their strong calcareous skeleton, which remains intact long after the death of the individual that built it. Thus, reef-forming corals play a crucial role in the formation of coral reefs. Scientists believe that if we do not take action to save the coral reefs, they may disappear completely by 2100. Identifying species can be challenging due to the lack of or incorrect spelling of species names on stamps. Species names are given in Latin. The author's own research and findings are marked with the symbol (AS).

## Plan

1. The coral reef is the oldest ecosystem on Earth	1
2. True, or stony corals	2-11
3. Blue corals	12
4. Fire corals	13
5. Symbiosis	14
6. Protecting reef-forming corals	15-16

## Bibliography

1. Ch. Sheppard. The life of a coral reef. Moscow, 1987.
2. D.V.Naumov, M.V.Propp, S.N.Rybakov. The World of Corals, Leningrad, 1985.
3. "Animal Life", vol.1-6. Moscow, Prosveshchenie, 1969.
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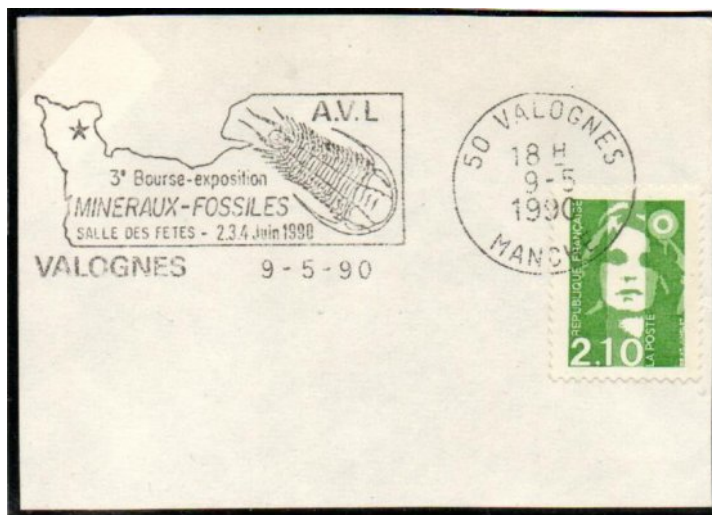
**Andrey Stekolshchikov (Russia)**

# 1. The coral reef is the oldest ecosystem on Earth

The coral reef is the oldest ecosystem on Earth. Some of the earliest coral remains were found near Moscow in sediments more than 300 million years old.



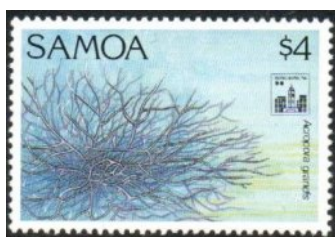
On the postmark (France, 1990) depicts a Trilobite. Fossilized remains of trilobites are always found in rocks containing fossils of other marine animals such as brachiopods, sea lilies, and corals.



Various types of reef-forming corals



Overprint O.H.M.S.  
(On His/Her Majesty's Service)



Overprint Hong Kong '94,  
International Stamp Exhibition



Overprint SPECIMEN



Overprint of new value



Modern coral reef

And now, coral reefs are oases, life in which is saturated to the limit. Here you can find representatives of all major types of the animal world. The most important role is played by reef-forming corals – without them, there would simply be no reefs. Coral reefs are located in tropical seas. The total area of reefs in the world exceeds 600 thousand km<sup>2</sup>.

## 2. True, or stony corals (Order Scleractinia - Madreporaria)

### Various forms of corals



Overprint BARBUDA MAIL



The Cook Islands have a variety of coral species on their reefs.  
The air mail cover was sent on 16.3.1981 from Rarotonga, Cook Islands to Toronto, Canada.

The main reef-forming corals are true or stony corals, belonging to the six-ray coral polyps (Class Anthozoa). The Order Scleractinia has 28 families (about 3300 species), but reef-forming are about 600. The variety of the shape of corals is determined by the conditions of their existence.

## 2. True, or stony corals (Order Scleractinia - Madreporaria)

### Family Meandrinidae

For the first time corals were depicted on stamps of Kingdom of Tonga in 1897 (AS)  
(two varieties are known: vertical or horizontal arrangement of the watermark).



Watermark (Wz.2)  
positioned vertically



Watermark (Wz.2)  
positioned horizontally



The stamp was reissued in 1942 on paper with a different watermark (Wz.3)



The stamp depicts various types of corals, including *Meandrina cerebralis*,  
lives on the coral reefs of the Tonga Islands in Oceania.  
The registered cover was sent on 1920 from Kingdom of Tonga to West Borneo.



*Dendrogyra culindrus*



*Eusmilia fastigiata*



*Meandrina meandrite*

The main feature of stony corals is a strong calcareous skeleton, which persists long after the death of the individual that built it. This is reflected in the name of the squad Scleractinia – stony, or hard corals

## 2. True, or stony corals (Order Scleractinia - Madreporaria)

### Family Acroporidae



Acropora humilis



Acropora latistella



Acropora microthalma



Acropora echinata



Acropora digitifera



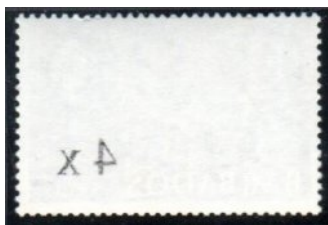
On the stamp and special postmark of Republic of China (Taiwan) 2016 depicts Montipora foliosa.



Acropora sp.



Acropora cervicornis



Backprint



Normal overprint of new value



Montipora sp.

Many coral species breed once a year during mass spawning. Other types of corals - by budding or through fragmentation of polyps into parts, from which they are then restored.

## 2. True, or stony corals (Order Scleractinia - Madreporaria)

### Family Dendrophylliidae



Balanophyllia sp.

The gutter has a drawing of Tubastraea sp., not specified in catalogs (AS)



Tubastraea aurea

Automaten stamp



Turbinaria reiniformes



Tubastraea coecine



Dendrophyllia migrantus

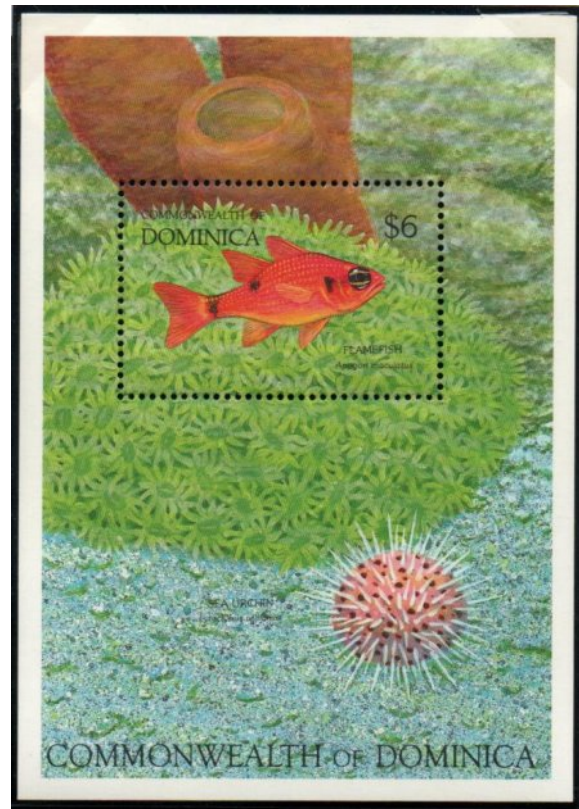
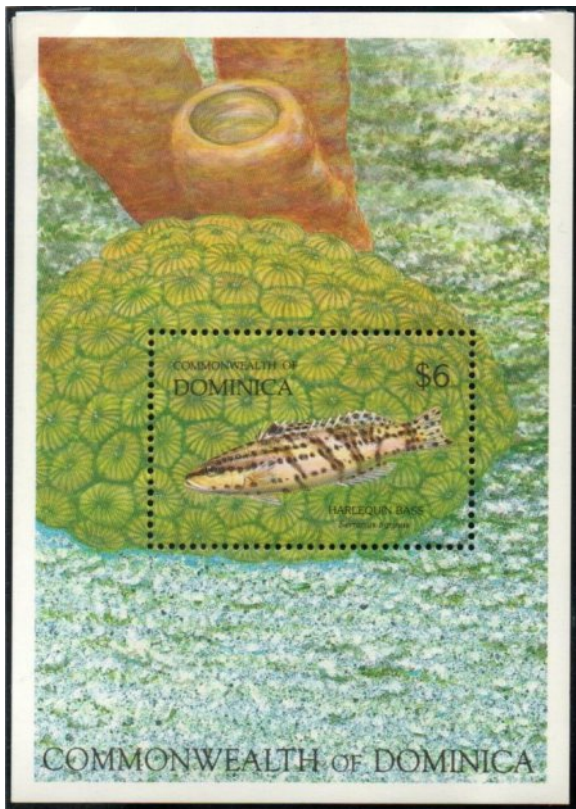


On the cover and a postmark depict a coral, most likely Dendrophyllia sp. (AS).  
The registered cover was sent on 5.10.1988 from Tallinn to Kandalaksha, Murmansk Region USSR.

Tubastraea micranthus is the only species of reef-forming corals devoid of algae zooxanthellae, or symbiodinium. Colonies of this coral grow in the form of greenish bushes up to 1 meter in size.

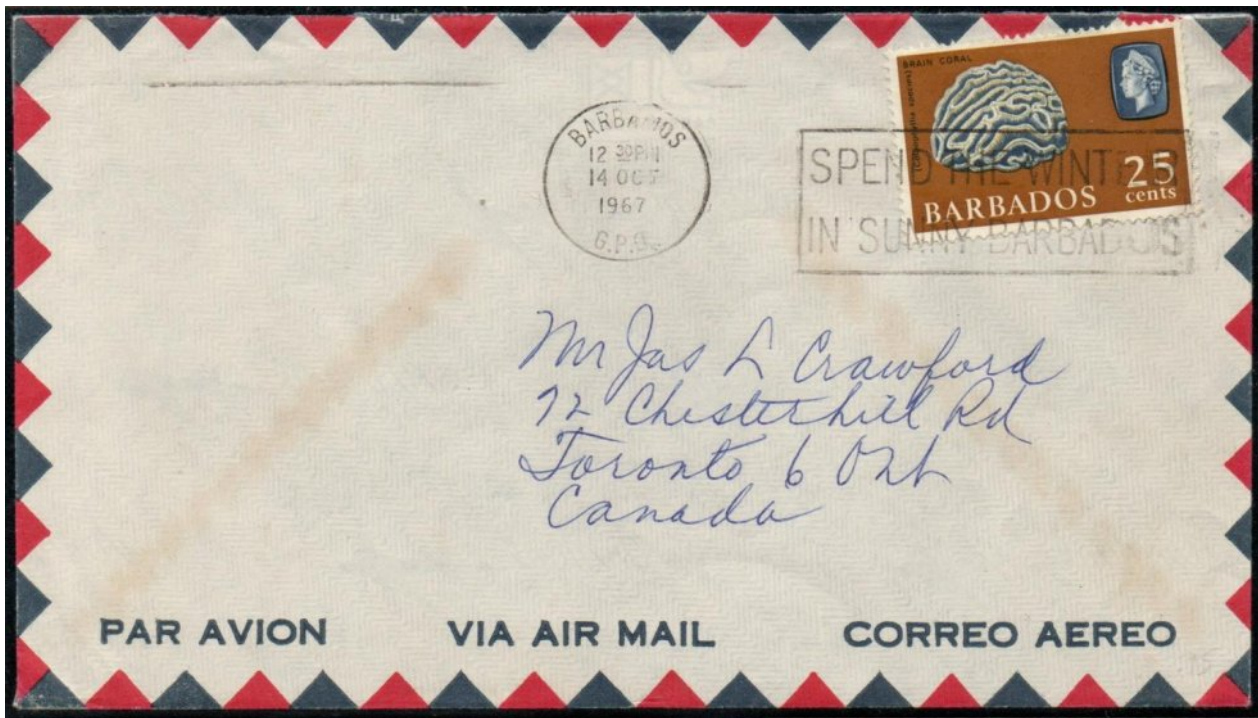
## 2. True, or stony corals (Order Scleractinia - Madreporaria)

### Family Faviidae



*Favia* sp. during the day and at night.

The polyps of most corals hide in the cells of the skeleton during daylight hours, releasing tentacles at night. At night, corals feed on microscopic zooplankton.



*Colpophyllia* species lives on the coral reefs of Barbados Island in the Caribbean Sea. The air mail cover was sent on 14.10.1967 from Barbados to Toronto, Canada.

*Favius* colonies have a spherical shape with a corrugated surface that resembles a human brain, which is why they are called brain coral or brain-shaped coral. The largest members of the family can live up to 900 years. A colony can grow up to 1.8 meters in height.

## 2. True, or stony corals (Order Scleractinia - Madreporaria)

### Family Fungiidae



*Fungia fungites*



*Heliofungia actiniformis*

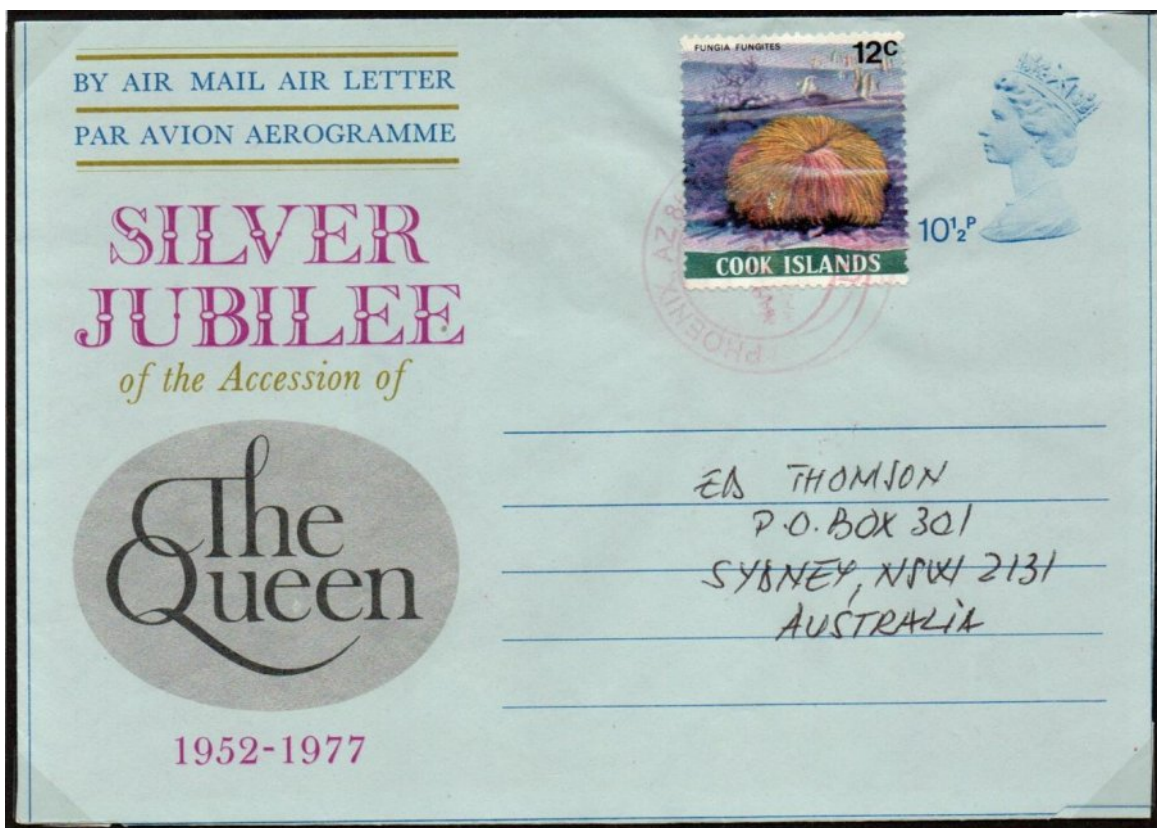
Overprint O.H.M.S. (On His/Her Majesty's Service)  
Official stamp



*Fungia* sp.



*Fungia* sp.



*Fungia fungites* lives on the coral reefs of the Cook Islands in Oceania.  
The Aerogramme sent in 1985 from Cook Islands to Australia.

A single coral *Heliofungia actiniformis* can easily be mistaken for an anemone, since unlike other corals, its tentacles remain visible during the day. Coral grows up to 50 cm in diameter.

## 2. True, or stony corals (Order Scleractinia - Madreporaria)

### Family Merulinidae



Trachyphyllia geoffroyi

### Family Mussidae



Symphyllia sp.

*The gutter has a drawing of Symphyllia sp., not specified in catalogs (AS)*

### Family Psammocoridae



Psammocora digitata  
Overprint SPECIMEN

Currently, the taxonomy of reef-building corals is changing as a result of molecular genetics research. For example, Trachyphyllia geoffroyi, which was the only member of the Trachyphylliidae family, has now been moved to the Merulinidae family.

### Family Oculinidae



Madrepora fructuicosa lives on the coral reefs of the Comoros Islands in the Indian Ocean.  
*The registered cover was sent on 13.1.1962 from Dzaoudzi, Comoros to New York, USA.*

The variety of colors of living corals (which can be brown, yellow, green, crimson, and blue) is created by only three pigments: red, blue, and yellow. Red and blue colors are produced by the corals themselves, while the yellow color is produced by the algae zooxanthellae, which live in the soft tissues of the corals.

## 2. True, or stony corals (Order Scleractinia - Madreporaria)

### Family Pocilloporidae



*Pocillopora verrucosa*



*Pocillopora eydouxi*



*Pocillopora verrucosa*



*Pocillopora eydouxi*



*Stylophora pistillata*  
Overprint of new value



*Pocillopora* sp.

Pocilloporidae tolerate stressful effects typical of shallow reef zones, such as turbid water and sediment drift, high temperature and a decrease in water salinity.

### Family Pectiniidae



*Oxypora glabra* lives on the coral reefs of the New Guinea Island in Southeast Asia. The registered cover was sent on 6.11.1997 from Lihir Island, Papua New Guinea to Germany. Postmark "Post PNG". Post PNG is the organization responsible for postal service in Papua New Guinea in 1996.

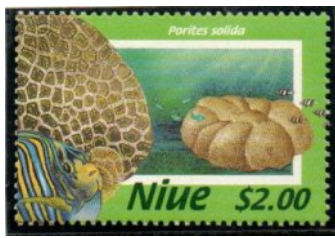
The living conditions of Pectiniidae determine their shape – forming a large bowl, the coral, firstly, exposes itself to the weak light penetrating to the depths, and secondly, collects organic residues (detritus) on itself, which it feeds on.

## 2. True, or stony corals (Order Scleractinia - Madreporaria)

### Family Poritidae



Goniopora sp.  
Overprint of new value



Porites solida



Alveopora catalai  
Overprint Hong Kong '94,  
International Stamp Exhibition



Porites sp.  
Official stamp



Porites lutea



Alveopora sp.



Porites sp.

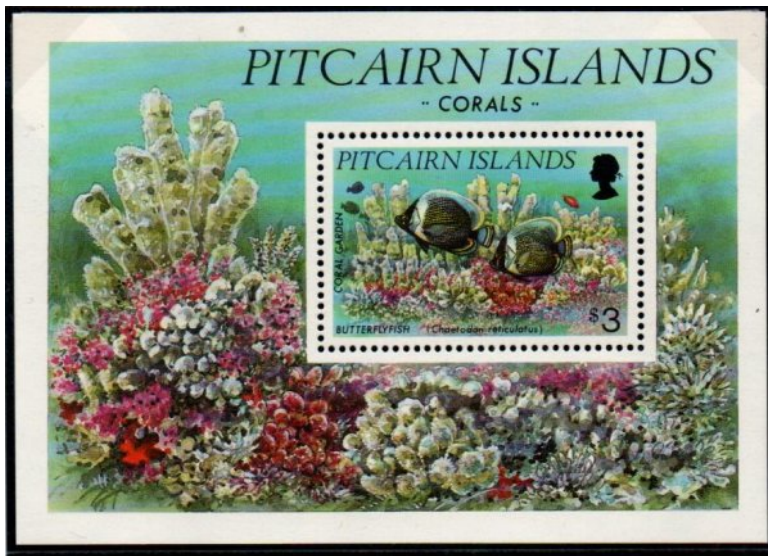


The stamp depicts various types of corals, including *Porites furcata*.  
The cover was sent on 20.6.1948 from Nukualofa, Kingdom of Tonga to South Africa.

Corals of the genus *Porites* are found in reefs around the world. Some species of this genus, for example *Porites lutea*, are able to tolerate daily tidal shifts in water salinity from 10 to 30‰.

### 3. Blue corals - Helioporidae (Order Helioporacea)

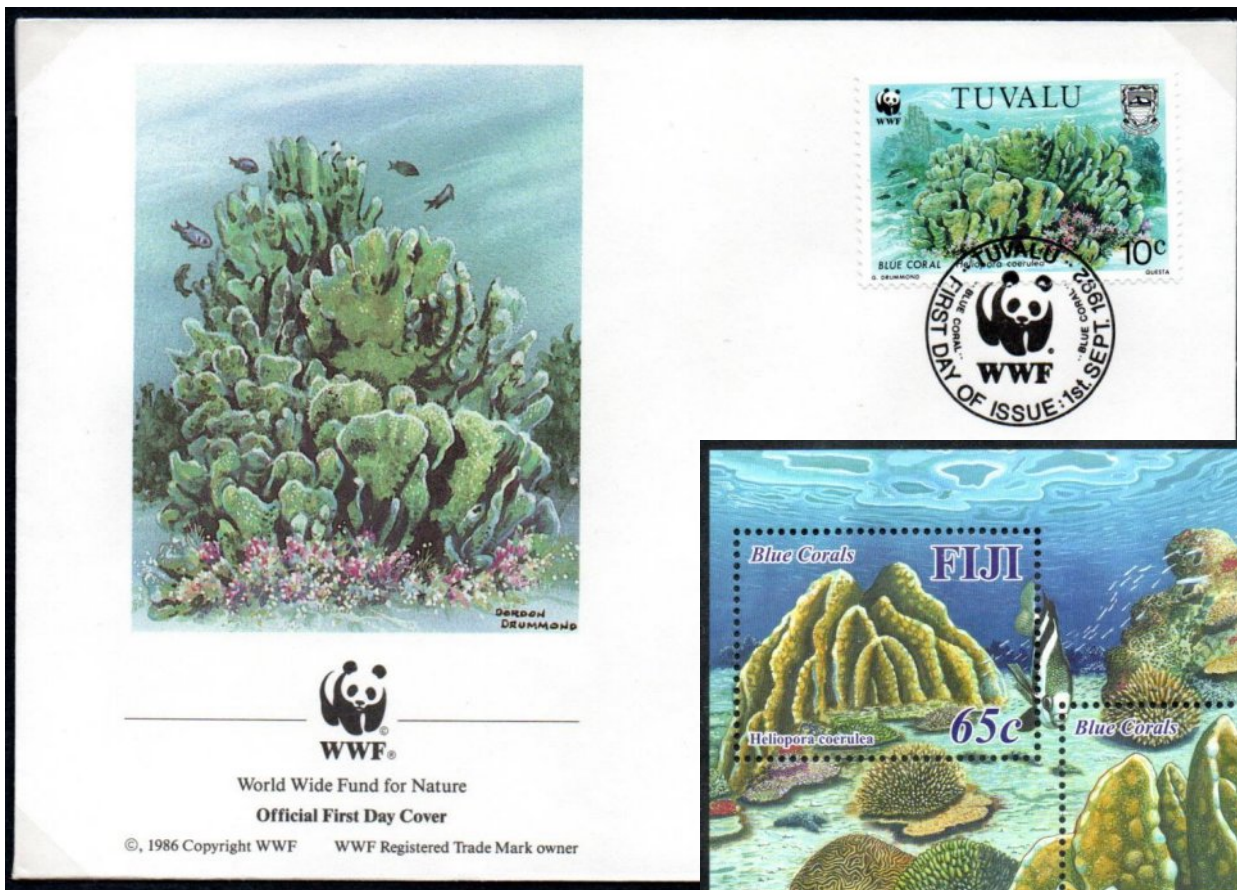
Among reef-forming corals, blue corals occupy an important place. This group consists of one species *Heliopora coerulea*, belonging to the eight-lobed coral polyps (class Anthozoa).



Overprint SPECIMEN



In addition to calcium carbonate, the skeleton contains iron salts that give the coral its characteristic bluish colour, which is what gives it its name.



*Heliopora coerulea*

Blue corals are widely distributed in the Indo-Pacific region. They are quite diverse in shape and most resemble the stalagmites of karst caves, form a massive outer calcareous skeleton. Blue corals are in symbiosis with algae *Symbiodinium microadriaticum*

## 4. Fire corals, or Milleporidae (Class Hydrozoa)

### Family Milleporidae (Order Anthoathecatae)

Fire corals, or Milleporidae (13 species), are among the most important reef-building species.



Millepora sp.  
Overprint SPECIMEN



Millepora sp.



Millepora sp.



Millepora dichotoma

(Proof color)



Millepora dichotoma



Millepora platyphylla



Millepora alcicornis



Millepora complanta

Fire corals form branched massive forms with lamellar outgrowths oriented along the waves. The importance of Fire corals in the formation of the reef framework . as much as possible in the surface layers, at a shallow depth.

## 5. Symbiosis

Among reef-forming corals, there are mainly two types of symbiosis: mutualism (a mutually beneficial relationship) and commensalism (a relationship that benefits one party and is indifferent to the other).

### Commensalism



Paracirrhites forster



Millepora squarrosa



Millepora sp.

Curlyfish (*Paracirrhites*) use Fire corals (*Milleporidae*) for their protection. Fish from an ambush sharply attack the passing prey and again go under the protection of Fire corals.

### Mutualism



A clipping from a official cover (Cook Islands, 1983)



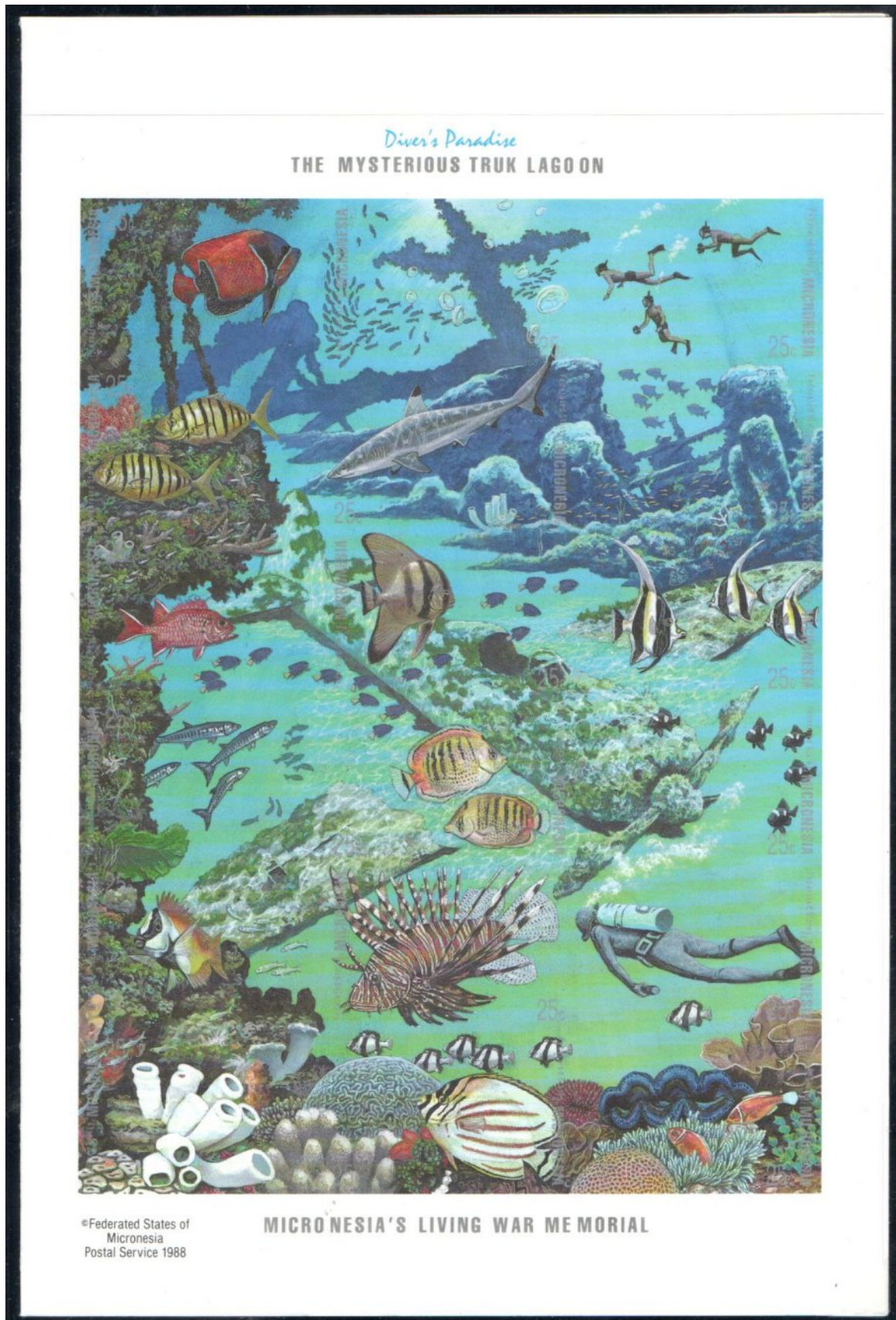
Simbiodium  
microadriaticum



Inside the tissues of most reef-forming corals are algae *Simbiodium microadriaticum* (discovered at the end of the 19 century). Corals provide algae with carbon dioxide, and they supply them with photosynthetic products, accelerating the release of calcium carbonate and development. They die without each other.

## 6. Protecting reef-forming corals

The main threats to the existence of reef-forming corals are seawater warming and human activities, such as uncontrolled fishing and marine pollution.



*Proof form (imperforate stamps, with text in a different color) is available in a limited edition booklet (AS).*

All species of stony corals, fire corals and blue corals are protected by the Convention on International Trade in Endangered Species of Wild Fauna and Flora (1973). Since its entry into force in 1975, no species protected by the Convention has become extinct as a result of trade.

## 6. Protecting reef-forming corals

A prime example of human destruction is the threat to the Great Barrier Reef.



Overprint SPECIMEN

Crown of thorns starfish (*Acanthaster planci*)



On the Great Barrier Reef, from 1962 to 1971 and from 1979 to 1991, outbreaks of the starfish *Acanthaster planci* (Crown of thorns) occurred, destroying large areas of coral in its central part. One adult starfish eats up to 13 square meters of coral per year.



*Balistoides viridescens*



*Arothron hispidus*  
Overprint OFFICIAL



*Charonia tritonis*  
Overprint variety not specified in catalogs (AS).

The uncontrolled extermination of natural enemies of the Crown of thorns by man is to blame for this: in particular, predatory reef fish (*Arothron hispidus*, *Balistoides viridescens*), but, most importantly, the mollusk *Charonia tritonis*. Enormous human resources were involved in eliminating this danger.



The aerogramme was sent on 27.1.1983 from Australia to USA

The population of starfish is controlled by fishing. Currently, the hunting of the mollusk *Charonia tritonis* is completely prohibited in the area of the Great Barrier Reef. Only the joint efforts of all humanity can protect and preserve reef-forming corals and coral reefs.