



BIODIVERSITY IN MALDIVES

**Capacity-building workshop for Central, South and East Asia on
Ecosystem conservation and restoration to support achievement of the
Aichi Biodiversity Targets
14-18 July
Jeju, Republic of Korea**

**Hussain Faisal
Assistant Director
Ministry of Fisheries and Agriculture
hussain.faisal@fishagri.gov.mv**

MALDIVES

Area: 90,000 sq km (of which only 1% is land)

Population

- January 2012 estimate
328,536

Climate: Tropical

Average temperatures: 30.7 ° Celsius (Max) &
25.7 ° Celsius (Min)

Average rainfall: 1868.9 mm

Natural Atoll: 25

Number of islands: 1190 (approx.)

Capital : Male'

Inhabited islands: 200

Resort islands: 105

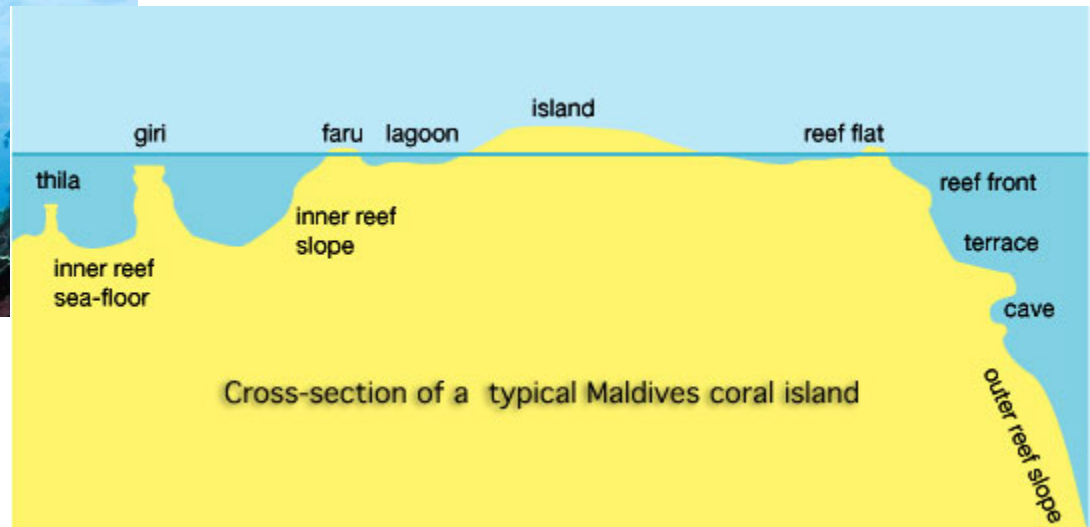
Industrial islands: 80

Avrg. height of islands (asl): 1.5 meter



MAIN ECO-SYSTEMS

- An atoll is formed of a lagoon surrounded by a coral reef. Coral reefs are the dominant ecosystems found in the islands of Maldives.
- The coral reef systems of the Maldives are the eighth largest in the world and cover an area of approximately 4513 sq km.
- The outer reef slope has a series of reef terraces at depths of 3-6m, 13-30m, and a deeper one at 50m.
- Many islets provide a number of natural sanctuaries for birds.



ISLAND FORESTRY

- Native plants of the islands can be ecologically grouped into five categories of vegetation. They are beach pioneers littoral hedge, sub littoral thicket, climax forest and mangrove and swamp forest.



littoral forests consists of *Scaevola taccada* (Magoo), *Pandanus tectorius* (Boa Kashikeyo), *Thespesia populnaea* (Hirundhu), *Hibiscus tiliaceus* (Dhigga), *Suriana maritima* (Halaveli), *Guettarda speciosa* (Uni) etc



Mangrove forests consist of *Lumnitzera racemosa* (Burevi), *Bruguiera gymnorhiza* (Bodavaki), *Bruguiera cylindrica* (Kandoo), *Rhizophora apiculata* (Randoo), *Rhizophora mucronata* (Thakaphati), *Ceriops tagal* (Karamana), *Sonneratia caseolaris* (Kulhlhavah) and *Excoecaria agallocha* (Thela).





BIODIVERSITY IN MALDIVES

The present records indicate that Maldives has a total of 1,100 species of demersal and epipelagic fish including sharks, 5 types of marine turtles, 21 species of whales and dolphins, 187 species of corals and 400 species of mollusks. There are 120 species of copepods, 15 species of amphipods, over 145 species of crabs and 48 species of shrimps. There are also 13 species of mangroves and 583 species of vascular plants. Additionally, two species of fruit bats (mammals) which are endemic have been found. The bird species number 170 of which most are sea birds





PROTECTED AREAS AND SPECIES

Protected Areas

Name	Island/Location
Eidhigalhi Kilhi	S. Hithadhoo
Huraa Kulhi	K. Huraa
Hanifaru	B. Atoll
Agafaru	B. Atoll
Rangali falhu Hulhagu uthuru	ADh. Atoll

Marine Protected Species

Common name

Napolean Wrasse

Lobsters

Conch (Triton) Shell

Black Coral

Giant Clam

Dolphins

Whales

Whale Shark

Sharks

Manta Rays



© Guy Stevens



Photo by: Azim Mustaq

Protected Marine Areas

Protected Dive Sites	Atoll
Banana Reef (Gaathugiri)	North Male' Atoll
Dhigali Haa	Baa Atoll
Emboodhoo Kandhu	South Male' Atoll
Filitheyo Kandhu	Faafu Atoll
Fish Head (Mushimasmigili Thila)	North Ari Atoll
Fushi Kandhu	Dhaalu Atoll
Fushifaru Kandhu (Fusheevaru Thila)	Lhaviyani Atoll
Giraavaru Kuda Haa	North Male' Atoll
Guraidhoo Kandhu	South Male' Atoll
Hakuraa Thila (Lhazikuraadi)	Meemu Atoll
Hans Hass Place (Gulhi Falhu)	North Male' Atoll
HP Reef (Thaburudhoo Thila)	North Male' Atoll
Karibeyru Thila	North Ari Atoll

Kudarah Thila	South Ari Atoll
Kuredu Express	Lhaviyani Atoll
Lions Head (Falhuge Miyaruvani)	North Male' Atoll
Maayaa Thila	North Ari Atoll
Madivaru (Faruhuruvalhi Beyru)	South Ari Atoll
Makunudhoo Kandu	North Male' Atoll
Miyaru Kandu (Dhevana Kandu)	Vaavu Atoll
Nassimo Thila (Lankan Thila)	North Male' Atoll
Orimas Thila	North Ari Atoll
Rasfari	North Male' Atoll
Vattaru Kandu	Vaavu Atoll
Villigilee Thila	Raa Atoll

Protected Islands

Name	Atoll	Area/Ha
Olhugiri	Baa Atoll	20.90
Hithaadhoo	Gaafu Alifu Atoll	6.10
Hurasdhoo	South Ari Atoll	3.90

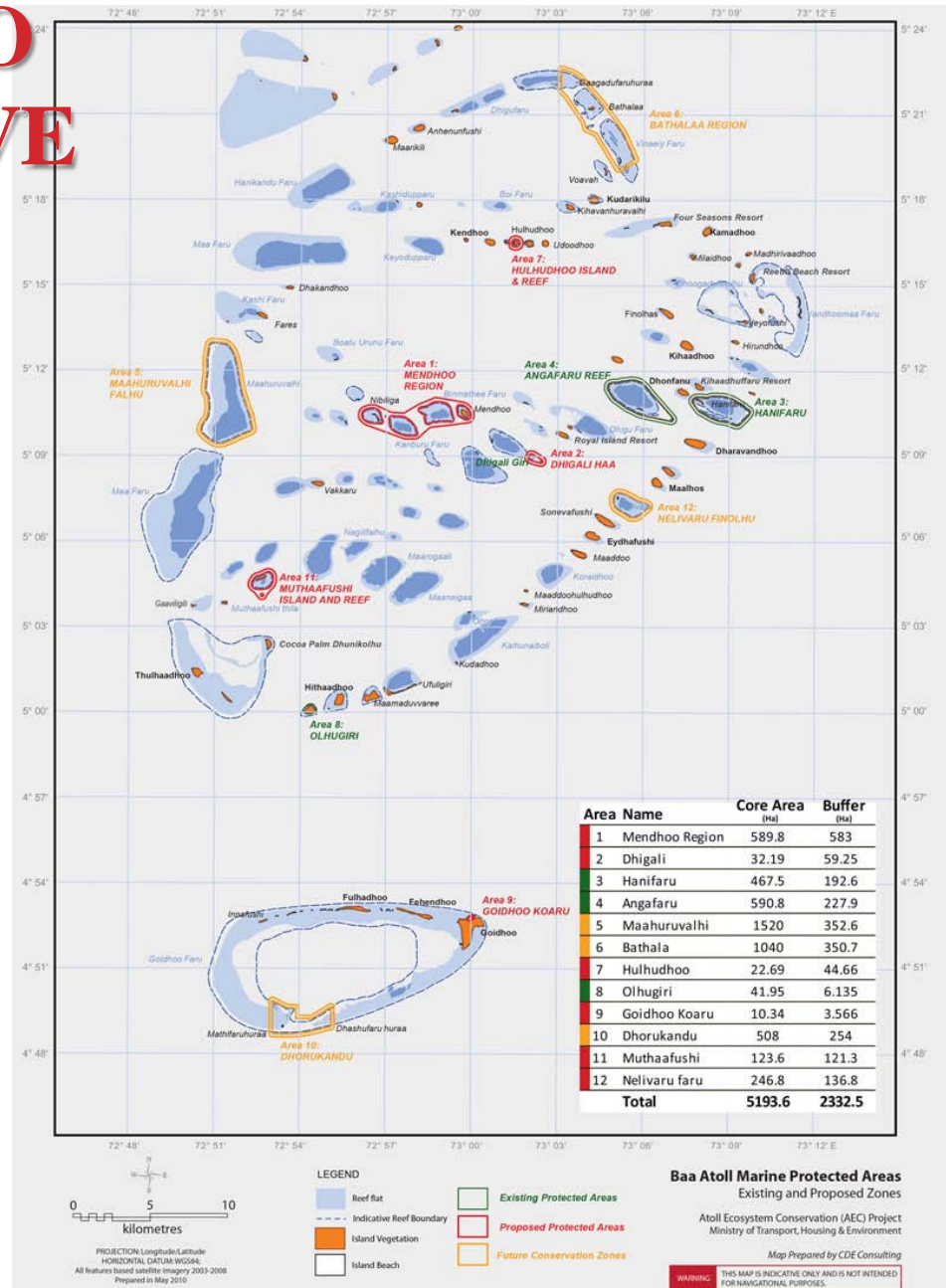




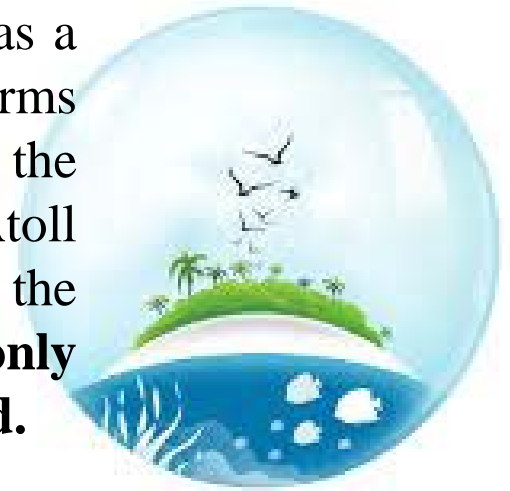
BAA ATOLL UNESCO BIOSPHERE RESERVE

Baa Atoll

Baa Atoll lies to the northwest of Male', and has a total area of approximately 1,200 km². Covering an area approximately 139,700 ha of coastal/marine areas. The atoll is comprised of seventy-five islands; thirteen of these are inhabited with a combined population of approximately 11,000 people. Six islands have been developed as resorts; the remaining 57 islands are uninhabited.



Baa Atoll harbours globally significant biodiversity including significant concentrations of **whale sharks** and **manta rays** and also a unique diversity of **benthic fauna**, including **rare pink hydrozoan corals** (*Distichopora nitida*), **Bryozoans** (*Bugula*) and **sea slugs** (*Tambja olivaria*) that are only recorded from Baa atoll. Baa has a particularly high density of the ring-shaped reef forms called faroes, a peculiar reef structure unique to the Maldives, as well as other unique reef forms. Baa Atoll also has one of the largest areas of mangroves in the central part of the Maldivian atoll chain, and **one of only two roosting sites in the Maldives for the frigate bird**.



BAA ATOLL
UNESCO
BIOSPHERE
RESERVE
MALDIVES



Baa Atoll was nominated by the Government of Maldives to be declared as a UNESCO Biosphere Reserve on 28 September 2010 and UNESCO's declaration of Baa Atoll as a UNESCO Biosphere Reserve came on 28 June 2011.

Core Areas (highly protected and managed areas where only non-damaging, non-extractive use is allowed),

Buffer Zones (managed areas where some types of activities are allowed), and

Transitional Areas (multiple use areas where sustainable activities are allowed)

Zone	Equivalent IUCN Category	Area (km²)	Area (hectares)	Percent of Baa Atoll
Core Area	IA, IB, II	51.9	5,193	3.71
Buffer Zone	IV, V	23.3	2,332	1.67
Transitional Area	VI	5,130	513,000	-

Total land area of Baa Atoll = 10.43 km²

Total water area out to 1 kilometer including all reefs and islands = 1,398 km²

Total water area outside 1 kilometer (excluding reefs and islands) = 1,087 km²

Total reef area = 300 km²

IMPORTANCE OF BIODIVERSITY – ECONOMIC

According to IUCN (2007), “Marine and coastal tourism is the largest industry in the Maldives, for instance, directly accounting for 20% of GDP and 40% of employment. Its wider effects produce 74% of national income, 60% of foreign exchange earnings, and 90% of government revenues.

The report ‘Valuing Biodiversity: the economic case for biodiversity conservation in the Maldives’ indicates that the biodiversity-based sectors contribute to 71% of national employment (78,500 jobs), 49% of public revenue (MVR 2.5 billion), 62% of foreign exchange (US\$ 435 million), 98% of exports (MVR 1.7 billion), and 89% of GDP (MVR 135 billion).

SOME LAWS & REGULATIONS

Environmental Protection and Preservation Act

Fisheries Act of the Maldives

Maldivian Land Act

Maldives Tourism Act

Maldives Recreational Diving Regulations

Environmental Impact Assessment report compilation Regulation 2012

Regulation for protection and preservation of areas surrounding Baa atoll
Hanifaru island

Regulation on Protection and Conservation of Environment in Tourism
Industry

Coral and Sand Mining Regulation

Uprooting of Trees Regulation

AICHI TARGETS

TARGET 5

To achieve this target by 2018; ‘sensitive habitats of Maldives’ will be identified and a database will be populated. Already more than 300 sensitive sites have been identified

TARGET 11

‘By 2025 at least 10% of coral reef area, 20% mangrove and at least one sand bank and one uninhabited island from each atoll will be under some form of protection and management’

TARGET 15

This target is changed as follows as carbon stock contribution and desertification is not much affecting Maldives

‘By 2025 impacted ecosystems that provide essential services related to water, human health, wellbeing and livelihood are restored significantly’

CHALLENGES

- Lack of proper mechanisms for the management of protected areas.
- Lack of capacity of the governing authority.
- Absence of resource utilization mechanisms.
- Challenges of monitoring vast network of protected areas.
- Financial constrains to manage the protected areas.
- Challenges in ownership and management of resources.



WAY FORWARD

- Building better capacity.
- Seeking more resources.
- Completing Management plans for protected areas.
- Protecting the major sensitive areas identified.
- Increase the coverage of marine protected areas.
- Increase the boundaries of existing marine protected areas.
- Develop the regulatory mechanism for conservation of biodiversity.
- Undertake species-specific conservation programs to reduce the decline of the population of selected taxonomic groups and to improve the status of threatened species.



THANK YOU



Reference: *Fourth National Report To The Convention On Biological Diversity Maldives*

<http://www.broffice.gov.mv/en/>

National Biodiversity Strategy and Action Plan, Maldives 2014