

Seychelles Marine Spatial Planning Initiative Overview

Workshop to consider MSP in the Western Indian Ocean

13th November, 2017

AVANI Seychelles, Barbarons Resort & Spa, Seychelles

Ministry of Environment, Energy and Climate Change

MSP Core Team: Ms. Helena Sims and Dr. Joanna Smith



What is Marine Spatial Planning (MSP)?

A **public** process of **analysing** and **allocating** the spatial and temporal **distribution of human activities** in marine areas to achieve **ecological, economic, and social objectives** that are usually specified through a **political process**.



Ehler, C. and F. Douvère. 2009. Marine spatial planning: a step-by-step approach toward ecosystem-based management. UNESCO.

Why MSP?

What problem is it solving?

The ocean is becoming a very busy place - Allocate space for future economic development
→ business certainty

Decisions are taken ministry by ministry:
integration and coordination issues

Low buy-in for marine protected and managed areas when stakeholders are not consulted & Compliance for marine protected areas

Existing uses are in conflict with one another & Future activities may threaten existing activities

Address conflicts and issues & Create maps and data catalogue to inform decisions

The ecosystem is not considered in decisions
Ecosystem-based approach to decisions

Climate change impacts are uncertain

MSP



Where is Marine Spatial Planning being used?

Five Year Review:

1. Belgium
2. The Netherlands
3. Norway

Implemented:

1. Australia
2. Canada (Pacific)
3. China
4. Germany
5. USA (MA, OR, RI)

Completed, not implemented:

1. Belize*
2. Canada (Beaufort Sea, Atlantic, Pacific)
3. Mexico (Gulf of California)
4. Portugal

Underway, complete by 2020:

1. American Samoa
2. Antigua and Barbuda
3. Canada (Nunavut)
4. Indonesia
5. Jamaica*
6. Mexico
7. Northern Mariana Islands & Guam
8. Palmyra Atoll
9. St Kitts and Nevis*
10. Seychelles*
11. USA (HI, Wake I, Johnston Atoll, Howland I, Baker I, Jarvis I)

Will or might have by 2025:

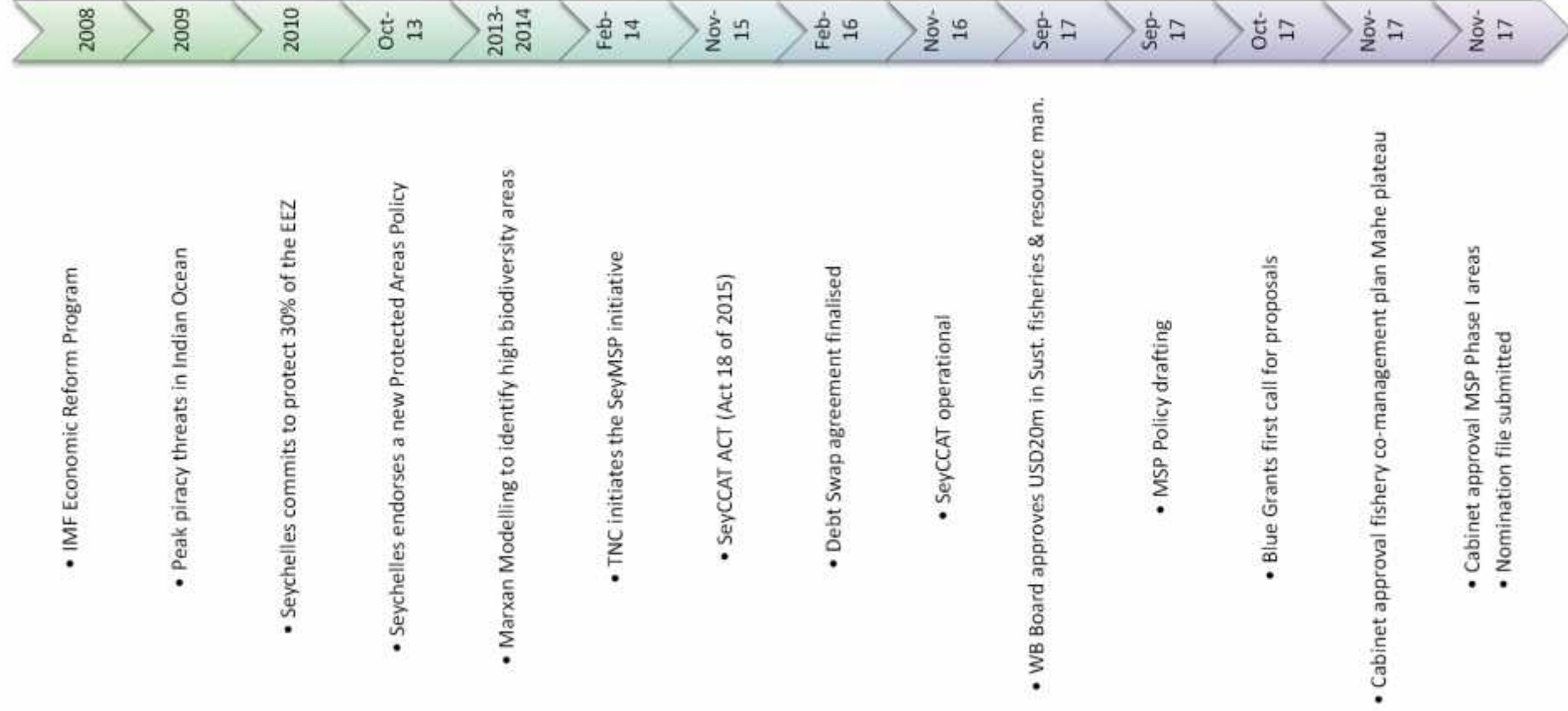
- | | |
|-----------------|--------------------------|
| 1. Australia | 22. Kiribati |
| 2. Barbados* | 23. Latvia |
| 3. Bermuda (UK) | 24. Lithuania |
| 4. Brazil | 25. Malta |
| 5. Bulgaria | 26. Montserrat (UK) |
| 6. Cambodia | 27. Namibia |
| 7. Colombia | 28. New Zealand |
| 8. Costa Rica | 29. Palau* |
| 9. Croatia | 30. Poland |
| 10. Curacao | 31. Portugal |
| 11. Cyprus | 32. Romania |
| 12. Denmark | 33. Slovenia |
| 13. El Salvador | 34. South Africa |
| 14. Estonia | 35. Spain |
| 15. Finland | 36. Sweden |
| 16. France | 37. Thailand |
| 17. Greece | 38. United Arab Emirates |
| 18. Iceland | 39. United Kingdom |
| 19. Ireland | 40. USA Arctic |
| 20. Israel | 41. Vietnam |
| 21. Italy | |

When completed, Seychelles MSP

- First in Western Indian Ocean
- Largest for Small Island Developing States
- Second largest in the world (Norway is largest)
- Has secured funding (SeyCCAT)

* Small Island Developing States

The Seychelles MSP history...



Seychelles Debt Swap, Trust, and Marine Spatial Plan



BIODIVERSITY
PROTECTION
GOAL 30%

DEVELOP
BLUE
ECONOMY

ADDRESS
CLIMATE
CHANGE

\$20M DEBT SWAP

(\$15 M loan and \$5 M grant Seychelles loan agreement)

Trust created to negotiate loan and debt buy back
Pay back foreign creditors: low interest, long term loan
Up to 65% of loan now payable in local currency

MARINE SPATIAL PLAN

Zoning Design for Existing and Future Uses
Expand MPAs from 0.04% to 30%
Implementation plan and priority strategies

SEYCCAT TRUST

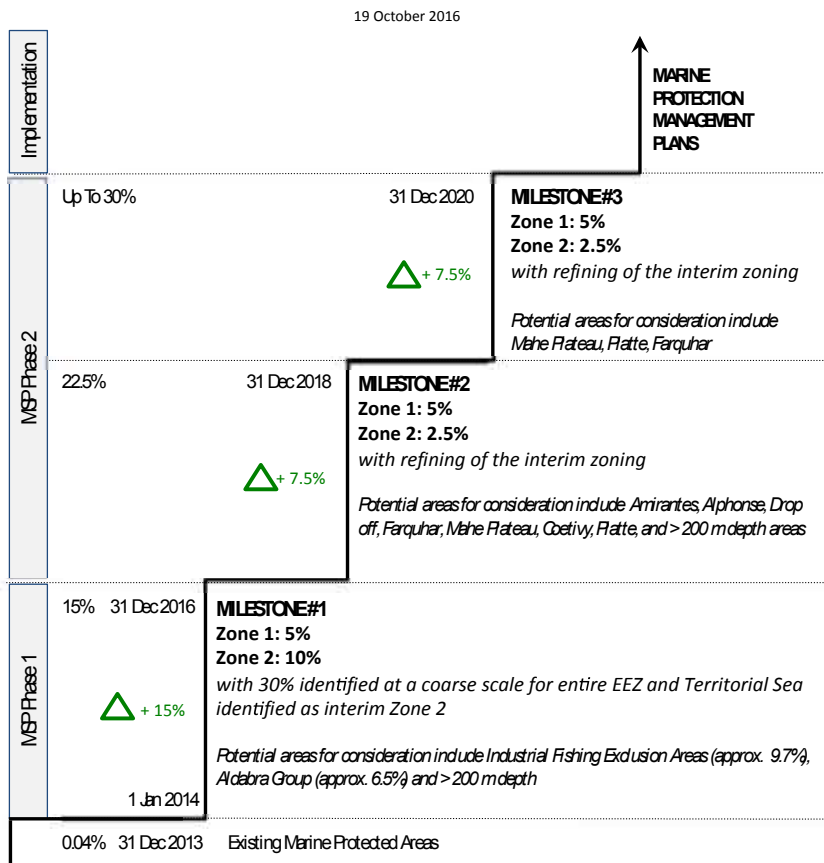
Funding to implement MPAs
Funding to implement the marine plan
Funding for climate change adaptation



Seychelles MSP Milestones: Two Phases

SEYCHELLES MARINE SPATIAL PLANNING (MSP) INITIATIVE

MARINE PROTECTION MILESTONES 2014-2020

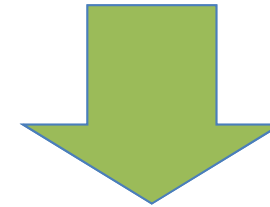


Zone 1 - High Biodiversity Protection, percent by area, by representation, shallow and deep of EEZ
Zone 2 - Medium Biodiversity Protection, percent by area, by representation, shallow and deep of EEZ

2016 Phase 1 (Dec 2017 Grace): Coarse scale

High Biodiversity Zone 1: 5%

Med Biodiversity Zone 2: 10%



2017-2020 Phase 2: Refine & Territorial Sea

High Biodiversity Zone 1: 15%

Med Biodiversity Zone 2: 15%

Goal: Develop a marine spatial plan by 2020 that

- Legislates marine protected areas that are 30% of Seychelles' Exclusive Economic Zone and Territorial Sea
- Promotes the Blue Economy and other national strategies to support ocean health, local economy, and economic growth.
- Addresses climate change in coastal and offshore habitats
- Is monitored and adapted over time



Manu San Félix/National Geographic



Photo credit: Jason Houston



Seychelles

Marine Spatial Planning Initiative

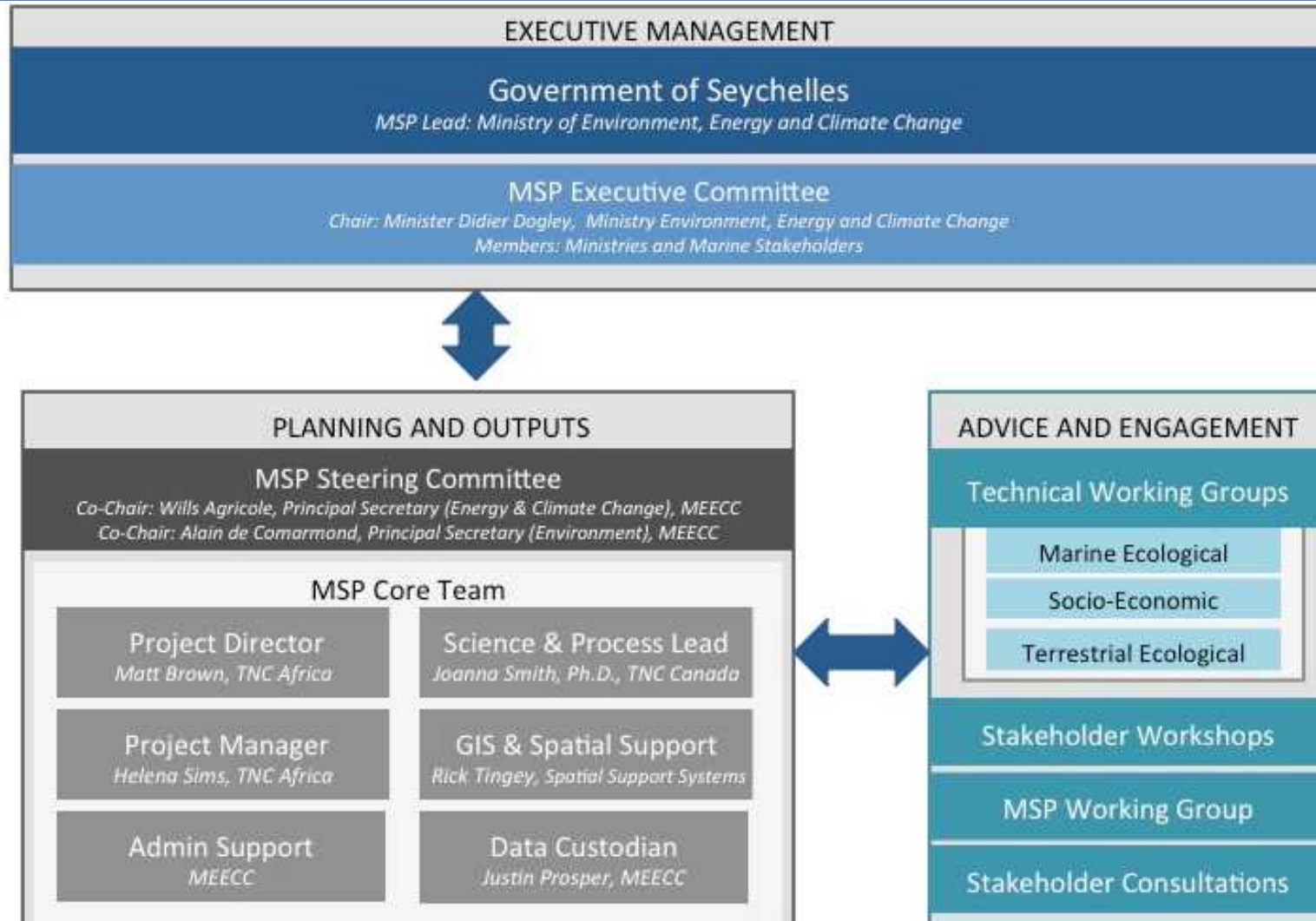
Led by Government of Seychelles
Facilitated by The Nature Conservancy
Partnership with GOS-UNDP-GEF



Didier Dogley, Minister Environment Energy and Climate Change Principal
Wills Agricole, Principal Secretary Energy and Climate Change (MEECC)
Alain de Comarmond, Principal Secretary Environment (MEECC)
Matt Brown, Conservation Director TNC Africa
Dr. Joanna Smith, MSP Science Manager TNC Canada
Helena Sims, MSP Project Manager TNC Africa
Rick Tingey, Spatial Support Systems, USA
Justin Prosper, GIS MEECC



Seychelles MSP: Governance Framework

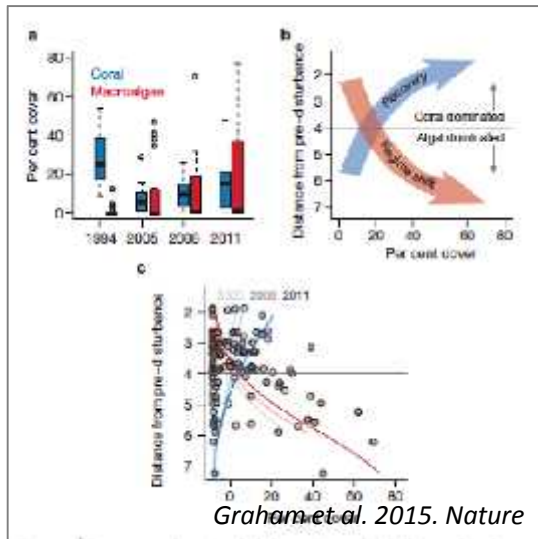


Marine sectors in Seychelles

- High Value tourism & Fisheries (Industrial, Semi-Industrial, Artisanal, Sports & recreational fisheries).
- INFRASTRUCTURE; Ports, Shipping and Transportation, Public Utilities, Marinas and Yacht Services
- ENFORCEMENT; Coast Guard & Maritime Security
- PETROLEUM; Seismic Studies, Licensed Blocks, Areas of Interest
- AQUACULTURE; Mariculture Master Plan, Cultivate Native Species
- RENEWABLE ENERGY; Offshore Wind, Solar Power



Environmental Pressure



**CORAL
BLEACHING**

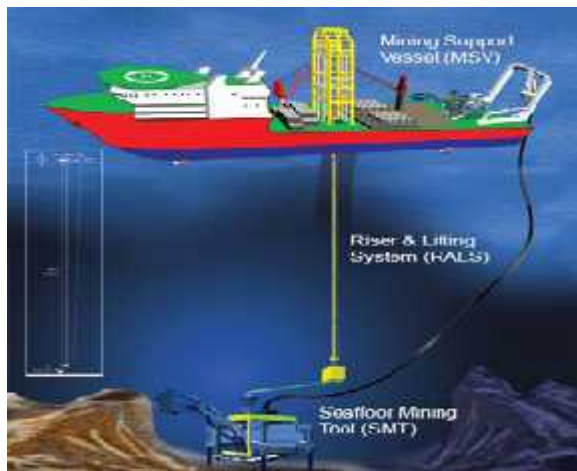


**SEA LEVEL
RISE**



**POLLUTION &
SEDIMENTATION**

Possible future developments?



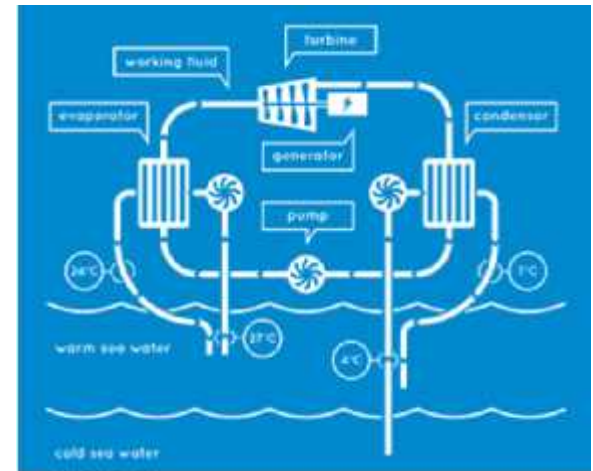
DEEP-SEA MINING

Minerals
Aggregates



LUXURY TOURISM

Marinas
Floating Hotels



ENERGY

Thermal Energy Conversion
Other Innovations

Threats to ocean activities in Seychelles



Photo: VOA news, Somali pirates 2012

PIRACY

Seychelles EEZ
Western Indian Ocean
High Seas



Photo: Seychelles News Agency

IUU FISHING

Illegal
Unregulated
Unreported

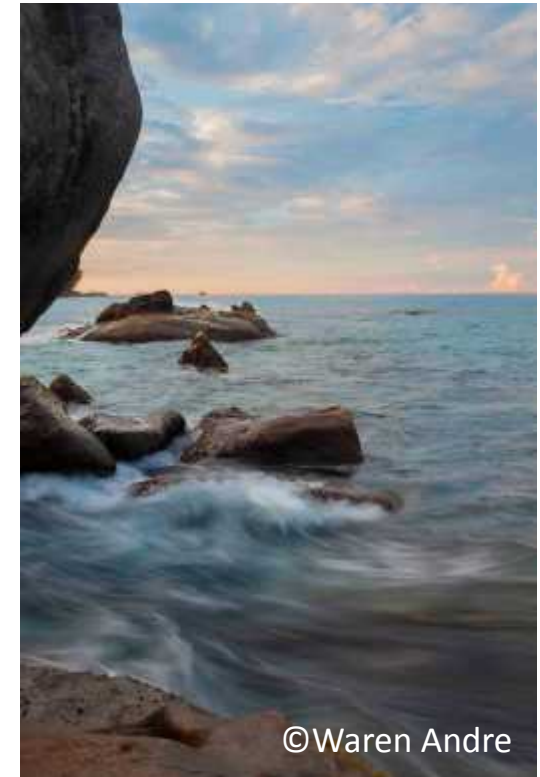
Seychelles MSP: Zoning Design Framework

Oct 2014 – Dec 2017

Aug – Oct
2014

May – Aug 2014

1. Review existing information and data
2. Review global “lessons learned”
3. Gather and explore spatial data
4. Define the zoning process
5. Evaluate scale and scope
6. Confirm planning objectives
7. Draft zoning framework
8. Define stakeholder preferences
9. Develop spatial and non-spatial tools
10. Analyse data and represent uses
11. Draft zoning design
12. Draft allowable activities table
13. Draft management considerations
14. Finalise Outputs for Phase 1



Building a Seychelles marine spatial plan

- Government is committed to engage stakeholders and a participatory process.
- Phase 1 is to get agreement on deep water areas (15%)
- Phase 1: shallow waters and Territorial Sea are Interim Zone 2 (2014-2017)
- Phase 2 is to refine zoning design and includes identifying zones in territorial sea (2018-2020)
- Seychelles agreements with foreign fisheries will not change until those agreements end
- Allowable Activities in the zones still being discussed
- Phased approach for implementation 2020 onward

Seychelles MSP: Principles for Guiding

Decisions Developed in 2014-2015 by Technical Working Groups. Reviewed and endorsed by Steering Committee and stakeholder workshops

GOVERNANCE & MANAGEMENT

- National Laws, Regulations, Acts
- International Agreements
- Policy, Management Plans, Strategies, Action Plans
- Transparency, Inclusivity, Participation
- Integration, Co-management
- Environmental Stewardship
- Equity, Sustainable Development

APPROACH & PRACTICE

- Ecosystem-Based Management
- Precautionary Principle
- Balance ecological, economic, social and cultural objectives
- Feasible, Practical, Implementable,
- Financially Sustainable
- Adaptable, Dynamic
- Relevant Temporal and Spatial Scales

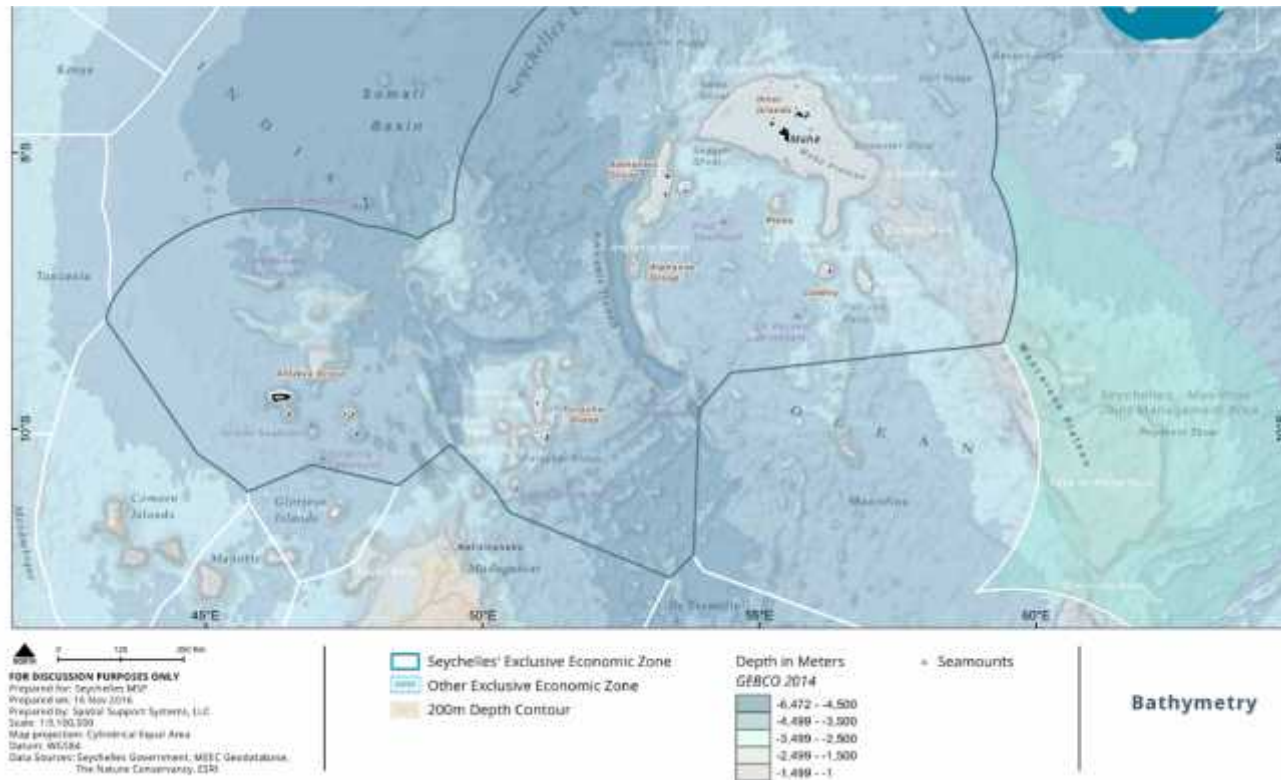
Photo by Manu San Félix/National Geographic, shot during the Pristine Seas expedition to Seychelles, March 2015.

*Seychelles Stakeholder Workshops 2014-2015
Seychelles MSP Technical Working Group 2015*

Marine Protected Areas Design Principles



- Representation, replication and redundancy
- Size, spacing, and shape
- Unique or characteristic species & areas: spawning, breeding areas
- Resilience and long-term protection
- Consider full ranges of uses and values of marine environment
- Transparent, participatory stakeholder process
- Identify benefits and impacts to stakeholders and communities



Seychelles MSP Initiative

PLANNING TOOLS

Seychelles MSP: Spatial Data Catalogue



FISHERIES SPORT FISHING

Domestic Fishing
Industrial Fishing
Sport Fishing
Mariculture
Participatory Mapping

BIODIVERSITY FEATURES

Benthic geology
174 "features"
WIOMER Areas of Importance
BirdLife Important Areas
Participatory Mapping

INDUSTRIAL & PUBLIC UTILITIES

Ferries & Shipping
IMO Marine Highways
Ports & Marinas
Renewable Energy
Participatory Mapping

NON-RENEWABLE RESOURCES

Licensed Blocks
Low Gravity Areas
Seismic Surveys
Sand Mining
Participatory Mapping

TOURISM & RECREATION

Marine Charters
Diving, Snorkeling
Viewpoints
Accommodation
Participatory Mapping

Sources: Seychelles Fishing Authority 2014; Fishing Boat Owners Association 2014, TNC 2014.

Sources: Harris et al. 2014; Klaus 2015; IMaRS-USF 2005; IMaRS-USF and IRD 2005; Spalding, Ravilious and Green. 2001; UNEP-WCMC, WorldFish Centre, WRI and TNC. 2010; Seychelles Fishing Authority 2014; Seychelles National Park Authority 2014; Seychelles Port Authority 2014. See UNDP 2015 for full citations.

Sources: Halpern et al. 2006; British Admiralty Charts; Seychelles Port Authority 2014; Ministry Land Use and Housing 2014, TNC 2014.

Sources: PetroSeychelles 2014, 2015. TNC 2014.

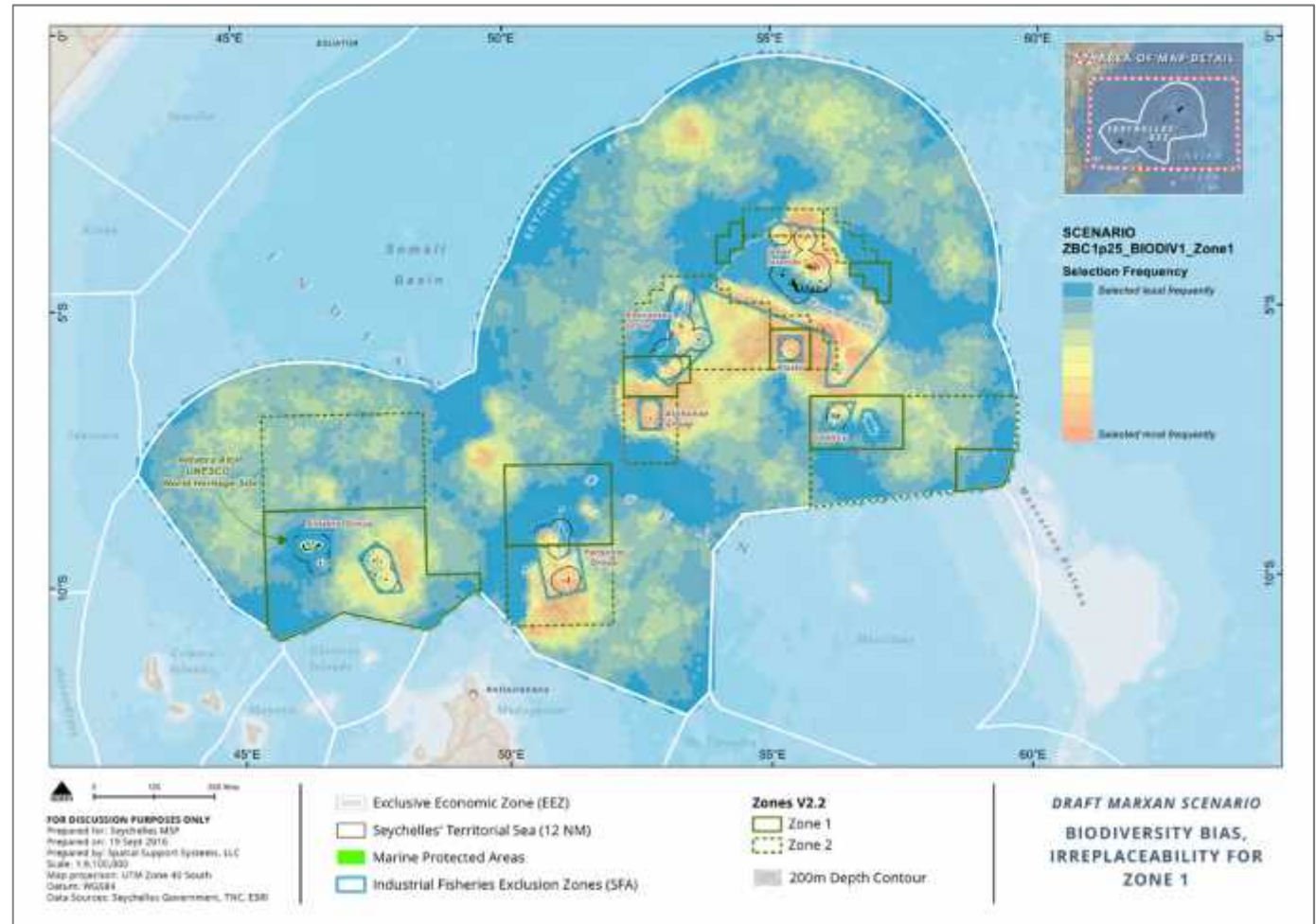
Sources: Seychelles Sport Fishing Club 2014; Ministry of Tourism and Culture 2014; Seychelles Hoteliers Association 2014.

Over 100 layers in data catalogue
Analyse Data and Represent Uses

Source: MEECC database



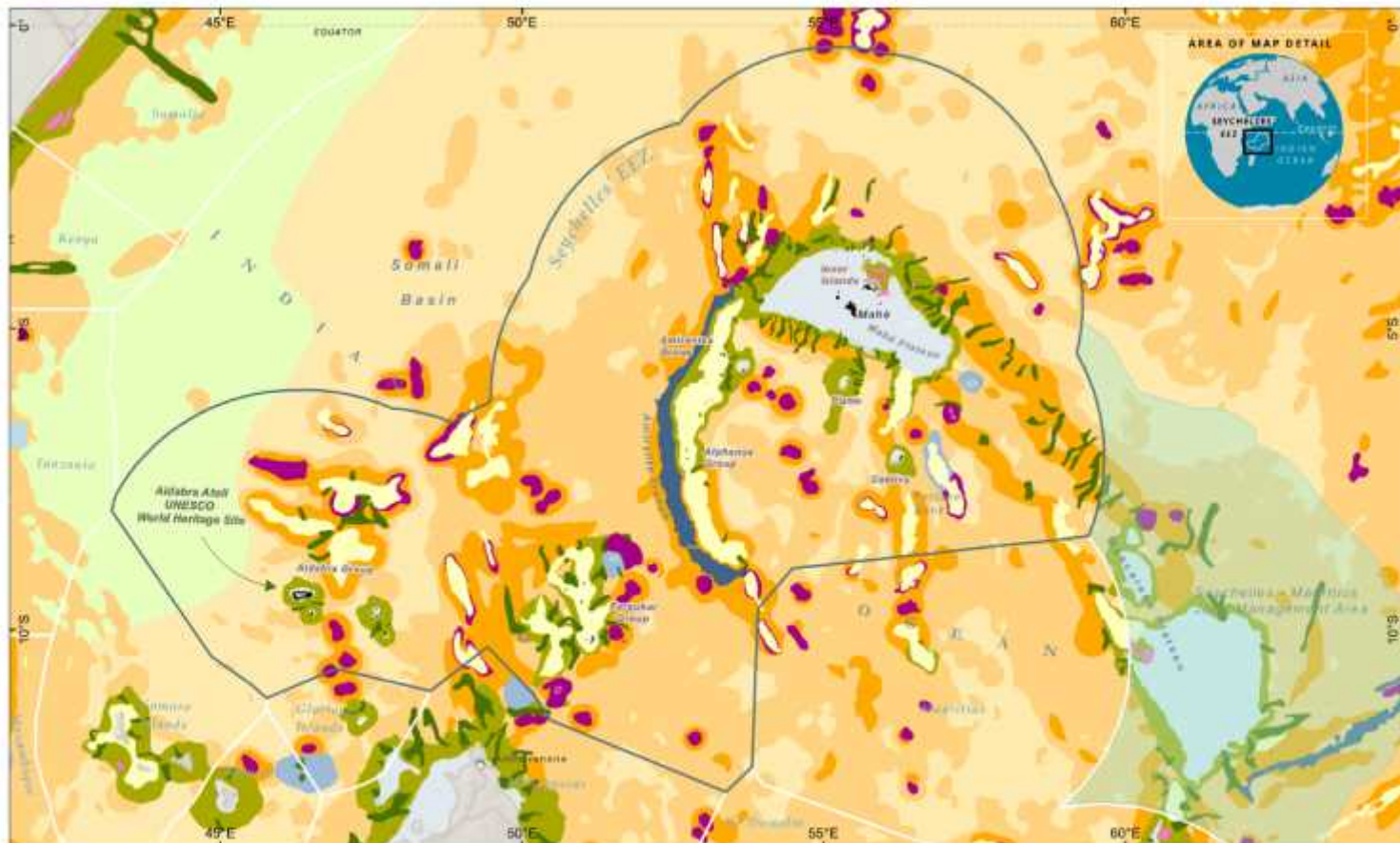
Planning Tools: Identification of High Biodiversity Areas



Seychelles MSP: Planning for the future



Deep water seafloor geomorphology



FOR DISCUSSION PURPOSES ONLY
 Prepared for: Seychelles MSP
 Prepared on: 18 Nov 2016
 Prepared by: Spatial Support Systems, LLC
 Scale: 1:5,100,000
 Map projection: Cylindrical Equal Area
 Datum: WGS84
 Data Sources: Seychelles Government, MECC Geodatabase,
 The Nature Conservancy, ESR

- Seychelles' Exclusive Economic Zone (EEZ)
- Other Exclusive Economic Zone
- 200m Depth Contour

Seafloor Geomorphology (Harris et al. 2014)

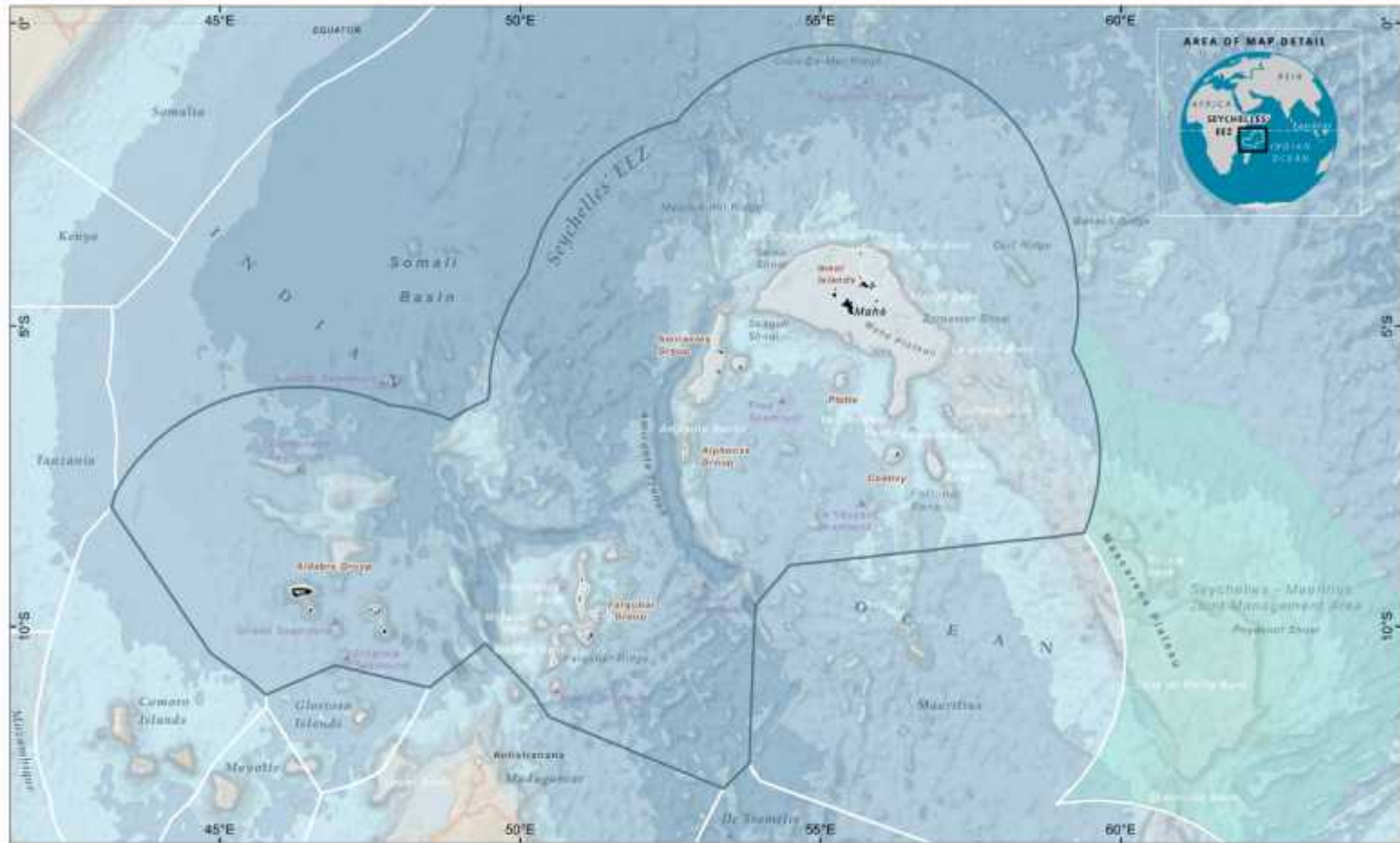
- Ridge
- Hills
- Slope
- Seamount
- Plains
- Canyon
- Mountains
- Rise
- Trench
- Guyot
- Terrace

Deep Seafloor Geomorphology



Seychelles MSP Initiative 2017. Information is presented for discussion purposes only. Subject to change upon review and revision.

Bathymetry



0 125 250 Km

FOR DISCUSSION PURPOSES ONLY

Prepared for: Seychelles MSP

Prepared on: 16 Nov 2016

Prepared by: Spatial Support Systems, LLC

Scale: 1:8,100,000

Map projection: Cylindrical Equal Area

Datum: WGS84

Data Sources: Seychelles Government, MEEC Geotatabase,

The Nature Conservancy, ESRI

- Seychelles' Exclusive Economic Zone
- Other Exclusive Economic Zone
- 200m Depth Contour

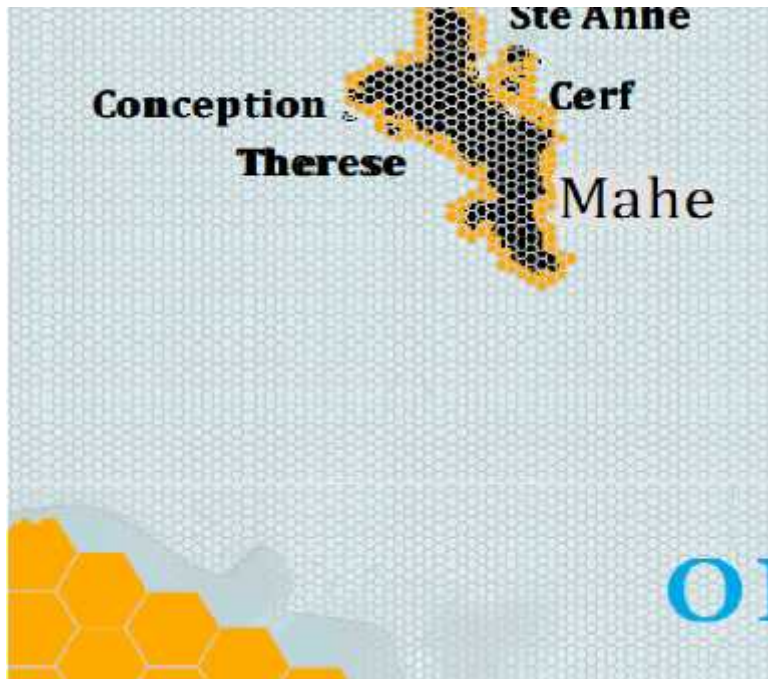
Depth in Meters
GEBCO 2014

- 6,472 - -4,500
- 4,499 - -3,500
- 3,499 - -2,500
- 2,499 - -1,500
- 1,499 - -1

▲ Seamounts

Bathymetry

Seychelles MSP: Planning Unit Approach



SHALLOW

< 200 M depth
1 km²



DEEP

> 200 M depth
50 km²



©Waren Andre

Seychelles MSP Initiative

FRAMEWORKS & OUTPUTS

Seychelles MSP: Zoning Framework

Zone 1

High Biodiversity Protection

To allocate 15% of the EEZ to provide high protection for marine biodiversity goals, by representative habitats and species.

Aldabra Atoll
UNESCO
World Heritage Site

Aldabra Group

© National Geographic

Zone 2

Medium Biodiversity Protection

To allocate 15% of the EEZ to provide medium protection for biodiversity goals, by representative species and habitats, and allow economic opportunities for sustainable uses.

Farquhar Group

Zone 3

Multiple Use

To allocate 70% of the EEZ to maximise economic opportunities and Blue Economy in Seychelles.

Goniviy

Fortune Bank

Mauritius

DRAFT High Biodiversity – Zone 1

- The highest protections in Seychelles for key species, habitats, ecosystems
- Implemented using the Protected Areas Policy, Fisheries Act, other legislation; multiple levels of protections within Zone 1
- Objective is to conserve biodiversity features (habitats, species, ecological processes) from disturbance or anthropogenic changes
- Provide reference sites to monitor climate change, species populations, coral bleaching, etc.
- Restrict or limit extraction and seabed alteration
- Compatible uses do not alter the biodiversity objective

DRAFT Medium Biodiversity and Sustainable Use – Zone 2

- Objectives for biodiversity and sustainable uses
- Multiple levels of protections within Zone 2
- Species and habitats within this zone can be managed with some harvest or extraction levels
- Ecosystem services - the benefit to humans
- Some restrictions for extraction and seabed alteration
- Compatible uses align with the objective for each area

Allowable Activities Table → Regulatory Framework

SEYCHELLES MARINE SPATIAL PLANNING (MSP) INITIATIVE

DRAFT Activities Table - Maps 2.0 – 2.2 (Version 2.2, updated 29 Sep 2015)

Marine Activity or Use <i>See below for draft Restrictions and Conditions</i>	Zone 1: High Biodiversity	Zone 2: Medium Biodiversity	Zone 3: Multiple Use
Artisanal Fishing	X	O ¹	O ⁵ or ✓
Industrial Purse Seine Fishing	X	X	O ⁵ or ✓
Industrial Longline Fishing	X	X	O ⁵ or ✓
Mariculture	X	O ¹	O ⁵ or ✓
Semi-industrial Fishing	X	O ¹	O ⁵ or ✓
Sport Fishing	X	O ⁷	O ⁵ or ✓
Subsistence Fishing	O ²	O ⁷	✓
Disposal and Dumping	X	X	O ⁵ or ✓
Dredging	O ^{1,2,3,5}	O ^{1,2,3,5}	O ^{1,3,5}
Ports, Marinas, Wharves, Jetties	O ^{1,2,3,5}	O ^{1,2,3,5}	✓
Reclamation	X	O ^{1,2,3,5}	O ^{1,3,5}
Renewable Energy	O ^{1,3}	O ^{1,3,5}	✓
Shipping, Transportation and Ferries	O ⁷	O ⁷	✓
Deep-sea Mining	X	O ^{1,3,5}	O ^{1,3,5}
Petroleum Shipping (during extraction)	X or O ^{1,3,5}	O ^{1,3,5}	O ^{1,3,5}
Petroleum Development	X or O ^{1,3,5}	O ^{1,3,5}	O ^{1,3,5}
Seismic Surveys	O ^{1,3,8,9}	O ^{1,3,8}	O ^{1,3,8}
Anchorage and Moorings	O ^{1,2,4}	O ^{1,2,4}	✓
Tourism Accommodation (e.g., hotels, resorts, lodges)	O ^{1,3}	O ^{1,3}	✓
Motorised Recreational Activities (e.g., jetski, motoboats)	O ⁵	O ⁵	✓
Non-motorised Recreational Activities (e.g., kayak, sail)	O ⁷	O ⁷	✓
Scientific Research and Monitoring	O ⁸	O ⁸	✓

NOTE: All activities must be compatible with the objective(s) for the spatial area or zone and level of protection. Access to zones for emergencies or navigation is not restricted. Activities are conducted in accordance with all applicable laws, regulations, treaties and agreements. Activities not identified in the table should contact the appropriate management authority(ies) for direction. Final approval of an activity is subject to the decision-making process(es) of the responsible authority(ies).

TABLE KEY

- ✓ Allowable.
- O^{1,3} Conditionally Allowable. See Restrictions and Conditions.
- X Not Allowable.

DRAFT Restrictions and Conditions

- Activity requires approved management plans including stewardship and ecological sustainability. Development must adhere to strict environmental standards including pollution and seabed alteration.
- To serve staff, facilities or infrastructure that manages the zone, including enforcement.
- Development proposals require a transparent and participatory process with all affected stakeholders.
- Permanent mooring buoys recommended where practical; anchor in designated areas.
- Restrictions may apply to avoid or minimise disturbance on key species and ecological functions.
- Government approved permit required for research and monitoring activities.
- Restrictions may apply including catch and release, depending on species targeted.
- In accordance with strict international published scientific guidelines for minimising disturbance to cetaceans.
- Where licensed blocks already exist and only for scientific surveys (e.g., data collection and bathymetry, not extraction).

Seychelles MSP Initiative 2015. Information is presented for discussion purposes only. Subject to change upon review and revision. Subject to government approval.

- ✓ Allowable
- O^{1,3} Conditionally Allowable.
See Restrictions and Conditions
- X Not Allowable

Seychelles MSP: National Policies and Legislation

- Seychelles Protected Area Policy (2013)
- National Biodiversity Strategy Action Plan (2015-2020)
- Seychelles Sustainable Development Strategy (2012-2020)
- Seychelles Blue Economy Roadmap
- Nairobi Convention (1985)
- Convention on Biological Diversity (1992)
- IMO Conventions
- NPNCA of 1969 (National Parks & Nature Conservancy Act)
- Environment Protection Act (WAB regulations)
- Fisheries Act (2014) & Fisheries Policy (2005)
- Physical Planning Act



Seychelles MSP Initiative

INTEGRATION WITH OTHER PROJECTS

Integrate with other projects

- GoS-UNDP-GEF PCU Protected Areas Project
- GoS-UNDP-GEF PCU Outer Islands Project
- GoS-UNDP-GEF PCU PA Finance Project
- Demersal Fisheries Management Plan Mahe Plateau
- Blue Economy Roadmap
- SWIOFish3 – World Bank
- Climate Change & EBA projects
- Mariculture Master Plan
- Yellowfin Tuna reduction
- Sustainable Tourism (SSTL)
- BioFinancing

Seychelles MSP: Outputs

- **Marine Spatial Plan**
 - Zoning framework
 - Zoning Design
 - High biodiversity protection zones – 15% of EEZ
 - Medium biodiversity protection zones - 15% of EEZ
 - Allowable Activities Tables
 - Draft Implementation Plan
- **Planning tools**
 - Master List of Definitions and Uses
 - Stakeholder preferences and priorities
 - Spatial data catalogue and decision-support tools
 - MSP Atlas
- **Website and Information**
- **Stakeholder Input Summary**
- **MSP Policy and Legislation**
- **MSP Implementation & Governance Arrangements**





www.seymssp.com

Contact for more information:

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