



8 November 2017

Nomination of Aldabra Group as National Park and Amirantes to Fortune Bank as Area of Outstanding Natural Beauty

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Annex 1: Identifying new marine protected areas

The development of a marine spatial plan is iterative, and the plans are living documents. The Seychelles zoning design involved multiple steps including gathering and analysing data and information, developing planning tools, identifying high priority areas for stakeholders, developing draft outputs for discussion and feedback, review with stakeholders, incorporating feedback. From 2014-2017, the MSP has had 30 stakeholder meetings and workshops, more than 60 one-to-one consultations with stakeholders and Ministries, and received input and feedback on the methodology during public presentations and scientific conferences. The Executive Committee, Steering Committee and Technical Working Groups have representation from all the marine sectors in Seychelles, and all told more than 100 stakeholders have been invited to participate throughout Seychelles and foreign partners to Seychelles. Announcements for workshops are on the MSP website, newspaper and media since 2014, and individual invitations are sent to encourage participation.

The first zoning design was presented to stakeholders in early 2015, and has since gone through five iterations as a result of stakeholder input, participatory mapping and scientific analyses (e.g., Marxan with Zones). The zoning designs incorporated information from the 2015 GOS-UNDP-GEF project for identifying potential new marine protected areas using Marxan. More than 100 spatial data layers are being used to inform proposed marine protected areas including high priority areas identified by fisheries, petroleum, tourism, recreation, renewable energy, ports, marine conservation, and infrastructure. With the information at that time, we identified the top 15 and 30% of areas for biodiversity using the irreplaceability values from the Marxan, in discussion with local experts. The GOS-UNDP-GEF data set included more than 100 biodiversity features through expert workshops and scientific reviews.

In 2015-2016, new spatial analyses were completed to identify high priority areas for biodiversity protection using Marxan with Zones because the MSP Zoning Framework had been revised to three zones, to improve the methodology of zoning to meet the 30% marine protection target by 2020. Some biodiversity features were over-represented in the Marxan work from 2011-2015 and we were also looking for possible solution sets closer to the 30% goal. Additionally, it was decided to focus on benthic habitat features as the basis for selecting biodiversity priority areas, and determine representation post-hoc using spatial decision-support tools.

The new Zoning Framework developed in Apr 2015 was: Zone 1 High marine biodiversity protection (15%), Zone 2 Medium marine biodiversity protection and sustainable uses (15%), and Zone 3 Multiple Use (70%). The MSP Initiative used Marxan with Zones software and the three zone categories to identify the high priority areas for biodiversity using three scenarios: biodiversity bias, Blue Economy bias, and economic bias.

The ecological criteria for identifying marine protected areas in a network are well established in the scientific literature and include size, spacing, shape, replication, representation, unique features, breeding habitat, foraging habitat and combining the ecological with economic, social, and cultural criteria. Socio-cultural criteria include participation by stakeholders and transparency in decision making. Economic criteria include evaluating the benefits and costs of creating new marine protected areas.

Annex 2: Summary of stakeholder input incorporated in to the plan 2014-2017

- Permanent closures are better for monitoring and management
- Make the zoning boundaries easy to navigate and enforce. Use squares and rectangles, not circles.
- Drop off areas are important for commercial, sport and recreation fisheries and recommendation was to change this from a Zone 1 to a Zone 2 area, which was done.
- Semi-industrial fisheries stay off the Mahe Plateau to reduce spatial conflicts with artisanal fishing.
- The SE Monsoon and piracy affects the domestic fishing locations, and temporal changes in fishing effort need to be accounted for in the design.
- Domestic fisheries are sustainable because they are locally owned, no bottom trawling and no spear fishing.
- Mariculture may be proposed in the Outer Islands
- Need improved management of FADs – fish aggregating devices.
- Need improved management measures to address bycatch of juvenile tuna, sharks, turtles and other non-target species
- For industrial tuna fisheries, the waters surrounding the Mahe Plateau dropoff are very important
- Local fisheries on the Plateau are sustainable and should be considered allowable in Zone 2. Some fisheries on the Mahe Plateau will be managed using a new demersal fisheries management plan, currently undergoing finalisation, and thus should be considered sustainable.
- Oil and gas development is most important for PetroSeychelles on Mahe Plateau, Farquhar and north of Aldabra. Amirantes will be compromised to secure these other priority areas; Amirantes could be Zone 1.
- Oil and gas development should be allowable in Zone 2. All other Zone 1 proposals need to be discussed and guidance is urgently needed from the government in order to reconcile biodiversity protection objectives with those for petroleum exploration and development.
- Coetivy and Platte are important fisheries areas for commercial fisheries, tourism and sport fishing, and should be Zone 2.
- Biodiversity surrounding Coetivy is not a top priority because it has been degraded. Consider this area for restoration, and Zone 2. The prison on Coetivy may provide good opportunities for enforcement.
- Funding to improve fisheries is available for Zone 2 areas and thus should be considered when making the zoning design. Improving sustainability will require funding, and can work towards full sustainability by 2020.
- Marxan with Zones analysis does not support high priority areas on the north and south dropoff areas; areas surrounding Bird and Denis Islands are high priority. Denis Island has a proposal for a new sustainable use in the surrounding waters.
- Marxan with Zones picks up high and medium biodiversity in benthic habitats between the Amirantes, Platte, Coetivey and Fortune Bank.
- Overwhelming advice from stakeholders and civil society for no industrial fishing, no oil & gas, and no mining in Zone 1 areas.
- The Outer Islands are important for semi-industrial fisheries, and are needed also for shelter during high winds.
- Sport fishing occurs in the dropoff and 16 km from the dropoff. Catch & release fly fishing in the lagoons can be sustainable.
- The Inner Islands have unique habitats and breeding areas for sharks and sea turtles. The 30% goal should also apply to the Inner Islands. Enforcement for current marine protected areas is not strong, and they need management plans. Integrate the MSP with existing MPAs.
- Praslin Fishing Boat Owners Association is interested in co-management of the fisheries surrounding Praslin, and that sustainable measures will need to be introduced.
- Strong support for the zoning designs for 15% in Phase 1 during stakeholder workshops and public workshops (March, May, and Sep 2017).
- PetroSeychelles has concerns about all Zone 1 areas designated as “not allowed” for petroleum development, and the difficulty this brings to attracting investors to Seychelles.
- Seychelles Maritime Security uses satellite imagery for surveillance and enforcement and is supportive of working with the MSP to develop the best approach for control, monitoring and surveillance of the new marine protected areas.

- International shipping routes run through Seychelles EEZ and at this time, the government is not considering an adjustment in these routes. The Mahe Plateau has an “area to be avoided” because of lack of adequate hydrographic survey data.

Annex 3: Biodiversity and stakeholder data summary tables.

Table 1. The percentage area and percentage towards 30% goal of 15 deep water habitat conservation features within the draft marine protection zone areas in Phase 1. These features occur in greater than 200 m depth. Biodiversity conservation features are from GOS-UNDP-GEF report, Klaus 2015. Percentages will add up to more than 100 because of overlapping features.

HABITAT CONSERVATION FEATURE	Percent of overall 30 percent goal found in Aldabra Group	Percent of Aldabra Group covered by this feature	Percent of overall 30 percent goal found in Amirantes to Fortune Bank	Percent of Amirantes to Fortune Bank covered by this feature
Abyss (>6,000 m)	20.4	81.7	17.8	39.0
Abyssal hills (300-1,000m)	15.9	30.2	16.3	16.8
Abyssal mountains (>1,000 m)	18.7	12.6	32.4	11.9
Abyssal plains (<300m)	33.3	38.9	16.1	10.3
Canyon	5.6	0.8	61.1	5.0
Continental slope	16.1	7.6	106.9	27.5
Guyot	0	0	222.4	4.9
Plateau	7.5	2.8	74.3	15.4
Ridge	13.6	2.8	27.4	3.1
Rift Valley	0	0	0	0
Seamount	21.5	4.7	33.5	4.0
Slope	55.0	5.6	45.0	2.5
Spreading ridge	0	0	6.9	0.3
Terrace	0	0	251.5	0.6
Trench	0	0	23.7	0.4
Count of features	10		14	
Percent of total deep features	67%		93%	

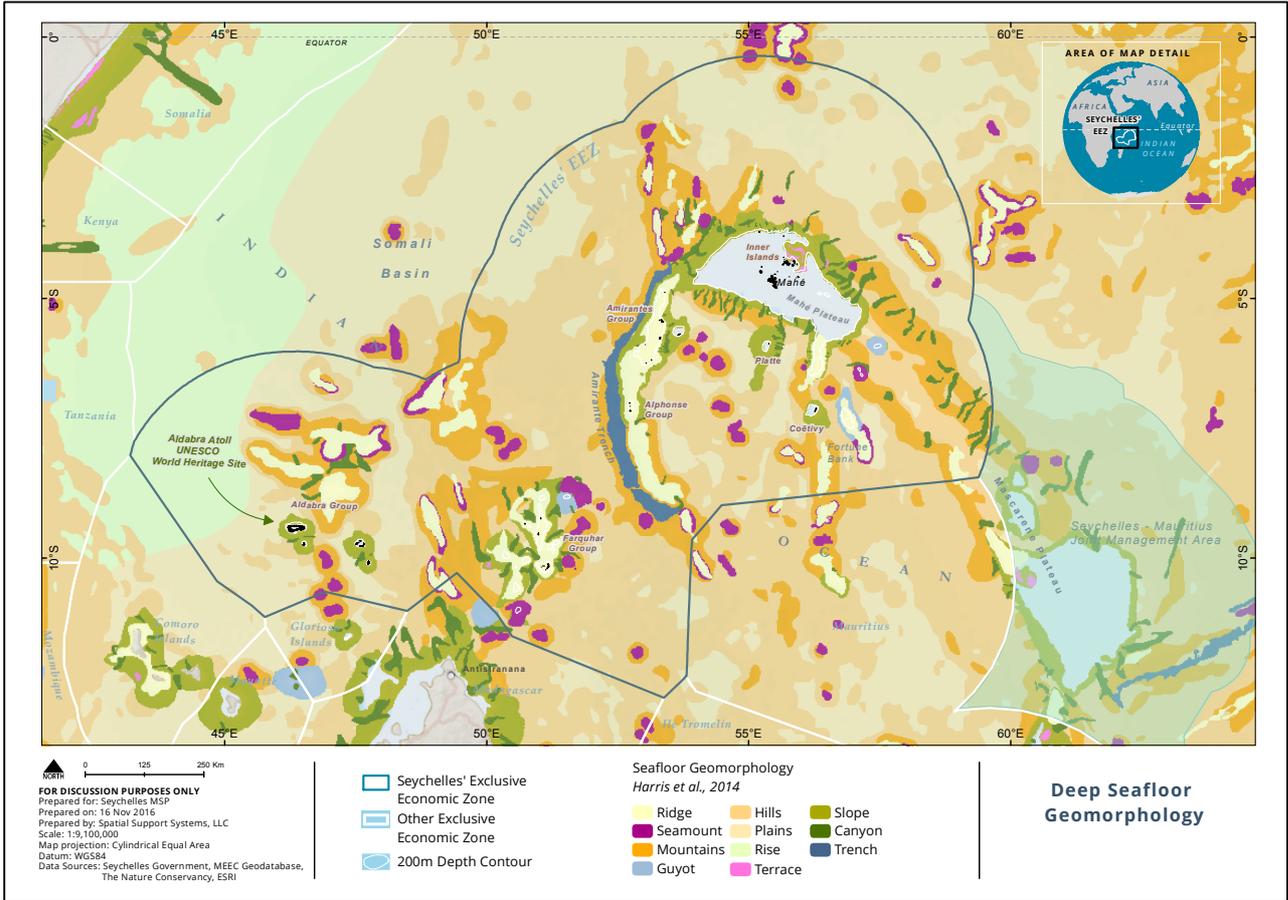


Figure 1. Deep seafloor geomorphology of Seychelles EEZ and Western Indian Ocean (data source: Harris et al. 2014; MEECC database; Seychelles MSP Initiative)

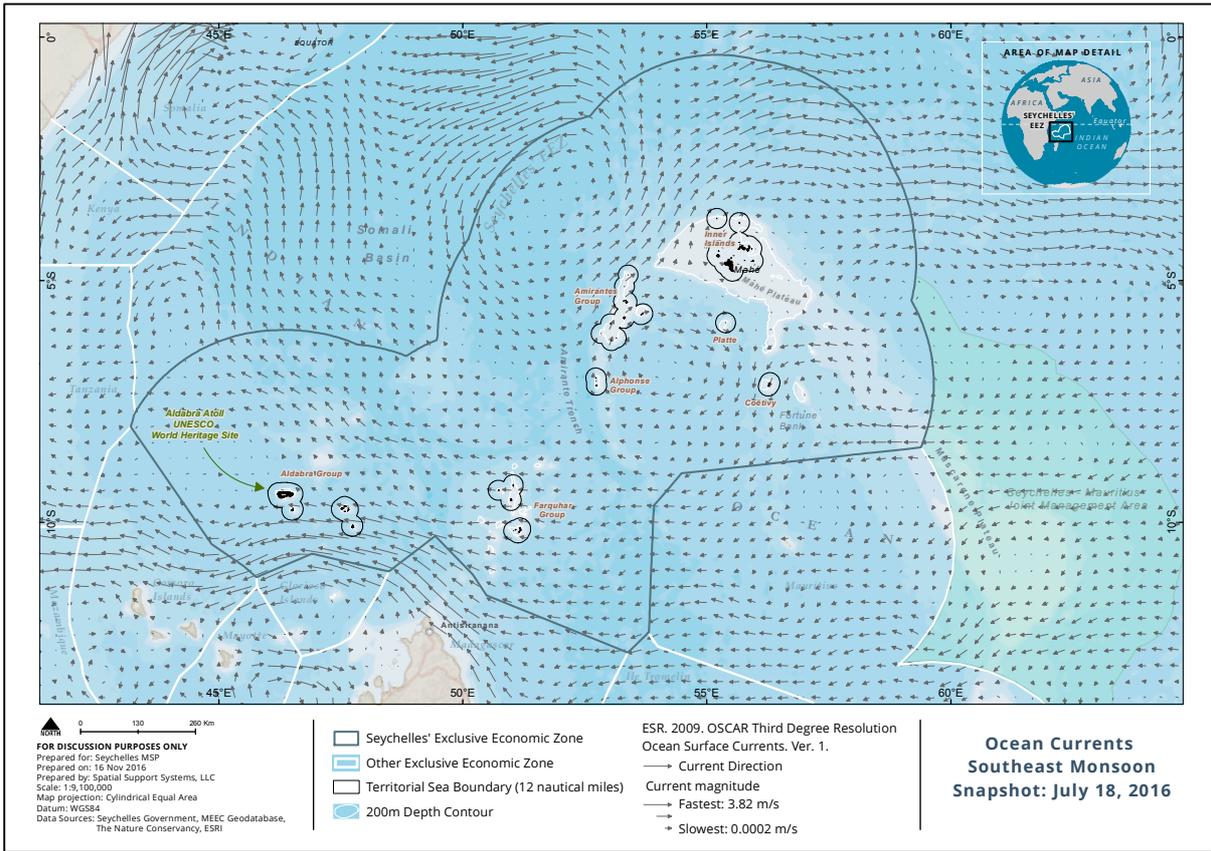


Figure 2. Surface currents for the southeast monsoon, Seychelles EEZ and Western Indian Ocean (Data source: OSCAR Third Degree Resolution Ocean Surface Currents, 2009; Seychelles MSP Initiative).

Table 2. The percentage area and percentage towards 30% goal of shallow water habitat conservation features within the draft marine protection zone areas in Phase 1. These features occur in less than 200 me depth. Biodiversity conservation features are from GOS-UNDP-GEF report, Klaus 2015. Percentages will add up to more than 100 because of overlapping features.

HABITAT CONSERVATION FEATURE	Percent of overall 30 percent goal found in Aldabra Group	Percent of Aldabra Group covered by this feature	Percent of overall 30 percent goal found in Amirantes to Fortune Bank	Percent of Amirantes to Fortune Bank covered by this feature
Beach	72.9	0	0	0
Coral reef	43.2	0.4	0	0
Submerged flat reef	0	0	188.0	2.1
Wetlands and mangroves	264.9	0	0	0
High relief Atoll, raised lagoon	249.3	0.3	0	0
High relief Atoll, raised rim, shallow	155.2	0.1	0	0
High relief Atoll, sea level lagoon	0	0	0	0
High relief Atoll, sea level rim	0	0	0	0
High relief Atoll, submerged lagoon	0	0	0	0
High relief Atoll, submerged rim	0	0	0	0
High relief Bank, barrier complex	0	0	0	0
High relief Bank, drowned bank	0	0	290.8	0.9
High relief Bank, lagoon	0	0	0	0
High relief Bank, patch reef complex	0	0	0	0
High relief Bank, platform reef, atoll like lagoon	0	0	0	0
High relief Bank, platform reef, atoll-like rim	0	0	0	0
High relief Bank, platform reef, infilled rim	0	0	0	0
High relief Bank, platform reef, raised rim	296.8	0	0	0
High relief Bank, platform reef, rock rim	0	0	0	0
High relief Bank, platform reef, sand rim	0	0	0	0
High relief Island, fringing reef	0	0	0	0
High relief Island, granitic subtidal	0	0	0	0
High relief Island, subtidal	0	0	0	0
High relief shelf	23.8	0.3	140.0	1.1
High relief Shelf, barrier complex	0	0	326.4	5.1
High relief Shelf, patch reef complex	0	0	218.0	4.0
High relief Shelf, platform reef sand cay	0	0	0	0
Medium relief Shelf, bank lagoon	0	0	0	0
Medium relief Shelf, lagoon	0	0	274.1	13.7
Count of features	7		6	
Percent of total shallow features	24%		21%	

Table 3 . Descriptions of the classes included in Level 1 and Level 2 of the integrated habitat classification scheme. Sources include (a): Harris, P.T., Macmillan-Lawler, M., Rupp, J., Baker, E.K., 2014. Geomorphology of the oceans. Marine Geology 352, 4-24; (b): This report (Klaus 2015)

Level 1	Level 2	Description
Abyss ^(a)		The abyss is " <i>the area of seafloor located at depths below the foot of the continental slope and above the depth of the hadal zone</i> " (defined as deeper than 6000 m). The abyss feature layer was created by clipping a layer representing the ocean with the shelf, slope and hadal layers. The abyssal layer is classified into three categories based on roughness:
	Abyssal plains ^(a)	<300m relief
	Abyssal hills ^(a)	300–1000 m relief
	Abyssal mountains ^(a)	>1000 m relief
	Trench ^(a)	Trenches are "a long narrow, characteristically very deep and asymmetrical depression of the sea floor, with relatively steep sides" (IHO,2008). Trenches are generally distinguished from troughs by their "V" shape in cross section.
	Rise ^(a)	Rises otherwise known as continental rises, are features that abut the continental margins. These are characterised by a smooth sloping seabed as indicated by evenly spaced slope parallel contours. They were mapped using a global map of sediment thickness and were restricted to areas where sediment thickness was >300 m.
	Spreading ridges ^(a)	Mid-ocean spreading ridges are " <i>the linked major mid-oceanic mountain systems of global extent</i> " (IHO, 2008). Spreading ridges are distinguished from other ridges in Harris et al. (2014).
	Ridge ^(a)	In Harris et al., (2014) ridges are confined to " <i>an isolated (or group of) elongated narrow elevation(s) of varying complexity having steep sides, often separating basin features</i> " (IHO, 2008). These were manually added by hand where necessary and were confined to features greater than 1000m in relief (i.e. "ridges" overlapped with other categories, especially plateaus, the abyssal mountains classification layer) and overlap parts of the mid-ocean ridges.
	Seamount ^(a)	Seamounts are " <i>a discrete (or group of) large isolated elevation(s), greater than 1000 m in relief above the sea floor, characteristically of conical form</i> " (IHO, 2008). Seamounts are scattered throughout the Seychelles EEZ region. Both seamounts and guyots extend across an enormous depth range, and studies in the region have shown that they support a wealth of marine life and a high degree of endemism (Rogers et al. 2009).
	Guyot ^(a)	Guyots are " <i>an isolated (or group of) seamount (s) having a comparatively smooth flat top. Also called tablemount(s)</i> " (IHO, 2008). Guyots are similar in importance to seamounts. The main difference is that they have a flat top. These tend to occur as the result of crustal subsidence as the oceanic plate carries an island into deeper or lower oceanic crust areas.
	Rift valley ^(a)	Rift valleys are confined to the central axis of mid-ocean spreading ridges; they are elongated, local depressions flanked generally on both sides by ridges (Macdonald, 2001). They were mapped by hand based on 100 m contours. Rift valleys cover the largest fraction of abyssal zone in the Arctic Ocean. The greatest area of rift valleys occurs in the Indian Ocean where they cover 165,220 km .
	Canyon ^(a)	Submarine canyons are defined as "steep-walled, sinuous valleys with V-shaped cross sections, axes sloping outwards as continuously 2963 m, respective mean depths). Canyons are common throughout the EEZ. Canyons are extremely important structures as they can influence local oceanography, directing the flow currents and, create localised upwelling (Harris 2011). Canyons may also act as a conduit to transport sediments and nutrients from the continental shelf to the deep sea. As a result of these functions, canyons are often associated with commercially important pelagic and demersal fish species. Canyons have also been associated with species of conservation importance such as the coelacanth, <i>Latimeria chalumnae</i> (Nulens et al. 2011) elsewhere in the WIO region.
Slope ^(a)		The continental slope is " <i>the deepening sea floor out from the shelf edge to the upper limit of the continental rise, or the point where there is a general decrease in steepness</i> " (IHO, 2008). Harris et al. (2014) manually digitised the foot of the slope at a nominal spatial scale of 1:500,000 in ArcGIS based on 100 m contours and 3D viewing. ArcGIS was used to highlight zones of abrupt changes in seabed gradient (contour spacing) which suggests the foot of slope. Otherwise the first significant decrease in gradient encountered in a seaward direction from the shelf break was selected as the foot of slope. Note the foot of slope locations is based only on bathymetric data and interpretation is not intended to define the foot of slope under Article 76 of the 1982 United Nations Convention on the Law of the Sea, particularly in areas of geomorphologically complex, continent–ocean transition.
	Plateau ^(a)	Plateaus are " <i>flat or nearly flat elevations of considerable areal extent, dropping off abruptly on one or more sides</i> " (IHO, 2008). In Harris et al. (2014) plateaus were digitised by hand based on 100 m contours.
Shelf ^(a,b)		The continental shelf is defined by IHO (2008) as " <i>a zone adjacent to a continent (or</i>

Level 1	Level 2	Description
		<i>around an island) and extending from the low water line to a depth at which there is usually a marked increase of slope towards oceanic depths</i> ". The low-water mark is the 0 m depth contour. The continental shelf is classified by vertical relief to highlight zones of abrupt changes in seabed gradient (contour) yielded three classes: Low-relief shelf; Medium-relief shelf; and High-relief shelf.
	Shelf - low relief ^(a)	<10m elevation
	Shelf - medium relief ^(a,b)	10–50 m elevation
	Shelf - high relief ^(a,b)	>50 m elevation
	Shelf valleys ^(a)	Shelf valleys at high latitudes incised by glacial erosion during the Pleistocene ice ages form elongated troughs, typically trending
	Terrace ^(a)	Terraces on continental slopes are "an isolated (or group of) relatively flat horizontal or gently inclined surface(s), sometimes long and narrow, which is (are) bounded by a steeper ascending slope on one side and by a steeper descending slope on the opposite side" (IHO, 2008).
Land ^(a,b)	Land ^(a,b)	Terrestrial areas were identified from the Landsat image dataset prepared for this project.

Table 4. Descriptions of the seafloor habitat types on the shelf, used in the analayses to identify top priority areas for protection. Sources include Baker (1963), Hamylton et al (2010), and Klaus (2015).

Level 2	Level 3	Level 4	Description
Shelf	Atoll	Atoll (sea-level) rim	Sea level atolls are those without significant areas of raised or elevated limestone. In Seychelles waters these include: Farquhar, Providence and Alphonse and Bijoutier/St Francois.
		Atoll (sea-level) lagoon	
		Atoll (sea-level) land on reef	
		Atoll (raised) rim	Raised atolls are those that have been uplifted and have land areas that are composed of significant deposits of limestone. In Seychelles the raised atolls include Aldabra, Cosmoledo and Astove all of which have significant lagoons.
		Atoll (raised) lagoon	
		Atoll (raised) land on reef	
		Atoll (submerged) rim	Submerged atolls are those where the annular shape of the atoll is still distinct, but submerged beneath sea level. There is only one example of this in Seychelles, namely Desroches.
		Atoll (submerged) lagoon	
		Atoll (submerged) land on reef	
	Bank	Bank - barrier complex	These are the shallow reefal and rocky structures around the edge of the Amirantes.
		Bank - lagoon	The Bank lagoon refers to the deeper open water area within the Amirantes.
		Bank - platform reef (sand cay) rim	Sand cay platform reefs are the Type 1 platform reefs as defined in Hamylton et al. 2012, and include Sand cay, Etoile, African Banks and Remire.
		Bank - platform reef (sand cay) land on reef	
		Bank - platform reef (rock base) rim	Rock base platform reefs are the Type 2 platform reefs as defined in Hamylton et al. 2012, and include Marie-Louise, Desnoeuvs and Boudeuse. These rocky island have narrow peripheral reefs that are sat on the margins of extensive shallow rock platforms.
		Bank - platform reef (rock base) land on reef	
		Bank - platform reef (infilled) rim	Infilled platform reefs are the Type 3 platform reef as defined in Hamylton et al. 2012, and include Darros and Poivre. Infilling of the platform surface has allowed the development of subaerial islands that exceed 2km ² .
		Bank - platform reef (infilled) land on reef	
		Bank - platform reef (atoll-like) rim	Atoll-like platform reef are those on the bank with an atoll-like appearance (St Josephs)
		Bank - platform reef (atoll-like) lagoon	
		Bank - platform reef (atoll-like) land on reef	
		Bank - platform reef (raised) rim	Raised platform reefs include St Pierre and Assumption
		Bank - platform reef (raised) land on reef	Drowned banks are the submerged structures within water depths <30 m.
		Bank - drowned bank	
		Bank - patch reef complex	
	Continental	Shelf - barrier complex	The shallow structures encircling the Mahe Plateau
		Shelf - lagoon	The deeper open water areas within the Mahe Plateau
		Shelf - patch reef complex	The shallow structures within the Mahe Plateau
		Shelf - platform reef (sand cay) rim	The platform reef around the sand cay islands to the north of the Mahe Plateau
		Shelf - platform reef (sand cay) land on reef	The land on the platform reef to the north of the Mahe Plateau
		Island - subtidal	The granitic rock structures around the islands Mahe Plateau
		Island - fringing reef	The carbonate fringing reefs around the islands on the Mahe Plateau
		Island - land	The granitic islands

Table 5. The percentage area and percentage towards 30% goal of species conservation features within the draft marine protection zone areas. Biodiversity conservation features are from GOS-UNDP-GEF report, Klaus 2015. Percentages will add up to more than 100 because of overlapping features.

GROUP	SPECIES CONSERVATION FEATURE	Percent of overall 30 percent goal found in Aldabra Group	Percent of Aldabra Group covered by this feature	Percent of overall 30 percent goal found in Amirantes to Fortune Bank	Percent of Amirantes to Fortune Bank covered by this feature
BIRDS	Black-naped Tern	21.0	0.5	7.8	0.1
	Brown Booby	57.9	40.0	77.2	29.1
	Brown Noddy	60.6	18.8	101.7	17.2
	Fairy Tern	54.1	23.5	84.6	20.1
	Frigatebird foraging areas	10.4	25.6	18.1	24.3
	Lesser Noddy	0	0	117.7	12.7
	Masked Booby	85.1	65.3	67.8	28.4
	Red-footed Booby	59.3	81.0	83.2	62.1
	Roseate Tern	0	0	8.5	0.1
DUGONG	Dugong	333.3	0.3	0	0
FISH	Grouper spawning distribution	0	N/A	0	N/A
	Rabbitfish spawning distribution	0	N/A	0	N/A
CETACEANS	Blue whale	73.3	97.0	0	0
	Blue whale, breeding area	23.4	99.2	19.7	45.7
	Brydes whale	18.5	96.8	28.6	81.6
	Dwarf sperm whale	18.6	96.8	35.2	100.0
	False killer whale	19.1	96.8	31.6	87.6
	Fin whale	18.7	96.8	35.3	100.0
	Humpback whale	26.8	96.8	43.5	85.9
	Humpback whale, breeding area	212.8	19.4	45.7	2.3
	Orca	72.1	69.0	56.8	29.7
	Pygmy sperm whale	37.0	96.8	61.8	88.4
	Risso's dolphin	9.8	13.1	131.0	95.3
	Sei whale	128.9	49.8	0	0
	Short-finned pilot whale	18.6	96.8	35.2	100.0
	Sperm whale	18.8	96.8	26.9	76.0
	Sperm whale historical	0	0	18.4	0.4
PLANTS	Seagrass	2.1	0.2	218.6	9.9
	Seagrass high density	2.6	0	134.4	0.5
	Seagrass low density	2.0	0.1	230.0	6.6
	Seagrass med density	2.3	0.1	220.1	2.9
TURTLES	Green sea turtle, foraging (ad)	0	N/A	208.3	N/A
	Green sea turtle, foraging (juv)	9.2	N/A	175.6	N/A
	Green sea turtle, nesting	146.8	N/A	0.2	N/A
	Hawksbill turtle, foraging (ad)	5.8	N/A	226.2	N/A
	Hawksbill turtle, foraging (juv)	8.2	N/A	207.0	N/A
	Hawksbill turtle, nesting	77.9	N/A	0.5	N/A
	Sea turtle, nesting beaches	94.8	N/A	0	N/A
	Count of features	32		32	
	Percent of total shallow features	84%		84%	

Table 6. The percentage area of stakeholder preferences within the draft marine protection zone areas. Biodiversity conservation features are from GOS-UNDP-GEF report, Klaus 2015. Percentages will add up to more than 100 because of overlapping features.

STAKEHOLDER PREFERENCE LAYERS	Percent of Aldabra Group covered	Percent of Amirantes to Fortune Bank covered
Artisanal Fishing, locations greater than zero (SFA 2008, 2010-2012)	0	32.6
Fishing by Foreign Vessels prohibited (SFA 2009; Reg. 5)	12.6	46.2
Industrial Tuna LongLine, top 30 percent avg annual CPUE (SFA 2003-2012)	4.2	0
Industrial Tuna PurseSeine, top 30 percent avg annual CPUE (SFA 2003-2012)	4.2	22.9
Semi-industrial Fishing, VMS greater than zero (2008, 2010-2012)	0	13.0
Infrastructure and utilities, including shipping (SEYMSP)	4.2	7.4
Non-renewable resources (PetroSeychelles) (SEYMSP)	15.0	38.1
Tourism and Recreation 16 km from the dropoff (SEYMSP)	0	51.1
BirdLife Marine Important Bird Areas (BirdLife International, Nature Seychelles 2014)	10.9	32.5
Western Indian Ocean Marine EcoRegions (WIOMER) Ecoregional Priority Areas (2012)	47.4	47.4

Table 7. The mean total catch from industrial tuna purse seine (SFA 2003-2012), and percent overlap with the proposed marine protected areas.

TUNA PURSE SEINE (2003-2012)	EEZ	Aldabra Group	Amirantes to Fortune Bank
Mean total catch per year (MT)	66,514	1,011	5,740
Percent of mean total catch for EEZ in the proposed MPA		1.5%	8.6 %
Mean total catch yellowfin tuna (MT)	38,173	590	3,541
Percent of mean YFT catch in the proposed MPA		1.6%	9.3%

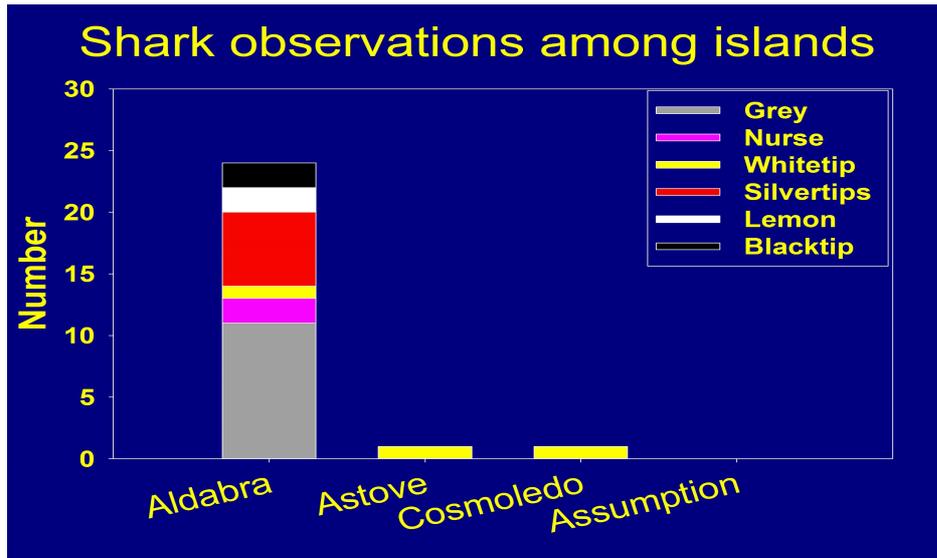


Figure 3. Shark observations among islands, National Geographic Pristine Seas expedition, April 2015.

Annex 4: Phase 1 General Management Considerations

Applies to activities and uses within the boundary of the Seychelles MSP (EEZ and Territorial Sea waters)

1. All activities are conducted in accordance with all applicable national and international laws, regulations, treaties, and agreements, including:
 - a. Navigational laws and right-of-way must be observed in all Seychelles' waters.
 - b. Seychelles-flagged fishing vessels that are operated by foreign states must comply with all Seychelles laws, regulations and policies and, at a minimum, subject to same management considerations as vessels operated by Seychelles nationals
 - c. Fisheries must comply with Demersal Fisheries Management Plan for the Mahe Plateau.
 - d. Vessels operating under the EU-Seychelles Fisheries Partnership Agreement must comply with Seychelles Fisheries Act, including Foreign Fisheries Prohibited Areas (Reg. 5)
 - e. Regulations and resolutions adopted by the Indian Ocean Tuna Commission (IOTC).
 - f. UN FAO Code of Conduct for Responsible Fishing, UN FAO Code of Conduct National Plan of Actions in Seychelles, and UN FAO Guidelines for Small-scale Fisheries.
 - g. Petroleum exploration, development and production is authorised by the government of Seychelles and administered by the Mining Act.
 - h. Tourism activities must comply with licenses issued by regulatory authority.
 - i. All marine mammals are protected under the Fisheries Act.
 - j. Marine turtles and whale sharks are protected by Wild Animals and Birds Protection Act
 - k. Seabed mining in the high seas is governed by the International Seabed Authority (ISA).
 - l. Protected Areas Legislation applies to all existing marine and terrestrial protected areas.
 - m. All Seychelles waters are within the ICRW Indian Ocean Whale Sanctuary.
 - n. All prohibitions under the Fisheries Act, including spear fishing and demersal trawl.
 - o. Petroleum activities will comply with Petroleum Upstream Policy (when completed).
 - p. Shipping and transportation is governed by the International Maritime Organisation (IMO).
 - q. Access to zones for emergencies or navigation is not restricted.
2. All Territorial Sea waters are Interim Zone 2 in Phase 1 with the exception of marine protected areas of the Aldabra Atoll and UNESCO World Heritage Site, and Assumption Atoll.
3. Climate change adaptation measures will be developed in Phase 2 (2018-2020), integrating existing projects, scientific studies, and socio-economic research including ecosystem-based adaptation (EBA) projects and restoration projects in Seychelles.
4. All allowable activities must be compatible with the objective(s) for the area and zone category.
5. All allowable activities must comply with Phase 1 Area-based management considerations.
6. All allowable activities must comply with all existing and future management plans.
7. Management considerations are developed using a participatory process, and the final decision for an allowable activity is the government of Seychelles.
8. Ecosystem-based management plans are needed by 2020 for all activities and/or zones including implementation, monitoring, enforcement, budgets and priority strategies.
9. Activities that are not identified in the table must contact the appropriate management authority and/or MSP Initiative for direction and inclusion.
10. All fishing must avoid fishing fish spawning aggregations such as rabbitfish and grouper, and nursery areas (e.g., of sharks).
11. Semi-industrial longline vessels voluntarily avoid fishing in depths less than 200 m, and needs to be added to regulations and management plans.
12. The "Seychelles Mariculture Master Plan (MMP)" integrates with the MSP in Phase 2.
13. Phase 1 Seychelles Marine Spatial Plan is subject to revision in Phase 2, and upon implementation.

Annex 5: Area-based Management Considerations for Aldabra Group

Exclusions are Cosmoledo and Astove Atolls and Territorial Sea waters; zoning developed in Phase 2. All current activities that involve extraction, seabed alteration and/or disturbance are allowed until 2020, or when they expire, whichever is soonest. All restrictions, conditions, area-based considerations and management plans come into effect no later than 2021.

1. All allowable activities must comply with the Aldabra Atoll Management Plan (2016; Seychelles Island Foundation)
2. Seychelles-flagged fishing vessels agreements and licenses in effect until 2020.
3. The EU-Seychelles Fishing Partnership Agreement in effect until 2020 (expiry of current agreement)
4. Seychelles foreign-vessel longline agreements are in effect until expiry (no later than 2020).
5. All existing marine charter reservations and agreements in effect until 2020.
6. Using Fish Aggregating Devices (FADs) or other floating objects for the purposes of attracting fish, will be phased out in this area. All FADs and artificially created floating objects will be removed by 2020.
7. All commercial tourism activities in this area are working towards increased sustainability and improved management, and can demonstrate their long-term commitment to economic and ecological sustainability by 2020.
8. The size of cruise ships allowed in this area may need to be reviewed and a passenger limit developed consistent with management of this area for high biodiversity objectives.
9. Fish feeding, chumming or otherwise attracting fish, sharks or marine animals is only allowed for research purposes; all other purposes not allowed.
10. Floating structures may be allowable in this area in the future if they are deemed to result in less environmental damage than terrestrial construction and operation. All construction must avoid sensitive, unique or IUCN listed species or habitats, and in accordance with strict environmental standards that do not harm UNESCO World Heritage status of Aldabra Atoll.

Annex 6: Area-based Management Considerations for Amirantes to Fortune Bank

Exclusions are Inner Islands, Port Fee Boundary, Bird Island, Denis Island, Amirantes (see map); all Territorial Sea waters are Interim Zone 2; zoning developed in Phase 2

1. The EU-Seychelles Fishing Partnership Agreement is in effect until expiry in 2020.
2. Seychelles foreign-vessel longline agreements are in effect until expiry.
3. All petroleum exploration licenses are in effect until expiry, with understanding that active licenses in this zone may develop into commercial exploration permits, which are valid for 35 years. Before the petroleum development and production phase is approved, a decision-making process must be adopted that is public and involves stakeholders.
4. All existing marine charter reservations and agreements are in effect until 2020.
5. All commercial and recreational fishing vessels must comply with Seychelles Fishing Authority regulations.
6. All commercial tuna fishing vessels must comply with Indian Ocean Tuna Commission (IOTC) Regulations and Resolutions.
7. Seychelles-flagged fishing vessels will comply with an approach for improving sustainability of this fishery, 2018-2020. This approach will provide continued access to the area, and to any funding that will support fisheries improvements and develop ecosystem-based fisheries management plans. The approach will be developed in Phase 2, in consultation with stakeholders.
8. Using Fish Aggregating Devices (FADs) or other floating objects for the purposes of attracting fish, will be phased out in this area. All FADs and artificially created floating objects will be removed by 2020.
9. All allowable fishing vessels in this area must be working to, or have achieved, a high standard of sustainability by 2020, for example, Marine Stewardship Council Certification (MSC), Fisheries Improvement Plans (FIP).
10. Monitoring and research are needed to determine the evidence for sustainability in free school and FAD tuna fishing.
11. All commercial tourism activities in this area are working towards increased sustainability and improved management, and can demonstrate their long-term commitment to economic and ecological sustainability by 2020.
12. Temporal closures may be present in this area to protect whale shark aggregations and other seasonal animal life history behaviours.

Annex 7: Allowable Activities Table

Table 8. Allowable Activities for Phase 1 marine protection zones. Territorial sea waters not included except Aldabra and Assumption. C = conditional. X = restricted or prohibited. See below for number codes.

Sector	Marine Activity	Aldabra Group Zone 1	Amirantes – Fortune Bank Zone 2
Fisheries	Artisanal Fishing (Phase 2: table for each gear type)	X	C ^{1,5}
	Big game fishing	X	C ^{1,5,12}
	Demersal Trawl Fishing	X	X
	Fly Fishing, blue water	X	C ^{1,5,12}
	Fly Fishing, lagoon	X	C ^{1,5,12}
	Industrial Purse Seine (free school)	X	C ¹³
	Industrial Purse Seine (floating objects, FADs)	X	X
	Industrial Purse Seine Supply Vessel	C ¹⁴	C ¹⁴
	Industrial Pelagic Longline	X	C ¹³
	Aquaculture Development Zone (ADZ)	X	C ^{1,5}
	Aquaculture Inshore Zone	X	C ^{1,5}
	Aquaculture Land-Based Zone	X	C ^{1,5}
	Aquaculture Offshore Zone	X	C ^{1,5}
	Recreational Fishing	X	C ^{1,5}
	Semi-industrial Longline	X	C ^{1,5}
	Spear Fishing	X	X
	Sport Fishing	X	C ^{1,5,7,12}
	Subsistence Fishing	C ^{1,2,3}	C ^{1,2,3}
	Infrastructure & Maritime Security	Ballast and Bilge Dumping	X
Commercial shipping		C ^{5,8}	C ^{5,8}
Desalination		X	C ^{1,3,5}
Disposal and Dumping		X	X
Dredging		C ^{1,2,3,5}	C ^{1,2,3,5}
Ferries and Transportation		C ^{2,5}	C ^{1,5}
Fisheries Patrols and Surveillance (Coast Guard)		 ¹⁵	 ¹⁵
Ocean Thermal Energy Conversion (OTEC)		X	X
Ports, Marinas, Wharves, Jetties		C ^{1,2,3,5}	C ^{1,2,3,5}
Reclamation		X	X
Renewable Energy, tidal		X	C ^{1,2,3,5}
Renewable Energy, wind (offshore)		X	C ^{1,2,3,5}
Renewable Energy, wave		X	C ^{1,2,3,5}
Renewable Energy, solar (marine)		X	X
Underwater Cables		C ¹	C ¹
Non-renewable Resources & Bioprospecting	Bioprospecting Development	X	C ^{1,3,5}
	Deep-sea Mining	X	X
	Methane Gas Exploration, Development, Production	X	X
	Petroleum Exploration Geophysical Surveys	X	C ^{1,3,8}
	Petroleum Exploration Drilling	X	C ^{1,3,5}
	Petroleum Development, Production	X	C ^{1,3,5}
	Petroleum Shipping, during Extraction	X	C ^{1,3,5}
	Sand Mining	X	X
Tourism & Recreation	Anchorage and Mooring Buoys	C ^{1,2,4,5}	C ^{1,2,4,5}
	Cruise ships	C ^{1,3,4,11}	C ^{1,3}
	Floating structure, residential, commercial, non-profit	X	C ^{1,3,4,5}
	Marine charters, licensed hire craft	C ^{1,5,11,16}	C ^{1,2,5,16}
	Recreational Motorised Activities	C ^{1,5,11,16}	C ^{1,2,5,16}
	Recreational Non-Motorised Activities	C ^{1,2,5}	C ^{1,2,5}
	Tourism Accommodation, marine	C ^{1,3,5}	C ^{1,3,5}
	Tourism Accommodation, terrestrial	X	C ^{1,3,5}
Research	Bioprospecting Research	C ^{5,6}	C ^{5,6}
	Scientific Geophysical Surveys	C ^{1,3,5,6,8}	C ^{1,3,5,6,8}
	Scientific Research and Monitoring	C ^{5,6}	C ^{5,6}
	Hydrographic Surveys	C ^{5,6}	C ^{5,6}

Phase 1 Restrictions and Conditions for Allowable Activities

The following restrictions and conditions apply to activities within the boundary of all new marine protected areas proposed by the MSP process. The allowable activities were developed from 2014-2017 in consultation with marine sectors and stakeholders to ensure that activities and uses are compatible with the objectives for the new marine protected areas, and developed in accordance with the MSP Guiding Principles. The below list of restrictions and conditions apply to the new marine protected areas proposed in Phase 1, and may change for areas proposed in Phase 2, in consultation with stakeholders, and in the final marine spatial plan. Activities will also be elaborated in Phase 2, for example artisanal fishing with multiple gear types and/or techniques.

#	Restriction or Condition
1	Activity complies with approved management plans including environment impact assessment, where applicable.
2	To serve staff, facilities or infrastructure that manages the zone, including enforcement. Need quotas and monitoring. Only for island population. Not hotels or commercial activities.
3	Development proposals require a transparent and participatory process with all stakeholders.
4	Permanent mooring buoys recommended where practical; anchor in designated areas.
5	Restrictions may apply to avoid or minimise disturbance on key species and ecological functions.
6	Government approved permit required for research and monitoring activities.
7	Restrictions or prohibitions on gear or technique may apply. Catch and release may be required, depending on species targeted. Some techniques may be prohibited, such as popping.
8	All ships must have necessary functioning acoustic equipment and adequate trained operators to detect the presence of cetaceans to avoid and minimise detrimental effects at all times during operation in accordance with strict, international published scientific guidelines for minimising disturbance to cetaceans (e.g. JNCC).
9	Where licensed blocks already exist and only for scientific surveys (e.g., data collection and bathymetry, not extraction).
10	Exploration and development phases must adhere to strict standards for the sector incl. health, safety and environment
11	Jet skis are prohibited.
12	In accordance with bag limits, catch limits, rod limits and other gear or catch restrictions found in regulations, policies, management plans, or international conventions and agreements.
13	Fishing by foreign vessel prohibited (Fisheries Act, Reg. 5)
14	To retrieve or pick up FADs, only. No setting or deployment of FADs, and not other operations.
15	In accordance with SPDF.
16	The number of activities offered by marine charters may be limited, depending on the area's objectives.