

SEYCHELLES MARINE SPATIAL PLANNING (MSP) INITIATIVE

DRAFT MASTER LIST OF USES AND ACTIVITIES

Date: 21 October 2014

Version: 3.0

1. Introduction and context

Upon completion, the 'Master List of Uses and Activities' is intended to be a comprehensive list of uses and activities and their associated descriptions for the Seychelles Exclusive Economic Zone as it relates to marine spatial planning. The description will apply to all marine planning outputs for the Seychelles Marine Spatial Planning Initiative including zoning, objectives, and marine planning tools (e.g., compatibility matrix, recommended uses and activities tables). The list has received input from the Government of Seychelles, Seychelles Fishing Authority, Technical Working Group, Steering Committee, stakeholder engagement, MSP Technical Team, advisors to the process and others, from July 2014 to present. When this list is complete, it will contain the marine uses and activities that presently occur in the Seychelles EEZ as well as those with the potential to occur in the foreseeable future (10-20 years). The descriptions are not intended to define thresholds and/or acceptable intensity of use because these vary from place to place and will be determined by management prescriptions. **This is a living document - please provide your input.**

2. DRAFT Master List of Uses

| Theme | Use or Activity | Description - DRAFT |
|-------------|--|---|
| Mariculture | Nearshore: marine plants, shellfish, other invertebrates | Marine-based aquaculture. Activities currently are located outside Mahe on Coetivy and Praslin Islands. The Prawn Farm on Coetivy is 300 km from Mahe and raises giant black prawns in the ocean, exporting more than 835 tonnes of frozen prawns. The Pearl Oyster Farm on Praslin is in the National Park, between Praslin and Curieuse. It collects juvenile oysters from the wild to produce adult oysters. The Giant Clam Farm is under the same management as the Pearl Oyster Farm and raises clams on land near the Praslin airport. (source: Seychelles.org) |
| | Nearshore: finfish | Marine-based aquaculture for finfish. No present activities in the Seychelles. |
| | Offshore: finfish | Marine-based aquaculture that occurs in deep water. Does not exist yet in the Seychelles, and may exist in the future. |



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Seychelles Marine Spatial Planning Initiative
www.seychellesmarinespatialplanning.com

| Theme | Use or Activity | Description - DRAFT |
|--|------------------------------|---|
| Biodiversity and Fisheries Replenishment | Marine Protected Area (MPA) | A clearly defined geographic space that is recognised, dedicated and managed through legal or other effective means to achieve the long-term conservation of nature (Day et al. 2012) |
| | Biodiversity | The variability among living organisms from all sources including, inter alia, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are part; this includes diversity within species, between species and of ecosystem (UN CBD 1992) |
| | Conservation | The protection, care, management and maintenance of ecosystems, habitats, wildlife species and populations, within or outside of their natural environments, in order to safeguard the natural conditions for their long-term permanence (MEE 2013) |
| | Ecosystem | A dynamic complex of plant, animal and micro-organism communities and their non-living environment interacting as a functional unit (UN CBD 1992) |
| | Ecosystem Services | Means here those ecosystem services that are related to but do not interfere with the aim of nature conservation. These can include provisioning services such food and water; regulating services such as regulation of floods, drought, land degradation and disease; supporting services such as soil formation and nutrient cycling; and cultural services such as recreational, spiritual, religious and other non-material benefits (MEE 2013) |
| | Habitat | A place or type of site where an organism or population naturally occurs (UN CBD 1992). |
| | Protection | A policy, management or regulatory decision whereby habitats and species are protected from human access, extractive uses or mortality, and/or disturbance or alteration. Protection can vary from low to high. |
| | Fisheries Replenishment Area | Fisheries Replenishment Areas are scientifically-selected areas where all fishing is suspended or access is limited for a defined time period, either inside or outside of formally designated Marine Protected Areas. These areas may include fish aggregation sites, spawning sites, nurseries, high primary productivity sites, or other areas tied to reproduction and growth. As fish populations grow, the idea is that fish will spillover from the replenishment area and boost catch rates outside the reserve. Additionally, currents will disperse eggs and newly hatched fish to populate other habitats. For these areas to work, local fishers must be made aware of the short- and long-term benefits and given meaningful incentives to support and participate in their enforcement. In the Seychelles, the locations of the fisheries replenishment areas may change depending on the season. The Seychelles Fishing Authority management plan is currently addressing fisheries replenishment areas. |



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Seychelles Marine Spatial Planning Initiative
www.seychellesmarinespatialplanning.com

| Theme | Use or Activity | Description - DRAFT |
|----------------|-------------------------------|--|
| | Biotechnology | Any technological application that uses biological systems, living organisms, or derivatives thereof, to make or modify (UN CBD 1992) |
| Climate Change | Carbon sequestration | The process where natural sinks remove carbon dioxide from the atmosphere is called carbon sequestration. |
| | Carbon sink, natural | Natural systems that absorb or take up carbon and store it. Plants are natural carbon sinks, taking up carbon dioxide during photosynthesis. |
| | Carbon sink, artificial | Carbon sequestration can also refer to a mitigation technique to store carbon dioxide and/or other forms of carbon to defer or avoid climate changes (e.g., iron fertilisation and ocean storage). |
| Culture | Cultural and Natural Heritage | In the Seychelles, this refers to the cultural history of the nation including the French and British influences. Cultural heritage - Tangible cultural heritage: movable cultural heritage (paintings, sculptures, coins, manuscripts). immovable cultural heritage (monuments, archaeological sites, and so on), underwater cultural heritage (shipwrecks, underwater ruins and cities), Intangible cultural heritage: oral traditions, performing arts, rituals. Natural heritage : natural sites with cultural aspects such as cultural landscapes, physical, biological or geological formations (UNESCO 2014) |
| | Living Cultural Heritage | The intangible cultural heritage is transmitted from generation to generation, and is constantly recreated by communities and groups, in response to their environment, their interaction with nature, and their history. It provides people with a sense of identity and continuity, and promotes respect for cultural diversity and human creativity. The Convention for the Safeguarding of the Intangible Cultural Heritage defines the intangible cultural heritage as the practices, representations, expressions, as well as the knowledge and skills (including instruments, objects, artefacts, cultural spaces), that communities, groups and, in some cases, individuals recognise as part of their cultural heritage. It is sometimes called living cultural heritage, and is manifested inter alia in the following domains: Oral traditions and expressions, including language as a vehicle of the intangible cultural heritage; Performing arts; Social practices, rituals and festive events; - Knowledge and practices concerning nature and the universe; traditional craftsmanship (UNESCO 2014) |



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Seychelles Marine Spatial Planning Initiative
www.seychellesmarinespatialplanning.com

| Theme | Use or Activity | Description - DRAFT |
|------------------|------------------------------|---|
| | Seychelles culture | The way of life, customs, institutions and achievements of the Seychelles including behaviours, beliefs, values and symbols that they accept and pass along from one generation to the next (UNESCO 2014). Seychelles culture includes African, European and Asian origins. The distinct traditions and customs contribute to the way of life and vibrant Seychellois culture (Seychelles Travel). |
| | World Heritage Site (UNESCO) | A UNESCO World Heritage Site is a place that is listed by the United Nations Educational, Scientific and Cultural Organization as of special cultural or physical significance (UNESCO 2014) |
| | Traditional Knowledge | “Traditional knowledge is a cumulative body of knowledge, know-how, practices and representations maintained and developed by peoples with extended histories of interaction with the natural environment. These sophisticated sets of understandings, interpretations and meanings are part and parcel of a cultural complex that encompasses language, naming and classification systems, resource use practices, ritual, spirituality and worldviews For example, local knowledge of the spawning aggregation of the rabbitfish (UNESCO 2002) |
| Education | Education | Any improvement in behaviour, information, knowledge, understanding, attitude, values or skills (UNESCO 1997); acquiring and using knowledge. |
| Renewable Energy | Renewable Energy | Energy generation from wave, wind, tidal and/or other renewable marine sources. Includes facilities and infrastructure such as generation structures fixed or anchored to the seabed or foreshore, accommodation, and industrial facilities such as maintenance buildings. Does not include transmission or distribution lines on land or in the sea, which are included under the definition of linear utilities. Renewable energy projects in the Seychelles are helping the island nation decrease power outages, address long-term energy security, and reduce its carbon footprint. (source: Masdar 2013). Renewable energy is currently located near the coast and there is a 8-turbine wind farm on two islands off the coast of Mahe. Tidal is a potential for the larger atolls only as water moves through the channels (Farquar, Cosmoledo & Aldabra). OTEC (Ocean Thermal Energy Conversion) uses the temperature difference between surface and deep waters. OTEC development could be located along edge of plateau (need a vertical drop of ~1000m) and may be suitable for the atolls. Very expensive. Floating platform with transmission lines (up to 200 MegaWatts). Currently a proposal from Japan for the Mahé Plateau and transmission lines would lay across the plateau. |



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

| Theme | Use or Activity | Description - DRAFT |
|---|--------------------------------|---|
| Oil, Gas & Mining | Oil and gas | Exploration and development to extract hydrocarbons from geological formations (e.g., rock, sand). In the Seychelles, licensed concessions are present on and off the Mahé Plateau. |
| | Minerals and Aggregates mining | Marine operations associated with extracting minerals and aggregates (including sand and gravel) from foreshore, nearshore and offshore areas, as well as related facilities and infrastructure used during mining operations at-sea. Does not include wharves or docks attached to the shore (used for loading or transporting mined products from terrestrial mining operations) because these are included under the definition of docks |
| Fishing (see definitions from Seychelles Fishing Authority) | Artisanal | Fisheries that target fish on the sea floor (demersal), semi-pelagic species and numerous invertebrates at different times of the year. These fisheries use small, motorised boats. Artisanal fisheries employ about 1,700 individuals and account for 4% of the Seychelles workforce (2005). These fisheries include a variety of gear and vessel types: handline, trap, harpoon, net for a number of species (lobster, mackerel, octopus, shark, demersal fish, semi-demersal fish). The fishery is small in terms of overall employment and wealth generation yet plays a vital role in meeting daily protein requirements for Seychellois (source: Seychelles.org; Clifton et al 2012). |
| | Fishing (general) | There are five types of fishing in the Seychelles: artisanal, semi-industrial, and industrial, recreation and sport fishing. It is prohibited to use spear guns and demersal trawling in Seychelles waters. It is prohibited to export live fish and mother ship ventures with dories are prohibited on the Amirantes and Mahe plateaus. Fishing with nets is prohibited in certain areas of the reefs on all three main granitic islands. Fishing is prohibited in the Marine Parks around the granitic islands. Most fish is consumed fresh. High quality species are sold to export and fish processing companies for hotels or export on ice to Europe. Some fish are smoked (sailfish and marlin). Ninety-two percent of the Seychelles domestic export of fish go to France, Japan, Germany, Mauritius, Reunion and the United Kingdom (source: seychelles.org) |
| Fishing Infrastructure | Processing facility | Commercial facilities that process marine fish or invertebrates for example canning, smoking, and salting of fish catches. |



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

| Theme | Use or Activity | Description - DRAFT |
|-----------------------------------|------------------------------------|--|
| Food Security | | The World Food Summit of 1996 defined food security as existing “when all people at all times have access to sufficient, safe, nutritious food to maintain a healthy and active life”. Commonly, the concept of food security is defined as including both physical and economic access to food that meets people's dietary needs as well as their food preferences. Food security is a complex sustainable development issue, linked to health through malnutrition, but also to sustainable economic development, environment, and trade. Three main issues are: 1) food availability: sufficient quantities of food available on a consistent basis; 2) food access: having sufficient resources to obtain appropriate foods for a nutritious diet; and 3) food use: appropriate use based on knowledge of basic nutrition and care, as well as adequate water and sanitation. Globalization may - or may not - lead to the persistence of food insecurity and poverty in rural communities (WHO 2014). In the Seychelles, it is linked to ensuring protein from marine sources and employment in marine environment. |
| Infrastructure & Public Utilities | Anchorage and moorings | Anchoring sites and mooring buoys for recreational and small artisanal fishing vessels. Includes temporary vessel anchoring at designated sites, mooring buoys. Does not include docks, wharves, piers, or related facilities in marinas and harbours. |
| | Commercial Moorings | Large, permanent moorings for large commercial vessels, typically associated with a commercial port. Used by commercial vessels or ships prior to entering a ports shoreside facilities. In the Seychelles, commercial moorings are heavily used all year round. The Seychelles Port Authority is seeking funds to extend the commercial port and “draft” depth from the current depth of 9.5 m, to up to 12 m deep. (Definitions being provided by SPA and SMSA) |
| | Dredging and at-sea disposal sites | Deliberate and approved disposal of dredged materials at sea, at designated sites. Typically, the majority of the material disposed of at sea is dredged material that must be moved to keep shipping channels and harbours clear for navigation and commerce (Environment Canada) |
| | Marine debris | Human-created waste that is disposed of into the sea, originating from marine or terrestrial sources (UNEP) |



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

| Theme | Use or Activity | Description - DRAFT |
|-------|---|---|
| | Maritime security | Marine infrastructure for Seychelles government agencies responsible for maritime security and search and rescue. The Coast Guard is located at Perserverance and the Seychelles Marine Safety Agency is located at the Port of Victoria, where they are assisted by the Seychelles Port Authority. |
| | Ports, marinas, harbours, and mooring buoys | Harbour means the harbour of Victoria and any bay, roadstead or place within three nautical miles from any coast within the Republic of Seychelles (Seychelles Harbour Act and Seychelles Fisheries Bill). Ports, harbours and marinas are facilities designed to attract and accommodate commercial vessels or ships, industrial vessels, community, public or private vessels and uses. Includes docks, wharves, piers, ramps, breakwaters, and related structures in harbours, marinas and ferry terminals, and associated marine services (e.g., ways, repairs, food services, pump-out sites, fuel). Includes moorings for fisheries (e.g., artisanal). Structures may be affixed to the foreshore and seabed by pilings or floats, or involve foreshore fill. Includes commercial ports. Structures may be affixed to the foreshore and seabed by pilings or floats, or involve fill. Includes the marine area that defines a port boundary and also marine transportation areas. |
| | Point source utilities | Outfalls and discharge points, including but not limited to those used for sewage, wastewater and stormwater for public, private, commercial and/or industrial purposes. |
| | Reclamation | The process of creating new land from oceans and other aquatic habitats. In the Seychelles, the first reclamation projects began in the 1960s on the east coast of Mahe for the port and airport expansion. Between 1973-1999, four more reclamation projects brought reclaimed land area to 750 ha. A reclamation projected completed in 1999 created another 350 ha (East Coast III). |
| | Telecommunications | Underwater lines and structures including, but not limited to those used for flow, transit, distribution or broadcast of water, electricity and telecommunication services for public and/or private purposes. Generally on or under the seabed or anchored to the seabed but may also be suspended in the water column. Includes associated rights of way. Includes associated infrastructure and rights-of-way. |
| | Water waste management | Waste water from industrial, commercial and residential sources. |



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

Seychelles Marine Spatial Planning Initiative
www.seychellesmarinespatialplanning.com

| Theme | Use or Activity | Description - DRAFT |
|----------------------|-------------------|---|
| Tourism & Recreation | Public recreation | <p>Public recreation differs from tourism in that this does not involve a paid service component. Equipment may be owned or rented by the user, and is usually done by local residents. Where locals engage in an activity that involves a paid service, such as whale watching, this would be a “tourist” activity. Public recreation includes but is not limited to: birding, boating, jet skiing, kayak staging and landing areas, motor boating, sailing, scuba diving, snorkelling, stand up paddle boarding, surfing, swimming, temporary anchorage, water skiing, whale watching, wildlife viewing and windsurfing. In the Seychelles, recreation is most intense on and around the Inner Islands. Most recreational boaters remain with a few kilometres of the shoreline. Recreation, like tourism, has a seasonal component, with August approaching the “high season”. In the future, more types of watercraft will be available for people to use and access the marine waters.</p> <p>It is not possible to break down every possible use in this category however within a zone or planning area, compatible uses may be identified that specify uses, for example, motorised vs. non-motorised uses, or extractive and non-extractive uses. Public recreation may involve the use of recreational anchorages and moorings.</p> |
| Tourism | Tourism | <p>Tourism involves a paid service component and/or revenue generation. Tourism is a commercial activity operated to benefit tourism or serve tourists, and may also serve local residents. May include a paid service component such as crewed boats, guiding and interpretation, cultural tourism, nature-based adventure and ecotourism. Includes lodging, hotels, resorts, and eco-lodges. Tourism activities that focus on coastal environments generate 25% of GDP for Seychelles and employ 21% of the workforce (source: National Bureau of Statistics 2009). Tourism primarily is centred on and around the Inner Islands, and a few of the Outer Islands, such as Amirantes Group. The highest intensity for tourism is on the largest islands. The effect of tourism on the ecosystem will be a function of intensity of use and sensitivity of the ecosystem. There is a seasonal aspect to tourism, with the “high season” occurring in August. There is also an east-west spatial shift in uses of beaches because of the SE monsoon. In the future, travel to the Outer Islands may increase and possibly “bare boat” charters, the latter that may pose a threat to coral reef habitats so management measures would need to be taken.</p> |



GLOBAL ENVIRONMENT FACILITY
INVESTING IN OUR PLANET

| Theme | Use or Activity | Description - DRAFT |
|-----------------------------|--------------------------------|--|
| Research | Scientific research | Activities designed to establish or expand knowledge of the marine environment and undertaken by educational institutions, research institutions, surveyors, research companies or consultants. Also includes citizen science, non-profit activities and locally based research and monitoring activities. |
| Transportation and Shipping | Ferries | Passenger carrying vessels that operate between two points of land. In the Seychelles, there are ferries between Mahe, Praslin and La Digue islands. |
| | Shipping lanes - international | Traffic regulations specified by the International Maritime Organisation (IMO). In the Seychelles, there are no traffic separation schemes but there are dedicated North and South Approaches as laid down by the IMO and clearly marked on British Admiralty charts No. 740 and 742. Also, there are North and South Reporting Points, Areas to Be Avoided, and Designated Anchorages both inside and outside the Port Limit that have been adopted by the IMO (Seychelles Port Authority). |
| | Shipping lanes - petroleum | Possible future traffic regulations for the movement of ships carrying hydrocarbons. |

3. Sources

Clifton, J., M. Etienne, D.K.A. Barnes, R.S.K. Barnes, D.J. Suggett and D.J. Smith. 2012. Marine conservation policy in Seychelles: current constraints and prospects for improvement. *Marine Policy*. 36: 823-831.

Day, J., N. Dudley, M. Hockings, G. Holmes, D. Laffoley, S. Stolton, and S. Wellis. 2012. Guidelines for applying the IUCN protected area management categories to marine protected areas. Gland, Switzerland: IUCN. 36 pp.

Fishing in Seychelles. 2014. Personal communication, Mr. Henry Riggs-Miller.

International Union for the Conservation of Nature (IUCN).

Masdar. 2013. Port Victoria Wind Power Project in Seychelles. <http://www.masdar.ae/en/media/detail/seychelles-wind-farm>. Accessed 18 July 2014.

National Bureau of Statistics. 2010. Seychelles in figures 2010. Victoria, National Bureau of Statistics. http://www.nsb.gov.sc/files/Reports/SIF_2009.pdf. Accessed 21 July 2014.

National Bureau of Statistics. 2013. Seychelles in figures 2013. Victoria, National Bureau of Statistics. http://www.nsb.gov.sc/wp-content/uploads/2014/03/Seychelles-In-Figures-2012_2013-Edition.pdf Accessed: 23 July 2014

Seychelles Fishing Authority (SFA). 2014. Personal communication, Jude Bijoux. Received 9 Oct 2014.



Seychelles.org. 2013. The Fishing Industry. <http://www.seychelles.org/fishing-industry#axzz37yENifOQ>. Accessed 18 July 2014.

Seychelles Ministry of Environment and Energy. 2013. Seychelles Protected Area Policy.

United Nations. 1992. Convention of Biological Diversity. Article 2. Use of Terms. <http://www.cbd.int/doc/legal/cbd-en.pdf>. Accessed 14 October 2014.

UNESCO. 2014. http://www.unesco.org/services/documentation/archives/multimedia/?id_page=13&PHPSESSID=743f303f0b2452205c4a672fde9310bc. Accessed 20 October 2014.

UNESCO/ICSU, 2002, Science, Traditional Knowledge and Sustainable Development, p. 9. ICSU: Paris.

UNESCO 1997. International Standard Classification of Education, ISCED. http://www.unesco.org/education/nfsunesco/doc/isced_1997.htm Accessed 20 October 2014.

Vuksanovi, Zoran. 2008. Ile Perseverance, new town in Seychelles – Innovative way of avoiding urban sprawl 44th ISOCARP Congress 2008. http://www.isocarp.net/data/case_studies/1133.pdf. Accessed 21 October 2014.

World Health Organisation (WHO). 2014. Food Security definition . <http://www.who.int/trade/glossary/story028/en/>. Accessed 20 October 2014.

For more information about the Seychelles MSP Initiative, please visit the website or contact the MSP Coordinator:

www.seychellesmarinespatialplanning.com

Ms. Iris Carolus

E-mail: carolusiris@yahoo.co.uk



Seychelles Marine Spatial Planning Initiative
www.seychellesmarinespatialplanning.com