



DPLUS094

Developing Marine Spatial Planning (MSP) for the Turks and Caicos Islands



Setting the Scene
Grand Turk 31st January 2020
Workshop Report



This report was prepared as part of the Darwin PLUS 094 project ‘Developing Marine Spatial Planning (MSP) Tools for the Turks and Caicos Islands’ for all stakeholders and interested parties in the Turks and Caicos Islands and overseas.

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Introduction

Marine Spatial Planning (MSP) background

Like the rest of the world, human use of coastal and marine resources in the Turks and Caicos Islands is placing growing and often conflicting demands on natural resources. Consequently, important marine ecosystems e.g coral reefs, mangroves, and seagrass beds. are under increasing pressures that threaten both their health and the environmental services they provide, such as coastal protection from storms, fishing grounds (Ulman *et al.*, 2016) , and tourism-based economies (Baldwin *et al.*, 2015). An established approach to managing these multiple uses of the marine environment is MSP.

Spatial data and MSP

The spatial component of MSP involves the collection and collation of multi-disciplinary data, in an accessible format and at multiple scales, from a number of sources (Shucksmith *et al.*, 2014) Stakeholder engagement is central to the MSP process (Ehler and Douvère, 2009). This process can serve to improve stakeholder understanding and involvement in decision-making and governance (Baldwin *et al.*, 2015), which helps in the success of MSP projects (Kelly *et al.*, 2014).

TCI general background

The Turks and Caicos Islands (TCI) is one of 14 United Kingdom Overseas Territories (UKOT), a small island in the Caribbean that lies south-east of the Bahamas chain, 145 km north of Hispaniola (Haiti and the Dominican Republic) and 925 km south-east of Miami (Figure 1). The easterly occurring Turks Islands are separated from the Caicos Islands by a deep-water channel approximately 35 km wide. TCI is relatively flat. Providenciales rises to a high point of 50 m above sea level and Flamingo Hill on the North Western point of East Caicos has an altitude of also approximately 50 m. Sinkholes, caves and ridge formations are common. The islands consist largely of Pleistocene oolitic limestone and unconsolidated Holocene sands. The human population of TCI is 42,953 (2019), and the total area of the EEZ is 154,058 km². Tourism is the main contributor to the TCI economy, followed by the offshore financial sector; fishing for export to the US (mainly lobster and conch) is the third most important economic sector in the islands.

An overview of existing MSP in TCI

The Turks and Caicos Island Government (TCIG) has a number of departments e.g. DECR, Tourism, Ports, Police, that work in the Marine environment – some of whom have management and/or enforcement functions. In addition, non-governmental organisations and the private sector also undertake activities in the marine space However currently no overall strategic approach to the spatial planning of the marine environment. The

It is to their credit that TCIG have well-established Marine Protected Areas that were originally designated in the 1980;'s (Mitchell and Barborak, 1991; Zuidema, Plate and Dikou, 2011). Marine parks were created to provide protection for the natural resources of the TCI and to provide management of marine areas for the benefit of tourism, fishing and boating (Logan and Sealey, 2013). The TCI now has 35 protected areas consisting 11 National Parks, 11 Nature Reserves, four Sanctuaries and nine Areas of Historical Interest, all declared under the TCI National Parks Ordinance (Figure 1, Table 1), 28 of which have a marine component.



DPLUS094 project background

The aim of the DPLUS094 MSP project is twofold:

- 1) develop an island wide metadata catalogue with a GIS database so that existing spatial and temporal data can be mapped and analysed to identify areas used by humans and wildlife, most important ecological areas, zones of conflict and any data gaps; and
- 2) create the framework and tools that will facilitate the implementation of MSP in TCI and legislation, which will feed into the long-term planning and decision-making.

Workshop series background

Stakeholders play a key role in any MSP process, and therefore the DPLUS094 project has a series of workshops built into the project delivery to ensure that there is regular stakeholder consultation and input.

In January and February 2020, four workshops (South Caicos 27th January 2020, Grand Turk 31st January 2020 and Providenciales 4th and 5th February 2020) were held across the Turks and Caicos Islands to initiate stakeholder dialogue.

The aims of these workshops were:

- to inform the stakeholders of the existence of the project and give them background on the MSP process
- to share MSP examples from other overseas territories, to provide context for MSP in the Turks and Caicos Islands
- to discuss and identify what the stakeholders consider to be the important marine values of the TCI.
- for stakeholders to share their expertise, thoughts and vision for the MSP process in the Turks and Caicos.
- to discover what data was currently available for the marine environment on TCI.

Once identified, data for the marine values will be collected, collated and loaded into a central island-wide metadata catalogue and GIS database. Using WebGIS, a GIS database interface that works through a web browser, the spatial and temporal information will be available to be visualised online. Data will be overlaid and used to identify overlaps between marine values and human uses and gaps in the data that need to be filled.

This report focusses on the Grand Turk workshop.

General background to Grand Turk

Grand Turk (Figure 1) has a land area of 18 km² and is the largest island in the Turks Islands with a population of 4,831. Grand Turk contains the islands capital Cockburn Town, and is the centre of Government in the Turks and Caicos, with tourism as the primary economic driver. Grand Turk also boasts pristine diving with the sheer drop-off the coral wall with a vast diversity of corals, and large marine vertebrates, including sharks, rays, whales and turtles attracting scuba divers the world over.



Grand Turk also has the only cruise centre in the Turks and Caicos, where during the peak season cruise liners dock on a daily basis.

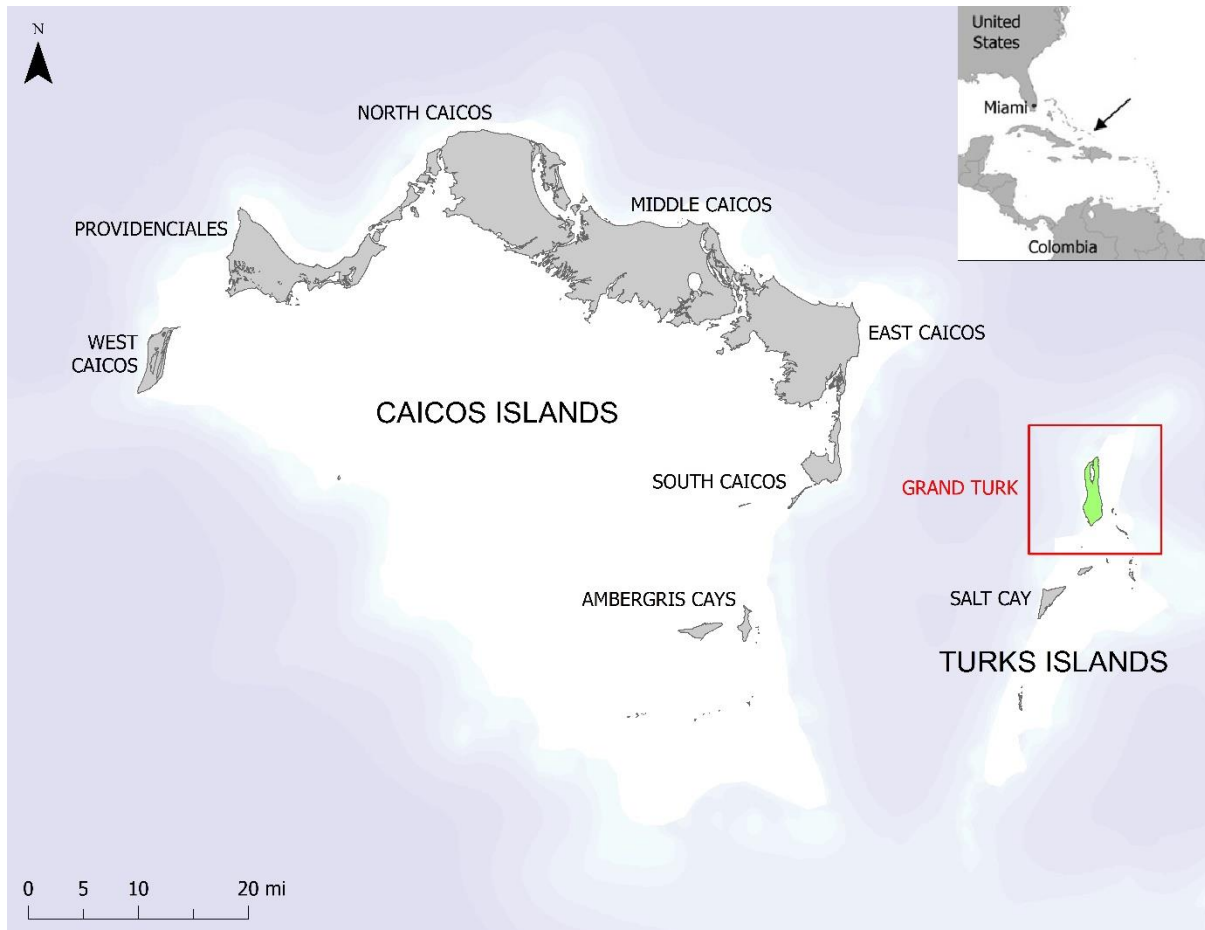


Figure 1 Grand Turk and the Turks and Caicos Islands

Workshop programme and participants

Participation

On the 31st January 2020, 16 representatives of marine stakeholder groups from Grand Turk gathered in the Department of Environment and Coastal Resources (DECR). ([See annex 1 for list of participants](#))



Figure 2 Grand Turk workshop participants

Workshop programme

After a series of introductory presentations, the participants were divided into two working groups. Group 1 was given a map of Grand Turk (Figure 3) to focus on the local marine environment and Group 2 was given a map of the Turks and Caicos Islands (Figure 4) to focus on the national marine environment (Figure 2). ([See annex 2 for full workshop programme](#))



Figure 3 Grand Turk



Figure 4 Turks and Caicos Islands

The sessions were chaired Luc Clerveaux (DECR).

The groups were then asked to complete each of the following tasks by marking up the maps. The groups were given 5 minutes for each task.

1. On your map draw, using a coloured pen, what marine habitats exist in and around Grand Turk
 - a. Coral Reefs – Brown Pen
 - b. Mangroves – Red Pen
 - c. Seagrass – Green Pen
 - d. Other (describe) – Yellow Pen
2. What three marine areas do you consider to be most vulnerable, and why?
 - a. Write one word on a pink coloured label for each of your three marine areas, why you consider it to be vulnerable and then stick your label on the map to identify your vulnerable marine area.
3. What do you think are the three marine species that occur around Grand Turk that you consider to be most important and where are the main places they occur?
 - a. Write each species on a max of 5 green coloured labels for each species and then stick the labels on the map to identify the main places where the species occur
4. What are your top three favourite marine places in Grand Turk, where and why?
 - a. Write one word to describe why this is one of your top three favourite places on an orange label and then stick the labels on the map
5. What current human marine activities are taking place in Grand Turk and where?
 - a. Write a list of marine activities
 - b. Code each marine activity



- c. Write marine activity code in yellow label and stick label on the map

Once these five tasks were complete the maps were swapped between groups and the five tasks were repeated by each group on the swapped maps.

Finally, a discussion and brain storming session involving the whole group was held to answer the following three questions:

6. What are your suggestions for other information we should include and where could/should we get it from?
7. What keywords should be included in the stakeholder vision for MSP TCI in Grand Turk?

*“Ensuring a well managed marine and coastal areas and resources of the Falkland Islands for **sustainable economic development** whilst **protecting our biodiversity** and wild unspoilt areas, and supporting the **safe use** of the sea and celebration of our maritime heritage”.*

Figure 5 Stakeholder vision example from the Falkland Islands

8. What top three things would it be useful for you to have mapped?

Workshop outcomes.

A key activity in the workshop was for the participants to go through process of thinking through the multiple activities in the marine environment, and visually experiencing the overlap of multiple activities within the same space (Figures 6 & 7). It did not follow any formal participatory mapping methodology, as the exercise did not aim to formally ‘place’ activities within the marine space for planning purposes.

The maps below show the final outputs from the exercises described in the workshop programme. These maps have also been uploaded into the project WebGIS and will be available as a spatial layer online (Figures 4 and 5). A summary of each of the exercises undertaken by participants is provided in the following sections.



Figure 6 Participant mapping of marine activities in Grand Turk: Habitats (coral – brown pen, seagrass – green pen, mangroves – red pen, other – yellow pen), vulnerable marine areas (pink labels), marine species (green labels), favourite marine places (orange labels), human activities (yellow labels).



Figure 7 Participant mapping of marine activities in the Turks and Caicos Islands: Habitats (coral – brown pen, seagrass – green pen, mangroves – red pen, other – yellow pen), vulnerable marine areas (pink labels), marine species (green labels), favourite marine places (orange labels), human activities (yellow labels).

Although the purpose of the exercise, as described above, was not to formally place activity within the marine environment, there were some interesting points that emerged as a result of undertaking this activity. Some of these points are outlined below:

Marine habitats in and around Grand Turk

In Task 1, workshop participants identified the general areas where coral reefs, seagrass and mangrove habitats exist in and around Grand Turk. The coral reefs are predominately to the east and south of Grand Turk fringing the deeper waters, while the seagrass is found mainly in the shallower sandy environment West of the island and in the Caicos Bank. Mangroves were also mainly in the shallower waters of the Caicos Bank side of the island (Figures 6 & 7).

Vulnerable marine areas

In Task 2, workshop participants considered the marine areas that they saw as vulnerable (Figures 6 and 7). These include those listed in the following table with a brief description of their vulnerability.

Marine Area	Vulnerability
Salt Cay	Litter, Cruise Port, Marina
Gibs Cay	Over Fishing, Lack of Enforcement
Governors Beach	Cruise Ships, Wreck (Mega One Triton)



Great Sand Cay	Poaching
Matersons point	Trash
Gun Hill	Development
Cockburn Town	Eutrophication
Pillory Beach	Stoney Coral Tissue Loss Disease, Development, Number of People Markings
Salinas	Eutrophication
North Creek	Pollution, Marina
Beach East of North Creek	Sargassum

Important marine species that occur around Grand Turk

In Task 3, workshop participants identified marine species that they saw as being important around Grand Turk identified (Figures 6 & 7). These included: Dolphins, Whales, Sharks, Eagle Rays, Sea Birds, Flamingos, Lobster, Conch, Turtles – Green and Hawksbill, Red Snapper, Fishes, Birds, Reef Sharks

Favourite marine places in Grand Turk

In Task 4, workshop participants identified their favourite in Grand Turk. (Figures 6 & 7). Areas identified included those below.

Favourite Place	Why?
Governors Beach Area	Beach, Tours, Conch
Pillory Beach	Sun Sets
East of North Creek	Habitats
English Point	Tours, Conch, Beach
Cockburn Town	Beach Wall
Gun Hill	Habitat
Gibs Cay	Camping, Sting Rays,
Salt Cay	Scuba Diving
Round Cay Reef	
North Creek	
Great Sand Cay	

Human marine activities taking place in Grand Turk

In Task 5, the workshop participants created a list of the human activities taking place in and around the marine environment of Grand Turk ([also see annex 3 – outputs from the workshop figures 9 and 10](#)). There was no weighting or prioritisation of these activities – the full list from Grand Turk is outlined below:

Human Activities	
Fishing	Whale Watching
Illegal Fishing (including bleaching conch and lobster)	Sting Ray Encounters



Free Diving	Jet Skiing
Scuba Diving	Sailing
Snorkelling	Boating
Kayaking	Bird Watching
Speare Fishing	Sight Seeing
Stand-up Paddle Boarding (SUP)	Power Snorkelling
Shipping	Water Sports

Additional information

The workshop participants suggested that the following data be included in the development of the MSP tool. These data will need to be mined and collated, and if not available, will be identified as data gaps ([also see annex 3 – outputs from the workshop figures 11 & 12](#)).

Enforcement – Marine Vessels, Education, Navigation Aids, Waste Management – Sewage/Landfill, Moorings, National Parks, Mooring Fields, Boat Access, Vendors Markets, Signage, More Protected Areas, Anchorage, Physical Structures – Docks, Favourite Hangouts, Animal Distribution, Water Depths, Conservation Areas, Human Activities, Swim Zones, Vulnerable Areas, Beach Access – Marked, Reefs, Topography, Dive Sites, Cruise Port – White Sand Beach – Management of Multiple Activities, Planning – Beach Vendors, Swimmers, Horse Riding, Tube Ride

Priority mapping

The workshop participants thought that it would be important to map the following as priorities ([also see annex 3 – outputs from the workshop figure 13](#))

Navigational Aids, Mixed Use Sites, Temperature Gradients, Anchoring Zones, Swimming Zones, Mooring Field

Vision and objectives for MSP

One of the project aims is to develop a vision for MSP in TCI. It was therefore suggested that the stakeholders make a list of keywords or statements they would like to be included in the vision statement.

The words that the workshop participants suggested that they would like to see included in the MSP vision for Turks and Caicos Islands are outlined in Figure 8.

Celebrate/Embrace, Adaptable, Long Lived, Cultural Embrace, Clean by Choice, Resilience, Eco-Tourism, Cultural Heritage, Natural Reefs, Enforcement, Environment Strategy, Education, Beautiful by Nature (TCI Motto), Mixed Use, Effective Communication, Economic Development, History, Self-Sustainable Development, Equity (Economic), Knowledge (Environment), Public – Private Partnership, Joy Unspeakable, Unspoilt, Manage and Monitoring, Holistic – Centred around people integrating, Social Economic Balance, Long Term Vision and Short-Term Vision – Generation to Generation. Using these keywords, the MSP project officers will continue to work with the Grand Turk stakeholders to draft a vision for the MSP project in TCI.



Figure 8 Grand Turk word cloud showing keywords to include in the vision statement

Conclusion

This was the second of four workshops to be held in the Turks and Caicos Islands for the MSP project. The MSP process was introduced and with important input from the stakeholders, marine habitats, vulnerable areas, important species, favourite places and current marine activities were identified.

The process of sticking labels on maps provided the stakeholders with a visual representation of the potential overlap in marine activities and marine values around Grand Turk.

This Grand Turk workshop was attended by range of stakeholders from a variety of sectors, tour operators, hoteliers, cruise centre, museum and government.

Next steps

The information gathered during this workshop will be used in the development of the MSP GIS database and data portal, and to help develop a framework for MSP in the Turks and Caicos Islands.

It was agreed that feedback/consultation meetings happen every two months to discuss MSP TCI progress and that the MSP TCI project team will work on the vision with the Grand Turk stakeholders.

The workshop report will be circulated to the workshop invitees and participants and project stakeholders. Other workshop reports can be found [here](#)

Maps from the stakeholder workshops have been uploaded to the WebGIS. We will provide a link to the WebGIS once it is available.



Annex 1 – Workshop invitees and attendees

The following organisations were invited to the workshops:

White Sand Charters
Wet Money
Chukka
Air Tours and Watersports
Exclusive Escapes
Ocean Vibes
Papa J Tours
Humpback Dive Shack
Salt Cay Divers
Oasis Divers
Bohio Dive Resort
Blue Water Diving
Grand Turk Diving
Cruise Centre
Port Authority
Tourism Department
Turks and Caicos Museum (TCNM)
Department of Environment and Coastal Resources (DECR)
Central Information and Technology Unit (CITU)
Department of Planning (DoP)

The following people participated in the workshop

Eugene Badresingh (Chukka)
Ed Forbes (Exclusive Escapes)
Eric Forbes (Exclusive Escapes)
Michael Pateman (TCNM)
Rebecca Hamel Pepin (Oasis Divers)
Henry Jones (Blue Water Divers)
Gary Astwood (Exclusive Escapes)
Hassen Martial (Exclusive Escapes)
Reginald Charles (Planning Department)
Algrove Smith (Grand Turk Divers)
Tony Mendez (Aquaholics Watersports)
Romaine Cunningham (Ocean Vibes)
Manual Planco (Ocean Vibes)
Vishal Kakkanad (Grand Turk Cruise Centre)
Desmond Hill (Grand Turk Cruise Centre)



Annex 2 – Workshop programme

The workshops were organised and facilitated by Luc Clerveaux (DECR), Dr Julian Tyne (SAERI) and Tara Pelembe (SAERI). A prayer was given at the start of the workshop by Luc Clerveaux followed by a presentation on the MSP process in the Falkland Islands by Dr Paul Brickle (SAERI) and an overview of the project in the Turks and Caicos by Dr Julian Tyne, a demonstration of WebGIS by Marcin Gorny (SAERI), discussions, group sessions and brain storming. Participants were provided with an overview of the workshop and how it was part of the initial step to inform and consult with stakeholders to help define the needs and contexts of MSP in the Turks and Caicos Islands. This is an important process as it sets the scene for stakeholders to understand and be involved in assessing the needs and benefits of MSP in the Turks and Caicos Islands, from a Grand Turk perspective.

Developing Marine Spatial Planning (MSP) Tools for the Turks and Caicos Islands –Stakeholder Workshop.

Grand Turk: 31st January 2020

Time	Topic	Presenter
11:00 -11:05	Prayer	Selected participant
11:05 – 11:10	Opening remarks, introductions and setting the scene	Luc Clerveaux
11:10 – 11:20	Introduction to SAERI and the Falkland Island MSP example	Dr Paul Brickle
11:20 – 11:30	Developing (MSP) Tools for the TCI	Dr Julian Tyne
11:30 – 11:35	Introduction to the breakout session	Dr Julian Tyne
11:35-11:40	What marine habitats exist in and around Grand Turk/TCI (Coral Reef, Mangroves, Seagrass and other)	Facilitated session (Dr Julian Tyne)
11:40:11:45	What 3 marine areas do you consider to be most vulnerable? To what and why?	Facilitated session (Dr Julian Tyne)
11:45– 11:50	What three (3) marine species occur around Grand Turk, do you consider most important. Where are the main places that they occur?	Facilitated session (Dr Julian Tyne)



11:50 – 11:55	What are your top 3 favourite marine related places in Grand Turk – why, where.	Facilitated session (Dr Julian Tyne)
11:55 - 12:05	What current marine activities are taking place in Grand Turk and where (human).	Facilitated session (Dr Julian Tyne)
12:05– 12:10	Break – grab a tea/coffee, snacks and return to the session.	
12:10 – 12:35	Repeat the exercise on different map	Facilitated session (Dr Julian Tyne)
12:35 – 12:40	WebGIS demonstration to show marine spatial data for TCI	Marcin Gorny
12:40 – 12:45	What are your suggestions for others information should we include and where could/should we get it from?	Facilitated session (Dr Julian Tyne)
12:45 – 12:55	Stakeholder vision for TCI MSP (Grand Turk context) List three keywords that would be in your vision statement	Facilitated session (Dr Julian Tyne)
12:55 – 1:00	What top 3 things would it be useful for you to have mapped?	Facilitated session (Dr Julian Tyne)
1:00 – 1:05	Wrap up and next steps	Luc Clerveaux



Annex 3 – Outputs from the workshop

Lists from the MSP TCI workshop on Grand Turk

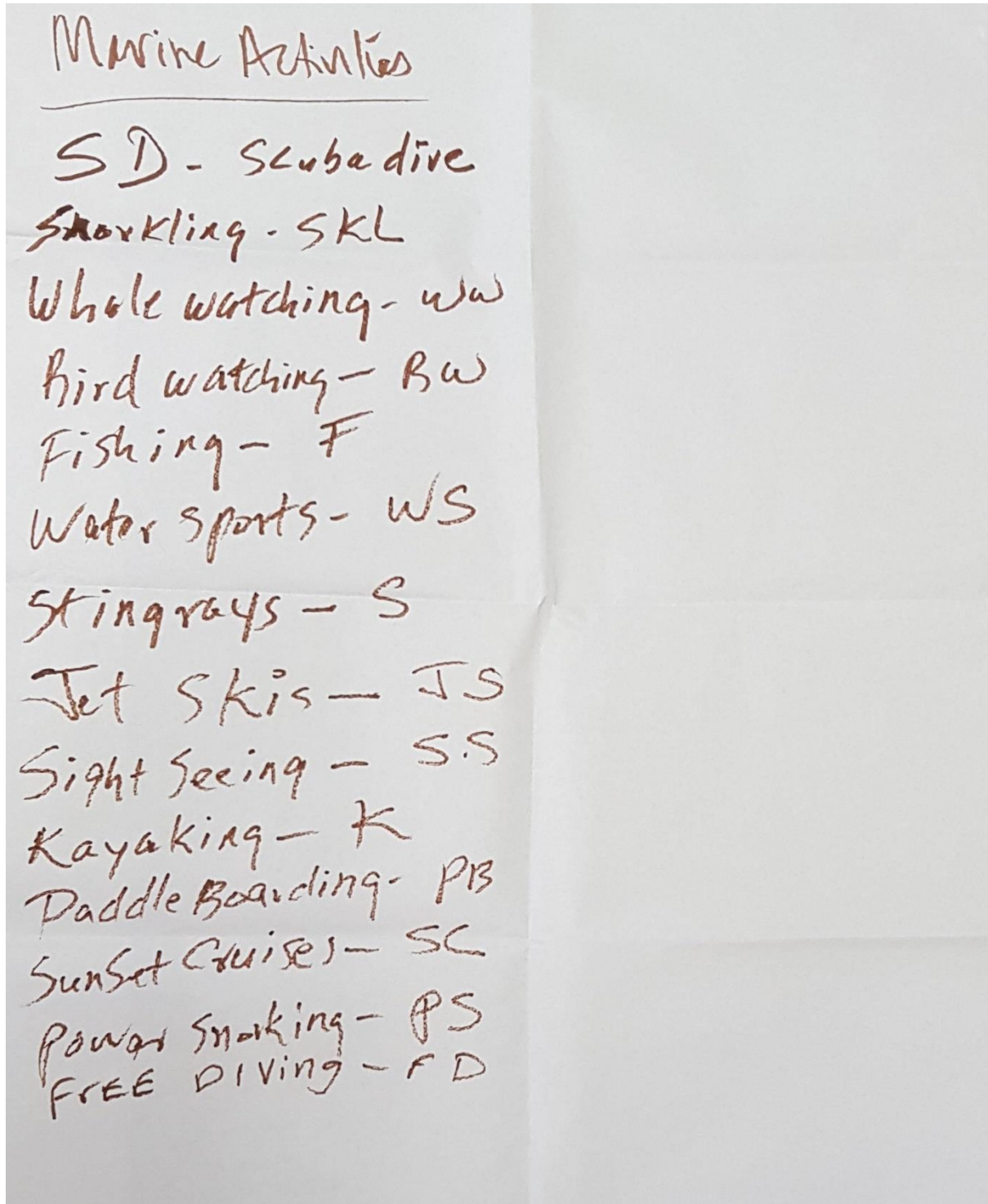


Figure 9 Group 1 list of marine activities around Grand Turk



Marine Activities

- (S) Snorkelling
- Diving - Free (FD)
- SCUBA (SD)
- Fishing - legal (LF)
- illegal (IF)
- Jet skis (JS)
- Kite (K)
- Kayak (K)
- Paddle boarding (PB)
- Spear fishing (bleaching coral - lobsters) (SF)
- Shipping (SH)
- Boat rides (BR)
- Sailing (SAIL)
- Whale watching (WH)
- encounter with sting rays (SR)

Figure 10 Group 2 list of marine activities around Grand Turk

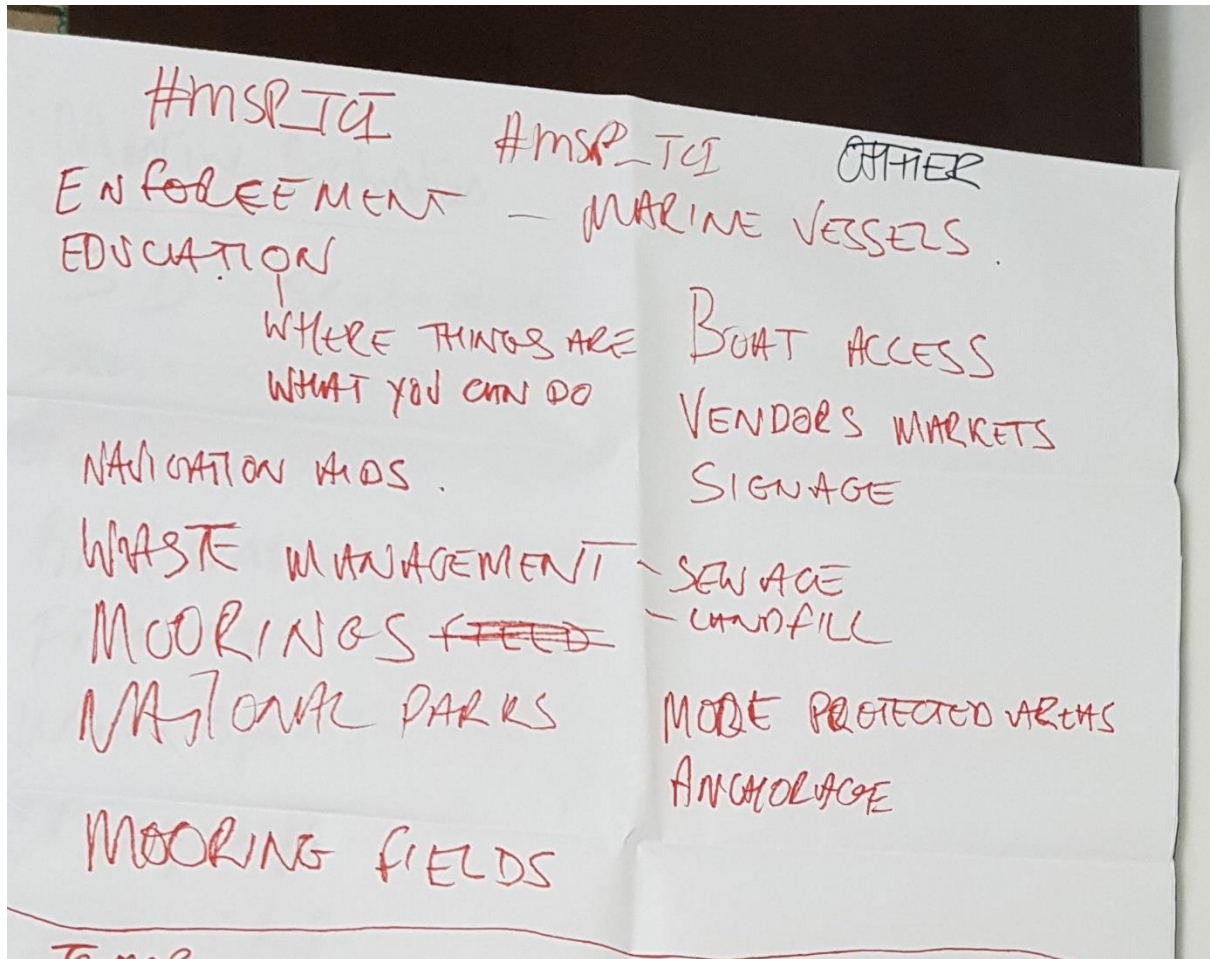


Figure 11 Additional information suggested by the stakeholders to be included in the development of the MSP tool 1



OTHER

Physical structures — docks (built)

favourite hangouts (spearquats)

Animal distribution

depths

human activities

Conservation areas

SWIM ZONES

vulnerable areas — human impact

Beach access (marked)

Reefs

topography

dive sites

reinforcement of the law

Anchorage

Too much

Course port beach — white sand beach — Management multiple activities

Planning — beach vendors

— swimming

— horse riding

tube ride

Figure 12 Additional information suggested by the stakeholders to be included in the development of the MSP tool 2



To map
Nautical aids
Mixed use sites
temperature gradients
Anchoring (zones)
Swimming (zones)
mooring field

Figure 13 Priority mapping suggestions by the stakeholders



VISION

Celebrate / embrace
 'Cultural embrace' - not what we used to have!
 Not set in stone (adaptable)
 long live
 clean by choice

Resilience
 Eco-tourism
 Mixed use
 Cultural heritage
 Natural reefs

Enforcement
 Education
 Effective communication
 Economic development
 history

Environment Strategy
 Motto - beautiful, by nature

Self-sustainable development
 Equity (Economic)
 Knowledge (Environmental) - everyone understands
 - public-private partnership
 joy unspeakable
 unspoilt
 manage + monitoring

holistic - centred around the people
 integrating
 social economic balance.
 Long term vision + short term vision.
 generation to generation

Figure 14 Keywords for vision statement



References

Baldwin, K. *et al.* (2015) 'Developing Ecosystem-Based Information for Marine Spatial Planning on the Pedro Bank, Jamaica', *67th Gulf and Caribbean Fisheries Institute*.

Ehler, C. and Douvère, F. (2009) 'Marine spatial planning: a step-by-step approach toward ecosystem-based management'. Paris, France: Unesco, p. 99. doi: <http://dx.doi.org/10.25607/OBP-43>.

Kelly, C. *et al.* (2014) 'Review and evaluation of marine spatial planning in the Shetland Islands', *Marine Policy*, 46, pp. 152–160. doi: <https://doi.org/10.1016/j.marpol.2014.01.017>.

Logan, A. and Sealey, K. S. (2013) 'The Reefs of the Turks and Caicos Islands BT - Coral Reefs of the United Kingdom Overseas Territories', in Sheppard, C. R. C. (ed.). Dordrecht: Springer Netherlands, pp. 97–114. doi: [10.1007/978-94-007-5965-7_9](https://doi.org/10.1007/978-94-007-5965-7_9).

Mitchell, B. A. and Barborak, J. R. (1991) 'Developing coastal park systems in the tropics: Planning in the Turks and Caicos islands', *Coastal Management*. Taylor & Francis, 19(1), pp. 113–134. doi: [10.1080/08920759109362134](https://doi.org/10.1080/08920759109362134).

Shucksmith, R. *et al.* (2014) 'Regional marine spatial planning – The data collection and mapping process', *Marine Policy*, 50, pp. 1–9. doi: <https://doi.org/10.1016/j.marpol.2014.05.012>.

Ulman, A. *et al.* (2016) 'Conched Out: Total Reconstructed Fisheries Catches for the Turks and Caicos Islands Uncover Unsustainable Resource Usage', *Frontiers in Marine Science*, p. 71. Available at: <https://www.frontiersin.org/article/10.3389/fmars.2016.00071>.

Zuidema, C., Plate, R. and Dikou, A. (2011) 'To preserve or to develop? East Bay dredging project, South Caicos, Turks and Caicos Islands', *Journal of Coastal Conservation*, 15(4), pp. 555–563. doi: [10.1007/s11852-011-0144-5](https://doi.org/10.1007/s11852-011-0144-5).