JNCC Report

No. 698

Technical assistance programme for effective coastal-marine management in the Turks and Caicos Islands (DPLUS119)

WP3: Marine indicators to monitor changes in marine-coastal natural capital indicator scoping

Adam Britton, Adam Smith and Laura Pettit

January 2022

ISSN 0963 8091

For further information on JNCC's report series please contact:
Joint Nature Conservation Committee
Monkstone House
City Road
Peterborough PE1 1JY
https://jncc.gov.uk/

This report should be cited as:
Britton, A., Smith, A. & Pettit, L. (2022). Marine indicators to monitor changes in marine-coastal natural capital indicator scoping. JNCC Report No. 698. Joint Nature Conservation Committee (JNCC), Peterborough, UK. ISSN 0963 809.

Acknowledgments:
This work was funded by the UK Government through the Darwin Plus project DPLUS119 '*Technical assistance programme for effective coastal-marine management in the Turks and Caicos Islands*'. We are very grateful to our colleagues in the Government of the Turks and Caicos Islands Department of Environment and Coastal Resources (DECR) and the South Atlantic Environment Research Institute (SAERI) for reviewing the draft version of this report.

JNCC EQA Statement:
This report is compliant with JNCC's Evidence Quality Assurance Policy
https://jncc.gov.uk/about-jncc/corporate-information/evidence-quality-assurance/

Summary

This report has been delivered as part of the Darwin Plus funded project DPLUS119 '*Technical assistance programme for effective coastal-marine management in the Turks and Caicos Islands*'. Darwin Plus is funded by the UK Government. Led by JNCC and working in partnership with the Government of the Turks and Caicos Islands Department of Environment and Coastal Resources (DECR) and the South Atlantic Environment Research Institute (SAERI), the project aims to improve the evidence base in the marine and coastal environments in order to support sustainable coastal and marine management approaches in the islands. Working with local communities, science professionals and decision-makers, the project will provide in-depth support and capacity building in using information management systems, natural capital approaches, undertaking environmental status and vulnerability assessments and developing indicators to monitor changes in marine and coastal habitats. Project outputs will support decision making, maximising the use and value of existing data, and support implementation of a new TCIG Environment Strategy.

The focus of Work Package 3 of the project is to develop a range of marine ecological indicators which can be used monitor and assess changes in coastal and marine natural capital. This document provides a summary of the indicators which could be used and outlines a plan for the adaptation of the indicators to make them applicable to the TCI.

For further information about the project, please visit https://jncc.gov.uk/our-work/turks-caicos-islands-marine-coastal-management/.

Contents

1. Introduction

This Darwin Plus funded project aims to provide the foundations for strategic, sustainable management of the coastal and marine environment in the Turks and Caicos Islands (TCI). This will be done through the provision of practical tools and enhanced capabilities to consider biodiversity, conservation, and understand natural capital approaches by decision-makers and local communities.

Work Package 3 will provide in-depth support and capacity building in adapting and using marine ecological indicators, maximising the use of existing data, to support decision making and the implementation of a new TCI Government Environment Strategy. The aim is to implement marine indicators to monitor and assess changes in coastal and marine natural capital, enabling progressive adoption of a monitoring programme developed through a capacity building process with Turks and Caicos Islands Government (TCIG) staff.

This document provides a summary of the indicators which could be used and outlines a plan for the adaptation of the indicators to make them applicable to the TCI. The indicators have been identified through the literature review which was completed as part of Work Package 3 (Britton *et al.* 2021).

2. Shortlist of indicators

The indicators identified have been split into two tables. Table 1 provides a shortlist of indicators which could potentially be implemented for the TCI. The indicators have been shortlisted because the data and methodologies are potentially available and would require less capacity to adapt and make operational. Without testing each of the indicators, it was not possible to know for certain if the methods and data would be applicable to TCI. Table 2 provides a list of indicators which could potentially be implemented in the future. They have been excluded from the shortlist in Table 1 because they currently do not have both data and methodologies available. Additionally, some of these indicators are still under development so may not be ready within the timeframe of this project.

The shortlist of indicators in this report will be further prioritised and only a few will be selected for testing and adapting to make them applicable to the TCI. In developing any indicator, several considerations need to be taken into account, including, data availability, the applicability of the indicator for its intended use, adaptability of the indicator for other purposes and time requirements taken to run the indicator. Next steps include further correspondence with DECR to discuss key priorities and to select indicator frameworks or approaches for development.

As part of the indicator development process, it is proposed that a pilot study will be conducted on the indicator taken forward for development. This pilot study will allow data availability to be explored and to see if the indicator would work on a small case study area, before expanding across a wider area.

A timeline for indicator development is proposed in a Gantt chart (Table 3).

Table 1: Shortlist of indicators that could potentially be used. These indicators have data and methodologies potentially available. A list of acronyms is included in the appendix at the end of the report.

Indicator	Rationale	Description	Local data	Regional/global data	Type[1]	Eco-system Service related	Trend data
MPA coverage	Based on CBD Protected Area Coverage indicator. Similar to Regional Sea Convention core Percentage MPA designated indicator	Measures the area of MPA coverage as a percentage of the total EEZ area. BIP indicator with national data freely available: https://www.bipindicators.net/indicators/coverage-of-protected-areas-terrestrial-and-marine	TCI MPA extent data from Defra 25 Year Environment Plan K4 indicator of UKOT Protected Area Extent and Condition	WDPA, UNEP-WCMC, IUCN, WCPA. National data available for TCI: https://www.protectedplanet.net/country/TCA	Response		Available
MPA Coverage of Key Biodiversity Areas	Based on CBD Protected Area Coverage of Key Biodiversity Areas indicator	Measures the percentage of KBAs covered by MPAs. Can be calculated for TCI by requesting KBA shapefile and following BIP methods: https://www.bipindicators.net/indicators/protected-area-coverage-of-key-biodiversity-areas		BirdLife International, UNEP-WCMC & IUCN. Data for TCI available from: http://www.keybiodiversityareas.org/kba-data	Response		Available

[1] Marine ecological indicators are scientific tools intended to examine and determine the trends in status of complex environmental systems. They can provide a representative picture of environmental conditions (state), such as the condition of habitats; pressures impacting the environment (pressure); or society's response (response), including those relating to Marine Protected Areas, such as coverage and management effectiveness.

Indicator	Rationale	Description	Local data	Regional/global data	Type[1]	Eco-system Service related	Trend data
Coral Reef Extent	Based on proposed CBD indicator Global Coral Reef Extent	Measures the extent of coral reef habitats. A freely available single year dataset that can be mapped to TCI EEZ. Only able to view the surface or shallow reefs; nothing that is deeper than 30 m.		The UNEP-WCMC data is available through the TCI MSP portal: https://data.unep-wcmc.org/datasets/1	State	Indirect	
Seagrass Extent	Based on proposed CBD indicator Global Seagrass Extent	Measures the extent of seagrass habitats. A freely available single year dataset that can be mapped to TCI EEZ.		The UNEP-WCMC data is available through the TCI MSP portal: https://data.unep-wcmc.org/datasets/7	State	Indirect	
Saltmarsh Extent	Based on proposed CBD indicator Global Saltmarsh Extent	Measures the extent of saltmarsh habitats. A freely available single year dataset that can be mapped to TCI EEZ.		The UNEP-WCMC data is available through the TCI MSP portal: https://data.unep-wcmc.org/datasets/43	State	Indirect	
Trends in mangrove extent	Based on proposed CBD indicator Trends in Global Mangrove Extent	Measures the extent of mangrove habitats. Freely available global data set that can be disaggregated for national use and mapped to TCI EEZ.		Data available on TCI MSP data portal from Global Mangrove Watch: https://data.unep-wcmc.org/datasets/45	State	Indirect	Available

Indicator	Rationale	Description	Local data	Regional/global data	Type[1]	Eco-system Service related	Trend data
Continuous Mangrove Forest Cover	Based on proposed CBD indicator Continuous Global Mangrove Forest Cover	Measures the extent of mangrove habitats. Global canopy cover data that can be disaggregated for national use. Trend from 2000-2014 available. Method available from Biodiversity Indicators Partnership		BIP indicator with data freely available from Salisbury University at: https://www.bipindicators.net/indicators/cgmfc-21-continuous-global-mangrove-forest-cover-for-the-21st-century	State	Indirect	Available
Change in Area of Coral Reefs in MPAs	Based on percentage of coral reefs included in effectively managed MPAs and OECMs indicator used by ICRI, GCRMN and CBD	Measures the area of coral reef habitat covered by MPAs. Under development for 2021. Could calculate from UNEP-WCMC data on TCI portal. PAME assessments could also be conducted. Would need to consider impact on indicator of changes (extensions or reductions) to MPAs in TCI.	Local data in the form of METT could be collected if PAME is considered.	UNEP-WCMC data on TCI portal	Response	Indirect	

Indicator	Rationale	Description	Local data	Regional/global data	Type[1]	Eco-system Service related	Trend data
Change in Area of seagrass beds in MPAs	Similar method to proposed Area of Coral Reefs in MPAs indicator	Measures the area of seagrass habitat covered by MPAs. Under development for 2021. Could calculate from UNEP-WCMC data on TCI portal. PAME assessments could also be conducted.	Local data in the form of METT could be collected if PAME is considered.	UNEP-WCMC data on TCI portal	Response	Indirect	
Change in Area of mangrove forests in MPAs	Similar method to proposed Area of Coral Reefs in MPAs indicator	Measures the area of mangrove habitat covered by MPAs. Under development for 2021. Could calculate from UNEP-WCMC data on TCI portal. PAME assessments could also be conducted.	Local data in the form of METT could be collected if PAME is considered.	UNEP-WCMC data on TCI portal	Response	Indirect	
Change in Area of saltmarsh in MPAs	Similar method to proposed Area of Coral Reefs in MPAs indicator	Measures the area of saltmarsh habitat covered by MPAs. Under development for 2021. Could calculate from UNEP-WCMC data on TCI portal. PAME assessments could also be conducted.	Local data in the form of METT could be collected if PAME is considered.	UNEP-WCMC data on TCI portal	Response	Indirect	

Indicator	Rationale	Description	Local data	Regional/global data	Type[1]	Eco-system Service related	Trend data
Ocean Health Index	Proposed CBD indicator	Assessment tool that measures biological, physical, economic, and social ocean health, to guide decision makers toward the sustainable use of the ocean		Annually updated data is available for TCI on a range of natural capital related themes: https://oceanhealthindex.org/regions/turks-and-caicos-islands/	PSR	Indirect	Available
Marine Trophic Index	Regional Sea Convention core indicator	Measures the change in mean trophic level of fisheries landings by region and globally. BIP indicator with global data based on catch data and estimates that can be disaggregated for TCI: https://www.bipindicators.net/indicators/marine-trophic-index		Sea Around Us. National data for TCI is available: http://www.seaaroundus.org/data/#/eez/796?chart=catch-chart&dimension=taxon&measure=tonnage&limit=10 Data is not always consistent regionally.	Pressure	Indirect	Available

Indicator	Rationale	Description	Local data	Regional/global data	Type[1]	Eco-system Service related	Trend data
Large Reef Fish Index	Proposed CBD indicator. Similar to the Large Fish Indicator (LFI) used for the EU MSFD.	Estimates in situ biomass density (kg/ha) on shallow reefs based on underwater censuses of fishes from rocky and coral reefs, rather than a proportion of biomass from fisheries catches or trawls. Dataset collected by Reef Life Survey contains records of bony fishes and elasmobranchs collected by Reef Life Survey (RLS) divers along 50 m transects on shallow rocky and coral reefs, worldwide. BIP indicator: https://www.bipindicators.net/indicators/large-reef-fish		Data for TCI available from the Global Biodiversity Information Facility: https://www.gbif.org/dataset/38f06820-08c5-42b2-94f6-47cc3e83a54a Not clear if any trawls have been conducted in the TCI. However, there are surveys from other sources such as Reef and AGRRA.	State	Indirect	

Table 2: Indicators for development in the future. These indicators currently do not have both data and methodologies available. A list of acronyms is included in the appendix at the end of the report.

Indicator	Description	Local data	Regional/ global data	Type
POTENTIAL CBD INDICATORS, NOTE THESE ARE ONLY PROPOSED INDICATORS AND MAY CHANGE IN THE FUTURE				
Live Coral Cover	The primary indicator recommended for assessing reef health by the Biodiversity Indicators Partnership (BIP): https://www.bipindicators.net/indicators/live-coral-cover		Reef check/ AGRRA	State
Coral Reef Extent	Remote sensing-based indicator that can detect coral reef extent. Similar to the Coral Reef Extent indicator in Table 1 but is being developed in conjunction with GCRMN and ICRI using a different data set, that is not yet complete.		Allen Coral Atlas – global data 70% complete	State
Protected Area management effectiveness	Number of protected areas with a management effectiveness evaluation. Addresses CBD Goal A component – protection of critical ecosystems. Ways to conduct a Protected Area Management Effectiveness assessment include using the Management Effectiveness Tracking Tool	Local data in the form of METT could be relatively easily collected	WDPA, UNEP-WCMC, IUCN, WCPA. National data on umber of PAME evaluations conducted in TCI available from: https://www.protectedplanet.net/country/TCA	Response
Coverage of other area based effective conservation measures	Number of other area-based effective conservation measures that are not official protected areas. Addresses CBD Goal A component – protection of critical ecosystems		WDPA, UNEP-WCMC, IUCN, WCPA. National data available for TCI: https://www.protectedplanet.net/country/TCA	Response

Indicator	Description	Local data	Regional/ global data	Type
Red List Index (reef-building corals and coral species)	Measures changes in the aggregate extinction risk of warm-water reef-forming corals over time. BIP indicator, but would need development for reef building corals: https://www.bipindicators.net/indicators/red-list-index/red-list-index-reef-building-corals		IUCN	Pressure
Reef Fish Thermal Index	Measures community structure changes in reef fishes that occur through local extinctions, immigration and shifting local abundance trends that can be readily linked to temperature. BIP indicator: https://www.bipindicators.net/indicators/reef-fish-thermal-index	Would require data collection	Reef Life Survey	State
Index of coastal eutrophication	Based on SDG indicator 14.1.1. measuring loads and ratios of nitrogen, phosphorous and silica delivered by rivers to coastal waters. Recommended by ICRI for CBD.		UNEP	Pressure
Structural Complexity – coral	Under development		World Conservation Society	
Carbonate budgets – coral	Under development		University of Exeter	
Red list of ecosystems (coral reefs)	IUCN index assessing losses in area, degradation or other major changes to determine whether an ecosystem is not facing imminent risk of collapse, or whether it is vulnerable, endangered, or critically endangered. ICRI recommended indicator for CBD		IUCN	Pressure
Condition of intertidal seagrass communities in coastal waters	Produces an Ecological Quality Ratio score by measuring change in seagrass bed extent, shoot density measured as % cover and taxonomic composition. UK Marine Strategy Indicator: https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/benthic-habitats/intertidal-seagrass/	Would require data collection	Environment Agency	State

Indicator	Description	Local data	Regional/ global data	Type
Potential Physical Loss of Predicted Seafloor habitats	Measures potential physical loss of seagrass and horse mussel beds as a result of human activities, locations of both seagrass and horse mussel beds are based upon modelling of suitable habitat. UK Marine Strategy Indicator: https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/benthic-habitats/physical-loss/		JNCC	State
Extent of Physical Damage Indicator to Predominant Seafloor Habitats	Observational and modelled data on species and habitat extent and distribution; species and habitat sensitivity information; data on pressure distribution and intensity; and disturbance intensity and distribution per habitat and pressure are combined to calculate the area affected by each level of predicted disturbance per habitat type per spatial scale. UK Marine Strategy Indicator: https://moat.cefas.co.uk/biodiversity-food-webs-and-marine-protected-areas/benthic-habitats/physical-damage/		JNCC	State
GCRMN METRICS				
Relative cover of reef-building organisms and their dominant competitors	Core data to collect is the percentage of reef bottom that is covered by corals (stony corals and gorgonians), sponges, and algae (turf algae, macroalgae and crustose coralline algae). The highly recommended method uses digital photographs of standardised 0.9 m x 0.6 m quadrats taken along the five fish transect lines. 15 images captured per transect line (every other metre) with 75 photographs collected at each site. If volunteers are conducting the surveys, Reef Check methods can be used.	DECR/TCReef/ Reef check		State

Indicator	Description	Local data	Regional/ global data	Type
Coral Health	This metric assesses the of prevalence of disease in stony corals, not bleaching, following Atlantic and Gulf Rapid Reef Assessment (AGRRA) methods. It measures the relative prevalence rate; the proportion of quadrats that have diseased corals, rather than the proportion of diseased coral colonies. This metric allows survey teams to alert experts if treatment is needed. Uses same data collection methods as coral cover metric above. During analysis photo quadrats of coral colonies which show sign of disease are tagged, and the proportion of images with disease is divided by the total number. Coral disease experts can analyse photo quadrats. Level 2 methods for this indicator includes data collection along a 10 m belt transect using AGRRA methods.	DECR/TCReef/ Reef check		Pressure
Coral Recruitment	Estimates the density of young corals that are likely to contribute to the next generation of adult corals. Coral recruits are hard to identify so are defined as the smallest individuals visible to diver – 0.5 – 4 cm. Follows AGGRA methodology using 25 cm x 25 cm quadrats. Using first 3 transects from coral cover indicator above and 5 quadrats on each will be analysed every other metre. Within quadrats coral recruits are recorded to the finest possible taxonomic level. If expert knowledge is not available, then the number of recruit colonies can be identified. Algae height can also be identified to estimate how competitive the environment is.	DECR/TCReef /Reef check		State
Cover of key macro-invertebrate species	Estimates the density of ecologically and important species on the reef. Core data include density of long-spined urchin, other urchins, all sea cucumbers, lobsters, and conch. Uses same data collection methods as coral cover metric above, but instead identifies species and abundance of each macroinvertebrate species in each image. Density is calculated by dividing total number of macro invertebrates by the number of images and size of quadrat (0.54 m^2).	DECR/TCReef/ Reef check		State

Indicator	Description	Local data	Regional/ global data	Type
Abundance and biomass of key reef fish taxa	Core data to collect are density and size structure of snappers, groupers, parrotfish, and surgeonfish. If possible, also estimate density and size of all fish species in survey area such as barracuda, grunts, damselfish and triggerfish, and sensitive species such as sharks and rays, and invasive species, e.g. lionfish. Level 3 method is highly recommended by GCRMN- Caribbean and is based on the AGGRA. Five belt transects of 30 m x 2 m lasting 8 – 12 minutes each are pooled at each site.	DECR/TCReef/ Reef check		State
Tourism Arrivals	This parameter can be used as a proxy of reef pressure, including data on national tourism statistics, annual hotel occupancy and cruise ship arrival statistics.	TCI Tourist Board Statistics: https://www.gov.tc/stats/statistics/economic/41-tourism		Pressure
Tourism Recreation	This parameter provides information on reef related pressures, including data on the number of operators and when and where their activity occurs.	TCI Tourist Board Statistics: https://www.gov.tc/stats/statistics/economic/41-tourism		Pressure
Tourism Infrastructure	This parameter can also be used as a proxy for reef pressure. Data includes the collection of statistics on number, size, and location of tourism establishments such as hotels.	TCI Tourist Board Statistics: https://www.gov.tc/stats/statistics/economic/41-tourism		Pressure
Fishing Infrastructure	This parameter links to fishing activities and pressures on the reef. Data includes national fishing statistics such as vessel data, and field sampling at landing sites and markets.	Fishing licence data		Pressure

Indicator	Description	Local data	Regional/ global data	Type
Fishing Pressure	This parameter links to the level of fishing activity at specific landing sites. Data includes fisheries statistics and information on exports. Can be correlated with ecological data (below) to confirm presence/absence of indicator species.	Fishing licence data		Pressure
CARIBBEAN ENVIRONMENT PLAN INDICATORS				
Coverage by zoning schemes or other formal conservation/protection mechanisms for important coral reef, mangrove, and seagrass sites	Method not currently available			Response
Restoration activities undertaken at priority sites for coral reefs, mangroves, and seagrasses	Method not currently available			Response
Area of seagrass, mangrove and coral reef with enhanced ecological integrity and function	Method not currently available			Response
Area of coral reefs, mangroves and seagrasses benefitting from threat reduction initiatives	Method not currently available			Response

Indicator	Description	Local data	Regional/ global data	Type
RSAP baseline data and end line assessment conducted on extent and location of coral reefs, mangroves and seagrasses	Method not currently available			Response
Uptake of disease monitoring and management protocols by MPAs	Method not currently available			Response
Number of new sites with habitats of outstanding ecological value listed under the SPAW Protocol, Article 7	Method not currently available			Response
Number of SPAW-listed sites approved prior to 2019 with completed management effectiveness evaluations	Method not currently available			Response
REGIONAL SEA CONVENTION CORE INDICATORS				
Chlorophyll a concentration as an indicator of phytoplankton biomass	Method not currently available			State

Indicator	Description	Local data	Regional/ global data	Type
Trends for selected priority chemicals including POPs and heavy metals	Method not currently available			Pressure
Quantification and classification of beach litter items	Method not currently available			Pressure
Annual mean sea surface temperature (25 m below the surface)	Method not currently available	Data potentially available on TCI MSP tool	Data potentially available from NOAA Reef Coral Watch and World Resources Institute	Pressure
Fish catches within EEZs (tonnes) – total capture production	Method not currently available		Could potentially use FAO data, similar to BIP indicator – MSC certified catch: https://www.bipindicators.net/indicators/msc-certified-catch However, TCI is not MSC certified.	Pressure
Application of risk assessment to account for pollution and biodiversity impacts	Method not currently available			Response

Indicator	Description	Local data	Regional/ global data	Type
Destruction of habitat due to aquaculture	Method not currently available			Pressure
Length of coastal modification and area of coastal reclamation (km2)	Method not currently available			Pressure
Location and frequency of algal blooms reported	Method not currently available			Pressure
(1) Concentration of Status of selected pollutant contamination in biota and sediments and temporal trends; (2) Number of hotspots	Method not currently available			Pressure
(1) Aragonite saturation; (2) pH; (3) Alkalinity	Method not currently available			Pressure
(1) FAO stock status; (2) % stock overfished compared to MSY	Method not currently available		Could potentially use FAO data, similar to BIP indicator – MSC certified catch: https://www.bipindicators.net/indicators/msc-certified-catch However, TCI is not MSC certified.	Pressure

Indicator	Description	Local data	Regional/ global data	Type
Distribution of Red List Index Species	Method not currently available		Data available on OBIS and IUCN	Pressure
Trends in critical habitat extent and condition	Method not currently available			State
National Action Plans to reduce input from LBS: Percentage (%) of national action plans ratified or operational	Method not currently available			Response
(1) Percentage (%) of coastal urban population connected to sewage facilities; (2) percentage (%) of wastewater facilities complying with adequate standards; (3) percentage (%) of untreated wastewater	Method not currently available			Pressure
(1) Percentage (%) of available port waste reception facilities; (2) incentives to reduce land-based sources in monetary terms; (3) Percentage (%) of recycled waste on land	Method not currently available			Pressure

Indicator	Description	Local data	Regional/ global data	Type
(1) Percentage (%) of national adaptation plans in place; (2) Sector based national adaptation plans; (3) Number of existing national and local coastal and marine plans incorporating climate change adaptation	Method not currently available			Response
Fisheries measures (by-catch limits, area-based closures, recovery plans, capacity reduction measures) and multilateral / bilateral arrangements for fisheries management are in place	Method not currently available			Pressure
% Marine protected areas designated	Method not currently available		Data available from Protected Planet	Response
National ICZM guidelines and enabling legislation are adopted	Method not currently available			Response

Table 3: Proposed timeline for indicator development under Work Package 3.

		Year 2 (2021-22)									Year 3 (2022-23)					
		Q2			Q3			Q4			Q1			Q2		
	Tasks	July	August	September	October	November	December	January	February	March	April	May	June	July	August	September
Phase 1 indicator development	Decision on pilot study (e.g. geographic location, habitat or time period)															
	Data investigation															
	Data gathering and preparation															
	Testing the indicator															
	Method description and documentation															
	Analysis of results and applicability of indicator to pilot study															
	Report writing and delivery															
Phase 2 indicator development	Data gathering and preparation															
	Testing the indicator															
	Method description and documentation															
	Analysis of results and applicability of indicator to pilot study															
	Report writing and delivery															

References

Britton, A., Smith, A., Pettit, L. & Vina-Herbon, C. 2021. Technical assistance programme for effective coastal-marine management in the Turks and Caicos Islands (DPLUS119) - WP3: Marine indicators to monitor changes in marine-coastal natural capital - Review of indicators from the literature. JNCC Report No. 693. JNCC, Peterborough, ISSN 0963-8091.

Appendix

List of acronyms used in the report.

Acronym	Full name
AGRRA	Atlantic and Gulf Rapid Reef Assessment
BIP	Biodiversity Indicators Partnership
CBD	Convention on Biological Diversity
CEP	Caribbean Environment Programme
DECR	Department of Environment and Coastal Resources
EEZ	Exclusive Economic Zone
FAO	Food and Agriculture Organisation
GCRMN	Global Coral Reef Monitoring Network
ICRI	International Coral Reef Initiative
IUCN	International Union for Conservation of Nature
JNCC	Joint Nature Conservation Committee
KBA	Key Biodiversity Area
MPA	Marine Protected Area
MSC	Marine Stewardship Council
MSP	Marine Spatial Plan
NOAA	National Oceanic and Atmospheric Administration
OBIS	Ocean Biodiversity Information System
PAME	Protected Area Management Evaluation
RSC	Regional Sea Conventions
TCI	Turks and Caicos Islands
UNEP	United Nations Environment Programme
WCMC	World Conservation Monitoring Centre
WCPA	World Commission on Protected Areas

Acronym	Full name
WDPA	World Database of Protected Areas
WRI	World Resources Institute