

Environmental and Social Management Plan for “Marine Scholarship Programme”

1. Project Description (location, specific activities)

Briefly list the planned activities. Clearly identify the issues to be addressed in terms of potential E&S impacts and the proposed solution (to be retrieved from the concept note and/or full proposal - 500 words max).

Marine Scholarship Programme

A core training programme will be delivered by project partners WiseOceans and GVI with additional partner organisations offering placement opportunities for trainees during specific modules of the Programme. The specific E&S impacts for the lead organisations are listed below, followed by solutions to more general E&S impacts that may be encountered during other placements. Some of the below activities occur in sensitive and critical habitats (coral reefs and mangroves) however the organisations delivering activities in these habitats have years of experience, follow best surveying practices to ensure safety of staff, trainees and the environment when working in such areas.

WiseOceans

Guided snorkelling excursions (Petite Anse, Mahe)

Trainees will be accompanied by a trained member of staff when conducted guided snorkels and will carry one Surface Marker Buoy per pair. Swim tests and review of health and training on safety procedures will be conducted on commencing a placement with WiseOceans. In addition, risk assessments and Emergency Action Plans are in place for all snorkelling related activities (see sections 6 & 7). All WiseOceans staff have first aid and in-water rescue training. WiseOceans have been conducting guided educational snorkelling activities, surveying and reef restoration activities at this location for 8 years and have strict measures in place to ensure no damage to sensitive coral reef environment takes place.

Reef restoration and survey snorkelling activity (Petite Anse, Mahe)

Trainees will always snorkel in pairs and will carry one Surface Marker Buoy per pair. Swim tests and review of health and training on safety procedures will be conducted on commencing a placement with WiseOceans. Training in duck diving will be given to trainees and trainees will be advised only to duck dive if they feel comfortable. In addition, risk assessments and Emergency Action Plans are in place for all snorkelling related activities (see sections 6 & 7). All WiseOceans staff have first aid and in-water rescue training. WiseOceans have been conducting guided educational snorkelling activities, surveying and reef restoration activities at this location for 8 years and have strict measures in place to ensure no damage to sensitive coral reef environment takes place. Reef restoration follows coral gardening method and adheres to best practices. These activities do not take place in a protected area.

GVI Seychelles

SCUBA diving training & underwater survey (Cap Ternay) – participants will undertake their PADI Advanced Open Water training and Coral Reef Research Diver training in accordance with PADI Guidelines. Potential impacts include Nitrogen Narcosis, DCS, Shallow water blackout, drowning and aquatic life injury. GVI has been providing SCUBA diving training to participants and conducted coral reef surveys along the northwest coast of Mahé for over 15 years and has strict measures in place to ensure damage to sensitive areas is avoided. Anchoring is avoided at all sites and participants will receive rigorous training to improve diving buoyancy prior to commencing underwater surveys. Divers will always be in buddy pairs and will carry one Surface Marker Buoy per pair. Dive profiles will remain conservative and each participant will complete a maximum of two dives per day. In addition, risk assessments and Emergency Action Plans are in place for all diving related activities (see sections 6 & 7).

Mangrove survey & invasive species eradication (Curieuse Island) – The primary aim of the survey is to provide baseline data to facilitate decision-making regarding the health of the mangrove forest and placement of mangrove nurseries in the near future. Current surveys assess mangrove diversity and abundance, as well as mortality and recruitment rates. Potential E&S impacts include falls, cuts and bruises and exposure to the elements. Participants should exercise caution at all times. Appropriate clothing must

be worn at and participants must remain hydrated. Transect surveys are conducted in a manner that minimizes impact on the environment, keeping to the boardwalk and areas of sand so as not to disturb mangroves. All methodologies have been developed in conjunction with the SNPA and have been refined over a number of years.

Beach profiling (Curieuse Island) - Beach profiling monitors changes in erosion and accretion; this study aims to track these changes on six of Curieuse's beaches. Potential E&S impacts include falling, cuts and bruises, dehydration and sunstroke. Participants should exercise caution at all times. Appropriate clothing must be worn at and participants must remain hydrated.

Shark and turtle tagging (Curieuse Island) - The primary aim of shark monitoring at CMNP is to collect data on the juvenile Sicklefin lemon shark population, which allows for the long-term monitoring of trends in population size and dynamics, body size, and body growth parameters. Potential E&S impacts include bites, stings and impalement, injury to the sharks or shark mortality. All participants must wear appropriate footwear when on surveys and remain vigilant for sting rays in the survey areas. Participants must fully understand and comply with all necessary health and safety advice and survey training procedures provided by staff prior to survey work. Participants must always be supervised by a staff member when under training for shark and turtle survey work. Extra caution must be exercised in conditions of low light or poor water visibility. Extreme care is undertaken to minimize stress to the sharks. Upon capture, each individual is transported to a work-up station and placed in a large water filled holding crate. Care is taken to ensure mouth and gills are submerged whenever possible and sharks are released as soon as possible, with each individual for as long as required to monitor recovery. The lemon shark research project is now entering its sixth year and capture and release techniques have been shown to be successful with extremely low mortality.

Baited Remote Underwater Videos (Curieuse Island) – The primary aim of this study is to establish baseline data on the diversity and relative abundance of target fish species within CMNP, which can be used to track changes in fish populations over time. Potential E&S impacts: improper lifting, man overboard, cuts. Always lift BRUV frame with at least one other person and lift using an appropriate technique. Ensure that you are not standing on or entangled in any ropes that are attached to the BRUV frame, as this may result in being inadvertently pulled overboard and possibly underwater. Take care to avoid injury whilst preparing bait, as fish bones and knives can be sharp.

Dive Centre

SCUBA diving training – participants will undertake their PADI Open water training with a local dive centre. All training and activities will take place in accordance with the PADI guidelines.

For all other placements, participants must follow the organisations' in-house Health & Safety protocols.

Organisations hosting placements will be asked to share their in-house health and safety protocols with the project manager before any trainee placements are confirmed. Placement organisations will be required to cover health and safety protocols on the first day of the trainees placement with them.

2. Risks, mitigation measures and monitoring

Identify and list potential environmental and social risks associated to the project. For each of the identified risks proposed mitigation measures to mitigate these risks and develop indicators to monitor the implementation of the proposed mitigation measures.

Potential risks	Mitigation measures	Indicators to monitor implementation of mitigation measures
Environmental risks		
1. Coral damage (from equipment (e.g. BRUV) or from snorkelling, scuba diving, etc.)	1.1. Develop and implement a protocol for the deployment of BRUV	1.1. BRUV deployment protocol provided
	1.2. Train staff in BRUV deployment	1.2. 100% of staff involved in the project trained in BRUV deployment
	1.3. Properly train participants to avoid/minimize coral damage from snorkelling, scuba diving, etc.	1.3. Number of incidents of coral damage related to snorkelling, scuba diving or underwater survey activities conducted during the program.
2. Shark mortality through tagging	2.1. Develop and implement a protocol for tagging of sharks	2.1.1. Protocol for tagging of sharks provided and observed (see section 5) 2.1.2 0% of sharks died during tagging
	2.2. Train staff in tagging of sharks	2.2. 100% of staff involved in the project trained in tagging of sharks
3. Disturbing Turtles during nesting.	3.1 Follow the well-established marine turtle monitoring protocol	3.1. Protocol of marine turtle monitoring provided and observed (see section 5)
	3.2. Train staff in the monitoring of marine turtles	3.2. 100% of staff involved in the project trained in marine turtle monitoring
4. Damage to Mangroves from survey from trampling	4.1 Follow protocol for surveying mangroves that minimizes trampling. Participants provided with a series of lectures in monitoring best practice.	4.1 Record damages to the mangroves related to survey activities
Social risks		
1. Injuries to staff and participants	1.1. Develop Risk Assessments for all activities (GVI Seychelles and WiseOceans Seychelles)	1.1. Risk Assessments provided to all participants (GVI Seychelles and WiseOceans Seychelles) (see section 7)
	1.2. Train staff in First Aid	1.2.1. 100 % of staff trained in first aid
	1.2.1 Familiarize participants in First Aid	1.2.2 100% of participants trained in first aid
	1.3 Emergency Action Plans in place for all activities (GVI Seychelles and WiseOceans Seychelles)	1.3 Make participants aware of EAPs (GVI Seychelles and WiseOceans Seychelles) (see section 6)

<p>2. Communication: participants face danger or injury due to lack of proper communications channels</p>	<p>2.1 Participants have a check in- check out system when spending programme time away from supervision</p>	<p>2.1: Project manager and coordinator will have regular communications with participants. Participants will be made aware of communication channels available to them. A whatsapp group will be created for participant communications.</p>

3. Monitoring Plan

The objective of the monitoring plan is to ensure that the mitigation measures are properly implemented.

3.1. Data collection, analysis and report responsibilities

List personnel or organization responsible for collecting data related to monitoring indicators, processing data and reporting to the PIU.

1. Host organisations will be responsible for collecting data related to monitoring indicators for their individual activities.
2. Data relating to the indicator will be passed by the host organisation to the proponent.

The project manager and coordinator will be responsible for checking mitigation measures are implemented during the traineeships placements with all partnering organisations. Including regular check in's with trainees and reviews of partner organisation health and safety policy and mitigation measures.

3.2. Additional support (capacity building, resources etc.)

List the additional support that is required to ensure that the mitigation measures are properly being implemented.

None applicable.

3.3. Monitoring table

For every mitigation measures proposed, list the monitoring indicator, frequency of monitoring, responsible for monitoring and the associated cost. This will ensure early detection of conditions that require additional or alteration in mitigation actions, provide info on progress and results of mitigation.

Mitigation measures	Indicator	Frequency	Responsibility	Cost
Develop and implement a protocol for the deployment of BRUV	All BRUV deployment undertaken in line with protocol	NA	GVI Seychelles	NA
Train staff in BRUV deployment	All staff able to undertake BRUV deployment	NA	GVI Seychelles	NA
Properly train participants to avoid/minimize coral damage from activities such as snorkelling or scuba diving, etc.	Lack of incidents of coral damages related to snorkelling, scuba diving or underwater survey activities conducted during the program.	NA	GVI Seychelles and WiseOceans Seychelles	NA
Develop and implement a protocol for tagging of sharks	All shark tagging undertaken in line with protocol	NA	GVI Seychelles	NA
Train staff in tagging of sharks	All staff able to undertake shark tagging	Upon arrival	GVI Seychelles	NA
Follow the well-established marine turtle monitoring protocol	All turtle research undertaken in line with monitoring protocol	Always	GVI Seychelles	NA
Train staff in the monitoring of marine turtles	All staff able to undertake turtle monitoring	Upon arrival	GVI Seychelles	NA
Follow protocol for surveying mangroves that minimizes trampling. Participants provided with a series of lectures in monitoring best practice.	All mangrove research undertaken in line with monitoring protocol	Always	GVI Seychelles	NA
Develop Risk Assessments for all activities	All staff and participants to read risk assessments upon arrival	Updated quarterly	GVI Seychelles and WiseOceans Seychelles	NA

4. Grievance Redress Mechanism

In line with the World Bank safeguards policies, the SWIOFish3 project has developed a Grievance Redress Mechanism (GRM) to receive, process and respond to complaints from any person or group of people related to the project or is affected by its activities. The GRM is a system designed to answer questions, clarify doubts and resolve implementation problems and complaints of individuals or groups affected by SWIOFish3 project activities. GRMs are intended to be accessible, collaborative, efficient, and effective in resolving concerns through dialogue, joint fact-finding, negotiation, and problem solving. Grievances can surface at different stages of the project cycle. Some grievances may arise during the project design and planning stage, while others may come up during project implementation. In general, grievances that may be encountered in the implementation of the SWIOFish3 project can be grouped into three categories:

- Grievances related to the changes in access to resources through management plans
- Grievances related to proponents and beneficiaries of the Blue Grants Fund (BGF) and Blue Investment Fund (BIF)
- Grievances related to issues encountered by local communities where project activities are occurring

Individuals or groups affected by the SWIOFish3 subproject can

1. complete a "complaint form" which will be made available to the public to formulate their suggestions or complaints. These forms can be withdrawn at the PIU office or download from the project website. Once completed, these forms can be deposited in complaint boxes.
2. A line of communication will be made for the public so that they can transmit suggestions and complaints through a call or an SMS;
3. Formal letters, emails can also be sent to the PIU;
4. Suggestions or complaints can also be formulated during consultation meetings.

Address:

SWIOFish3 Project
c/o Department of Blue Economy
Oliaji Trade Centre
Victoria
Republic of Seychelles

5. Surveys Methodology

I. BRUV survey

Horizontal BRUV (H-BRUV) Stereo Camera Frames are modified to be mounted with a single wide angle video camera. A bait arm held an aluminium canister containing bait (bonito (*Euthynnus affinis*) or bigeye mackerel (*Selar crumenophthalmus*)). BRUV units are lowered from a boat to the seabed at each deployment site. Care is taken to avoid rocky and/or uneven terrain due to the risk of damaging coral or entangling the BRUV unit. The following additional information are recorded for each deployment: date and time, GPS location, weather conditions, turbidity, and bottom depth. Cameras are left to record for 90 minutes without disturbance.

II. Beach profiling

A total of 18 transects are surveyed on six beaches on Curieuse island. The number of transects installed on each beach are dependent on the beach length, with longer beaches having more transects. The positions of transects were chosen by SNPA, and currently only beaches located along the eastern and southern coastlines are being surveyed due to time and resource constraints.

Individual transects are surveyed once every two months, two hours either side of the lowest tide of the month, as surveying at low tide usually permitted access to the offshore step. The beaches are separated into two groups with Anse Caiman, Anse Cimitiere, and Anse St. Jose all being surveyed in the same month, and Anse Laraie, Anse Papaie, and Grand Anse all surveyed the following month.

Each transect is surveyed by following a set methodology, consistent with previous years. Firstly, the height of the reference mark is measured from the ground to the top of the spray painted line of the mark (all measurements are recorded in metres and measured to the nearest centimetre). Using a compass and the fixed bearing given for that profile, the transect trajectory is established. The transect is surveyed in segments using an Abney level and two ranging poles from the reference mark down to the sea. One pole is initially placed by the reference mark with the second pole placed where the terrain changes in slope angle. Then, one person (the same person for an entire transect to ensure consistency) used the Abney level to measure the angle of the slope in degrees and minutes. The Abney level is held at a comfortable height level at one of several pre-prepared marks on the ranging pole and read by using the corresponding mark on the other pole. The length of the segment is also measured, ensuring this is done once again between two corresponding points on the poles to ensure accuracy, and no segment measured is greater than 10m in length. After this the first pole is moved past the second to be placed at the next point of slope change for the next segment. Once the segment including offshore step had been recorded, one further segment is measured to complete the profile. Once each transect is complete, a photograph is taken of the entire profile (perpendicular to the beach). For each segment surveyed, the angle, horizontal distance, and any obstacles/substrates of interest are recorded (e.g. rocks, logs), and a sketch of the beach profile noting the approximate positions of the ranging poles is also drawn.

III. Mangroves survey

Five 10m x 10m permanent quadrats were set up in June 2015 in various locations throughout the mangroves. The locations of these quadrats were chosen by SNPA and all lie within the seaward half of the mangrove forest. In January 2017, three additional 10m x 10m permanent quadrats were established close to the seaward edge of the forest. The abundance and growth rate of mangrove species within these quadrats are measured biannually. Within each 10m x 10m quadrat are four 1m x 1m quadrats positioned at each corner.

The total number of mangrove trees (>1m high; >4cm Girth at Breast Height (GBH)) and their species are recorded within each 10m x 10m quadrat. Within each 1m x 1m quadrat, all species of mangrove seedlings (<1m high), saplings (>1m high; <4cm GBH), and trees are counted. All mangrove trees within each 1m x 1m quadrat also have their GBH measured, which is set at 130cm from trunk base during the initial survey or beneath the first stem if the trunk is less than 130cm. When no seedlings, saplings or trees are present inside of the 1m x 1m quadrat, the species of roots present are recorded, or a lack of mangroves is noted.

IV. Sea turtle monitoring

Patrols of the main nesting beaches are conducted four to five days a week from October to February (peak Hawksbill nesting season), with a minimum of weekly checks on all other nesting beaches. Outside of Hawksbill season, all beaches are checked at least once a week so that Green turtle nesting (nesting all year round) is sufficiently monitored.

Patrols involved walking along the high tide line and recording any sea turtle activities. For all nesting activity the date, time, beach, and turtle species are recorded. Track width is measured perpendicular to the direction of the track at its widest point. Estimated time of emergence is recorded as 0, 1 or 2, where 0 identified the activity as having been made within the past 12 hours, 1 being 12-24 hours old, and 2 more than 24 hours old. The time of an emergence can be estimated by a) knowing when the last patrol occurred, b) assessing the clarity of the track in the sand, and c) how much of the track has been washed away by the tide. Each track is further classified as one of nine emergence types (Table 1). If multiple attempts at nesting had occurred, the number of attempts is recorded. For every emergence, a GPS waypoint is taken using the code TUN for a nest, and TUA for all other types of emergences. For nests in which eggs are located, the location is triangulated and marked with flagging tape, with the distance from each mark (ΔL , ΔC , and ΔR) recorded. This will facilitate nest excavations approximately ten days after the end of the estimated incubation period.

Table 1: Nine categories of sea turtle emergence types.

Half Moon	A. Wandering (but no digging) below high tide line
	B. Wandering (but no digging) above high tide line
	ESBO. Emergence stopped by obstacle
Did Not Lay	C. Considerable disturbance, evidence of digging (body pit & egg chamber) but no covering
	D. Evidence of body pitting, but no digging of egg chamber or covering
Laid	E. Considerable disturbance, evidence of digging and covering
Variations	F. Prob DNL. Probably Did Not Lay
	G. Prob Laid. Probably Laid
	?. Cannot tell if laid or not

When a nesting turtle is encountered on a beach patrol, expedition members followed appropriate behaviour to not disturb the turtle. Observation of the turtle occurred until the egg laying process commenced, at which point the turtle goes into a trance-like state and can be slowly approached from behind. Using a manual click counter, the number of eggs the female laid is tallied and recorded. Once the turtle had finished laying and started covering the eggs, measurements are taken including two over-curve carapace lengths: mid to tip (M-T) and tip to tip (T-T), and the width of the carapace at the widest point, usually across the third vertebral scute.

Each measurement is taken three times to ensure accuracy. Photographs of each side of the head are taken (without a flash) as well as photos of any distinguishing features for future identification in the case of tag loss. Tag numbers (if present), tag scars, evidence of disease/injuries or other distinguishing features are also recorded. If the turtle is untagged, two tags are fitted, one the posterior edge of each of the front flippers, in the fleshy part just before the first scute. Tagging occurred when the turtle had completed laying and the covering process had begun. Tags administered during both the 2014-2015 and 2015-2016 seasons are 'SCA' series, while mostly 'E' series tags are administered during the 2016-2017 season. Tags administered during the 2017-2018 season are mostly 'SXX' series. The location of the eggs is triangulated as above. Once an activity had been recorded, marks are scored through all tracks so they could be identified as old tracks in subsequent surveys.

Hatching Success

Success rates are determined by excavating recently hatched nests. Known nests are excavated a minimum of 70 days after triangulation. This allowed ample time for the nest to hatch and hatchlings to emerge.

When nests are excavated, the number of hatched eggs, any pipped (half in, half out of the egg) hatchlings, live or dead hatchlings in the nest, as well as the number of unhatched eggs are recorded. Unhatched eggs are opened and recorded as either undeveloped, stage one, stage two or stage three. Nest depth is measured before the contents are replaced and reburied.

V. Shark tagging

Capture Methods

Several methods of capture can be used:

1. Seine nets – 90x0.75m and 10x1.5m (the latter being decommissioned in July 2016), with a stretched mesh of 10mm. The 90m seine is designed to be deployed in the open waters and used either as a purse or beach seine, or placed at the mouth of a drainage channel for the mangroves at low tide (coined the "Lemon Shark Highway"). The 10m seine is designed for blocking narrow channels and openings.
2. Gill nets – 25x1.5m, 18x1.5m, and 10x1.5m, with a stretched mesh of 60mm (the 10m net was decommissioned in August 2016 and replaced with the 25m net). Gill nets are used under constant observation, either static or dragged slowly in the shallows.

3. Hook and line – size 14 barbless circle hooks, with fish used as bait. These were used in the first research season but discontinued in April 2015 due to concerns over the welfare of hooked individuals.
4. Cast net – 3m in diameter, similar mesh to the gill nets. This method proves most useful in very shallow water in restricted areas within the mangroves.
5. Dip nets – 60cm diameter, similar mesh to the seine nets. Used either independently or to safely remove and/or transport sharks from the aforementioned nets to the workup station.

Tagging and Data Collection for Mark-Recapture Study

Upon capture, each individual is transported to the workup station by hand or dip net, then placed in a large water filled holding crate. During the workup process, sharks are transferred to a water filled PVC trough (150mm diameter) with an integrated measuring tape. This method reduces stress by allowing the sharks to respire in the water during tagging and measurement. New captures are tagged with an internal Passive Integrated Transponder (PIT) tag (2.12x12mm AEG ID162 FDX-B), which is injected into the musculature beneath the first dorsal fin on the left side of the shark.

After tagging, the following measurements are taken to the nearest millimetre: pre-caudal length (PCL, from the tip of the snout to the pre-caudal pit), fork length (FL, from the tip of the snout to where the tail begins to fork) and total length (TL, standard length from the tip of the snout to the end of the caudal fin held in a natural position). A tissue sample is taken for genetic analysis using a fin snip from the upper trailing edge of the anal fin, which additionally offers a permanent indication of prior sampling should PIT tag shedding occur. All samples are immediately fixed in 100% ethanol. Weight is measured using a sling and hanging scale (accurate to 50g) before returning the shark to the holding crate. The shark is then overturned to expose the ventral region to ascertain gender and state of umbilical scar closure (recorded as either: open, $\frac{3}{4}$ open, $\frac{1}{2}$ open, $\frac{1}{4}$ open, closed (fresh) or closed), and the genital region and umbilical scar are photographed. Care is taken to ensure the mouth and gills are submerged whenever possible. The shark is then released, and each individual followed for as long as required to monitor recovery. For recaptured individuals, length, weight, gender, umbilical scar closure, and injury data is collected using the same protocol as new captures. Additionally, capture method is recorded and GPS position is taken for each individual capture location.

VI. Underwater Surveys

Coral and Benthic cover surveys

Genera surveyed

During all benthic surveys, hard corals are surveyed to genus level, including 50 genera from 14 families. Genera were first introduced for the LIT surveys in 2009, prior to which only *Acropora* and *Pocillopora* were surveyed to this level, with all other genera categorised as 'other coral', and broken down into growth forms.

Line Intercept Transects (LIT)

Benthic cover and substrate composition around northwest Mahé are assessed with six 10 metre LITs at each site. Each transect is placed parallel to the shore, with three transects placed within the shallow depth range (1.5 m – 5.0 m) and three transects placed within the deep depth range (5.1 m – 15.0 m). All survey depths are standardised to the respective chart datum at the time of the survey. Transects are haphazardly spread amongst the left, centre and right of the site with at least 15.0 m distance between them to avoid overlap. The benthic assemblage encountered directly under the tape as well as the respective substratum is identified and recorded at each transition point to the nearest centimetre. Coral is identified to genus level and majority growth form of the colony recorded.

Coral Diversity Belt Transects

Two 50 m belt transects are conducted at each site to assess the diversity of coral genera. The transect tapes are laid out from the shallow centre towards the deep left (Belt A) and the deep right (Belt B) of the site at a 45° angle from shore where possible. Due to the topography of some sites, various transects had to follow the reef instead of a 45° angle. Each diver in a buddy pair surveyed 2.5 m in a tight S-shape pattern to the left or the right of the transect tape, recording coral genus presence or absence.

Coral recruitment quadrats

Reef regeneration around northwest Mahé is investigated using haphazardly placed 1m² benthic quadrats (methodology based on (Engelhardt 2002)). Placement of quadrats is done across a specified depth range (1.5 m – 5 m for shallow, and 5.1 m – 15 m for deep surveys). Quadrats are placed over reef substratum, not on large patches of sand or silt, and are held to a height of 1m above the area to be sampled, carefully dropped then allowed to settle before examining the area contained. To ensure safe diving practices, surveys are conducted in a buddy pair with each diver working on any one quadrat and quadrats are placed 2m apart to maintain buddy contact. The percentage of substrate cover (rock, rubble and sand) is described for each quadrat together with percentage algal cover and the depth. Individual coral recruits located within the quadrats are assigned to one of two size classes (0-2 or 2.1-5 cm size class), identified to genus level and counted. All recruits with distinct grazing marks or any other damage (e.g. bleaching signs) are recorded separately. Ideally 36 quadrats should be completed at each site; 18 for each depth range, although a minimum of 30 quadrats per site is required.

Fish surveys

Species list

The fish species chosen for survey represent a range of species that are commercially important and those that play an important ecological role within the reef community as chosen by SNPA. This data can be used to assess the status of coral reef fish assemblages as well as giving an insight into coral reef dynamics and the state of local fisheries and the community responses to current fishing pressure compared with historical data spanning over a decade.

Fish are generally surveyed to the highest resolution possible with the majority, over 80, being surveyed to species level. Resolution is dependent on the commercial or ecological importance of each species. For example; the majority of parrotfish species fill the same ecological niche and are therefore surveyed to family level (*Scaridae*); whereas genera that encompass species of more than one feeding guild are generally identified to species level.

Stationary Point Counts (SPC)

Stationary point counts (SPC) are a commonly used underwater visual census technique for assessing reef fish populations (Kulbicki 1998; Engelhardt 2004) and have been employed, in different variations, by numerous studies internationally (Hill & Wilkinson 2004) as well as locally by several studies within Seychelles (Jennings et al. 1996; Spalding & Jarvis 2002; Graham et al. 2006; Engelhardt 2004). For coral reef assemblages point counts with a radius of 7 - 7.5 metres are thought to be the most appropriate for the size categories that reef fish typically fall into (Samoilys & Gribble 1997). The post bleaching surveys undertaken as part of the SEYMEMP project by Reefcare international utilised point counts with a radius of 7 m (Engelhardt 2001; Engelhardt 2004), when GVI took responsibility for the monitoring program in 2005 a similar point count methodology was adopted.

At each site eight SPCs are conducted, spread evenly between the deep and shallow zone. One SPC is conducted at the left and right sides of the site with two further point counts conducted at the centre of the site in both the deep and shallow areas. Surveys are always conducted by two divers, each responsible for counting a different selection of fish species thus reducing the number of species each person had to count in order to increase accuracy (Samoilys & Gribble 1997). A tape measure is used to delineate the 7 m radius of the SPC and also served as visual reference for the survey area. The tape is laid perpendicularly towards the shore and the depth of the centre of the point count is recorded as well as the start time of the survey period. Before starting the survey, divers waited for at least one minute at the centre of the point count for fish to resume normal behaviour after the disturbance of laying the tape. Each survey lasted a total of seven minutes with the two surveying divers hovering above the reef at the centre point whilst rotating slowly for the first six minutes so minimising behavioural disturbance. A brief search of the survey area is conducted for the final minute in order to give a more accurate count of cryptic species.

Belt Transects

Belt transects are used in conjunction with stationary point counts as they allow surveyors to cover a greater area for a similar level of effort (Colvocoresses & Acosta 2007). However behavioural avoidance of fish species towards divers has been frequently noted and may lead to lower densities of fish than those recorded from

SPC's; therefore, steps were incorporated into the methodology in order to minimise this (Samoilys & Gribble 1997; Hill & Wilkinson 2004).

At each site 4 transect belts are conducted running parallel to the shore, two in the deep zone and two in the shallow, completed in conjunction with the left and right SPC's.

On sites where it is not possible to follow a straight bearing, belts are set following a contour line parallel to the shore. Divers are instructed to count fish above the transect line if it did not touch the substrate. Transect belts are 50 m long and 5 m wide; a standard survey area used by a number of previous studies (Samoilys & Gribble 1997; Hill & Wilkinson 2004). Transects are conducted by a pair of divers with one diver leading and counting one group of fish, while the second diver laid the tape behind. The diver counts the commercially important species on this pass, which can include the more errant species that show a greater level of avoidance behaviours. This method of simultaneously surveying and laying the tape has been recommended by (Samoilys & Gribble 1997) as it avoids disturbing fish prior to the start of the survey. After the initial survey divers waited outside of the survey area for three minutes before the second diver returned down the belt counting the second group of fish (non-commercial) while the tape was reeled up behind them. Each diver completed their surveys in a time of between 8 and 12 minutes allowing a more accurate count of fish abundances as well as decreasing the impact of diver disturbance.

Commercial fish size estimation

As well as assessing the abundance, diversity and densities of commercial species from point counts and belt transects, size estimation is used as a surrogate for the biomass of commercial reef fish species and to assess community responses to fishing pressure (Jennings & Polunin 1997; Samoilys & Gribble 1997). Surveyed species that are considered commercially important include emperors (*Lethrinidae*), groupers (*Serranidae*), rabbitfish (*Siganidae*), snappers (*Lutjanidae*) and sweetlips (*Haemulidae*). The diver surveying the commercially important fish recorded sizes in 10-centimetre bands during both the SPC and belt transect surveys. Observer bias is minimised by training volunteers on sizing during their species identification dives and ensuring that surveys matched that of the instructors.

Invertebrates surveys

Species surveyed

Invertebrate species, which influence and can indicate the health and conditions of coral reefs are surveyed along with commercially viable species which are under fishing pressure.

Belt transects (10 m)

Invertebrate surveys are conducted in a buddy pair with the coral LIT diver, who lays out the 10 m transect tape. At each site, six 10 metre invertebrate surveys are carried out between January and June. After the coral LIT diver lays out the transect, the invertebrate surveyor begins, along the same transect belt, 5 minutes later to minimise underwater clashes. Each transect is placed parallel to the shore, with three transects placed within the shallow depth range (1.5 m – 5.0 m) and three transects placed within the deep depth range (5.1 m – 15.0 m). All survey depths are standardised to the respective chart datum at the time of the survey. Transects are haphazardly spread amongst the left, centre and right of the site with at least 15.0 m distance between them to avoid overlap. Using a systematic 'S' bend swimming pattern, targeted cryptic invertebrate species are recorded within 1 meter either side of the 10 m transect, covering a total 20 m² area.

Belt transects (50 m)

The 50 m belt transects aim to quantify the abundance of key macro-invertebrate groups in a given dive site. Two 50 m transect tapes are laid out at each site, from the shallow centre point towards the deep. Belt A runs 45° to the left and belt B 45° to the right at each site where possible; due to the topography of some sites, transects have to follow the reef instead of a 45° angle. All survey depths are standardised to the respective chart datum at the time of the survey. Each diver in the buddy pair surveys the target invertebrate taxa within 2.5 m on the left and right side of the transect, using the systematic 'S' shaped swimming pattern; surveying a 250 m² area.

The extent of hard coral predation is measured by the density of the gastropods in the genus *Drupella* and of two types of sea stars; the cushion stars (*Culcita* sp.) and the crown-of thorns sea stars (*Acanthaster planci*).

Algal grazing pressure is measured through recording the density of sea urchins. Sea cucumbers and other species important to fisheries are also recorded.

Reef restoration

Petite Anse Reef Restoration Project aims to restore a hectare of degraded limestone and granitic reef in Petite Anse bay, Mahe. The project uses the coral gardening technique (Rinkevich 1995, Rinkevich 2000) using in-situ coral nurseries to grow out coral frags (or nubbins) before transplanting directly onto degraded reef. Nursery frags are sourced from corals of opportunity (broken corals on the sea floor) and second-generation corals from the nursery. The project monitors coral species, genus, genotypic diversity, growth rates and environmental conditions across nursery and transplant phases.

Coral growth monitoring

Growth monitoring of nursery and transplanted coral fragments is conducted every quarter. Area measurements of coral fragments are taken using ImageJ software. Every 10th addition to the nursery is selected, tagged and photographed for monitoring. Coral species/genus are recorded along with environmental data. Corals are photographed on a slate next to a set scale. Images are analysed using ImageJ software and area measurements are recorded. Growth monitoring can be done on land, if photographing is done in-situ it is conducted by a buddy pair whilst snorkelling.

6. Emergency Action Plans

EAP Checklist GVI Cap Ternay

Direction for use

EAP Checklist- To be completed and sent prior to the start of each quarter

Please complete both tabs!

EAP Check tab

Check phone numbers (making sure you call them and the required service is available at all times) and details on each EAP for accuracy

If you make any changes to an EAP change the second number of the version number (ie v1.1 becomes v1.2)

Check the locations of all EAPs to assure they are updated versions and are in good condition

History of Drills

Do at least one emergency scenario with your staff team each quarter to test out at least one of your EAPs
For EAPs requiring medical evacuation, the drill should include phone call to the relevant medical/emergency agency, and GVI emergency phone, to ensure it works.

Record the date, scenario, EAP tested and staff present

EAP check

NAME OF EAP	LATEST VERSION	DATE OF LATEST TEST AND CONFIRMATION OF TEL NUMBERS	CHECKED BY	LOCATION	VERSION	CHECKED BY	DATE
Base Accident EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Dorm	Version 1.1	Jim Clark	12/04/2019
Base Accident EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019

Base Accident EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Base Fire EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Dorm	Version 1.1	Jim Clark	12/04/2019
Base Fire EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019
Base Fire EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Boat Medical EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.1	Jim Clark	12/04/2019
Boat Medical EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019
Boat Medical EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Damaged Boat	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.1	Jim Clark	12/04/2019
Damaged Boat	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019
Damaged Boat	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
DCS	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.2	Jim Clark	12/04/2019
DCS	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.2	Jim Clark	12/04/2019
DCS	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.2	Jim Clark	12/04/2019
Death on an expedition	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.1	Jim Clark	12/04/2019
Death on an expedition	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019
Death on an expedition	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Death on an expedition	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Vehicle	Version 1.1	Jim Clark	12/04/2019
Ebola EAP	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.2	Jim Clark	12/04/2019
Ebola EAP	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.2	Jim Clark	12/04/2019
Field EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.1	Jim Clark	12/04/2019
Field EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Dorm	Version 1.1	Jim Clark	12/04/2019
Field EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019
Field EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Field EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Truck	Version 1.1	Jim Clark	12/04/2019
Field EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Vehicle	Version 1.1	Jim Clark	12/04/2019
Kidnapping EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.1	Jim Clark	12/04/2019
Kidnapping EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019

Kidnapping EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Kidnapping EAP	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Vehicle	Version 1.1	Jim Clark	12/04/2019
Lost Diver	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.2	Jim Clark	12/04/2019
Lost Diver	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.2	Jim Clark	12/04/2019
Lost Diver	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.2	Jim Clark	12/04/2019
Man Overboard	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.1	Jim Clark	12/04/2019
Man Overboard	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019
Man Overboard	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Natural Disaster	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.2	Jim Clark	12/04/2019
Natural Disaster	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Dorm	Version 1.2	Jim Clark	12/04/2019
Natural Disaster	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.2	Jim Clark	12/04/2019
Natural Disaster	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.2	Jim Clark	12/04/2019
Natural Disaster	Version 1.2	12/04/2019	Jim Clark	Cap Ternay Vehicle	Version 1.2	Jim Clark	12/04/2019
Sexual Assault	Version 2.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 2.1	Jim Clark	12/04/2019
Sexual Assault	Version 2.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 2.1	Jim Clark	12/04/2019
Terrorist Attack	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Boat	Version 1.1	Jim Clark	12/04/2019
Terrorist Attack	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019
Terrorist Attack	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Terrorist Attack	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Vehicle	Version 1.1	Jim Clark	12/04/2019
Theft	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Dorm	Version 1.1	Jim Clark	12/04/2019
Theft	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019
Theft	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Vehicle Accident	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Kitchen	Version 1.1	Jim Clark	12/04/2019
Vehicle Accident	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Office	Version 1.1	Jim Clark	12/04/2019
Vehicle Accident	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Truck	Version 1.1	Jim Clark	12/04/2019
Vehicle Accident	Version 1.1	12/04/2019	Jim Clark	Cap Ternay Vehicle	Version 1.1	Jim Clark	12/04/2019

History of Drills

NB ensure there is at least one scenario per quarter per EAP that forces use and familiarisation of EAPs			
DATE	SCENARIO	EAP TESTED	STAFF INVOLVED IN DRILL
21/01/2019	Fire on base	Fire drill	Jim, Andy, Stu, Katie

EAP Checklist GVI Curieuse

Direction for use

EAP Checklist- To be completed and sent prior to the start of each quarter

Please complete both tabs!

EAP Check tab

Check phone numbers (making sure you call them and the required service is available at all times) and details on each EAP for accuracy

If you make any changes to an EAP change the second number of the version number (ie v1.1 becomes v1.2)

Check the locations of all EAPs to assure they are updated versions and are in good condition

History of Drills

Do at least one emergency scenario with your staff team each quarter to test out atleast one of your EAPs
For EAPs requiring medical evacuation, the drill should include phone call to the relevant medical/emergency agency, and GVI emergency phone, to ensure it works.

Record the date, scenario, EAP tested and staff present

EAP check

LASTEST VERSION NUMBER	DATE OF LATEST TEST AND CONFIRMATION OF TEL NUMBERS	Who checked?	LOCATION	Version being used?	Who Checked	When?
	(need to be checked and signed off quarterly)			(checked quarterly)		
GVI.2019.1.CURIEUSE.SEYCHELLES.1	29/09/2019	Maya Kerstetter	Curieuse Base	GVI.2019.1.CURIEUSE.SEYCHELLES.1	Victoria Beasley	29/09/2019
GVI.2019.1.CURIEUSE.SEYCHELLES.1	29/09/2019	Maya Kerstetter	Curieuse Boat	GVI.2019.1.CURIEUSE.SEYCHELLES.1	Victoria Beasley	29/09/2019
GVI.2019.1.CURIEUSE.SEYCHELLES.1	29/09/2019	Maya Kerstetter	Curieuse Base	GVI.2019.1.CURIEUSE.SEYCHELLES.1	Victoria Beasley	29/09/2019
GVI.2019.1.CURIEUSE.SEYCHELLES.1	29/09/2019	Maya Kerstetter	Curieuse Boat	GVI.2019.1.CURIEUSE.SEYCHELLES.1	Victoria Beasley	29/09/2019
GVI.2019.1.CURIEUSE.SEYCHELLES.1	29/09/2019	Maya Kerstetter	Curieuse Base	GVI.2019.1.CURIEUSE.SEYCHELLES.1	Victoria	29/09/2019

Date	Scenario	EAPs tested	Names of all staff involved in drill
31/12/2015	Theft from volunteer dormitory	Theft	Alan Grant, James McLelland, Rebecca Hodgkiss, Bridgette Rademakers
30/03/2016	Missing volunteer in the field	Missing Person	Alan Grant, James McLelland, Rebecca Hodgkiss, Bridgette Rademakers
29/06/2016	Flotsam strike between Curieuse and Booby	Damaged boat	Alan Grant, Bridgette Rademakers, Peter Kowalski, Amy Bradley
30/09/2016	Hijacked Cat Cocos ferry	Act of Terrorism	Alan Grant, Peter Kowalski, Amy Bradley, Clare Atkinson
19/12/2016	Man overboard	Man Overboard	Alan Grant, Peter Kowalski, Amy Bradley, Clare Atkinson
27/03/2017	Kidnapping with telephone demands	Kidnapping	Alan Grant, Peter Kowalski, Clare Atkinson, Ahtee Labonte
24/06/2017	Emergency on base	Base	Alan Grant, Peter Kowalski, Clare Atkinson, Amy Bradley
25/09/2017	Tsunami	Natural Disaster	Alan Grant, Peter Kowalski, Catherine Forsyth, Morgan Purdy
18/12/2017	Kidnapping	Kidnapping	Alan Grant, Peter Kowalski, Victoria Beasley, Catherine Forsyth, Morgan Purdy
26/03/2018	Sexual assault on a volunteer	Sexual Assault	Alan Grant, Victoria Beasley, Catherine Forsyth, Morgan Purdy
20/06/2018	Fire on base	Base Fire	Alan Grant, Victoria Beasley, Morgan Purdy, Cassie Windows
08/09/2018	Seriously damaged boat offshore	Damaged boat	Alan Grant, Victoria Beasley, Morgan Purdy, Cassie Windows
31/12/2018	Near drowning of snorkeller	Boat Medical	Alan Grant, Victoria Beasley, Morgan Purdy
29/03/2019	Death in the field	Death	Alan Grant, Victoria Beasley, Matthias Pochadt
30/06/2019	Evacuation from Badamier beach	Field	Alan Grant, Jasmine Taberer, Jordan Hesse, Liam Wilson, Antonia Bitterlich
25/09/2019	Death in the field	Death	Victoria Beasley, Jasmine Taberer, Maya Kerstetter, Kristin Gross

7. Risk Assessments

Risk Assessment Cap Ternay

Cover (only signed copy)



RISK ASSESSMENT

**GVI
Expedition**

Seychelles Marine

Date: 01-Apr-19

Reviewed by

Name: Chris Mason-Parker

Position: Regional Director Africa & Europe

Signature:

Date

Reviewed:

Date:

01-Apr-19

**Risk
Evaluation
Table:**

	Minor	Major	Severe
Unlikely	Trivial	Minor	Moderate
Possible	Minor	Moderate	Significant
Probable	Moderate	Significant	Unacceptable

GVI.2019.1.Cap
Ternay.2

Global Vision International, Unit 7 The
Space, 4-8 Stibitz Street, Westlake
Business Park, Tokai, Cape Town South
Africa
Tel: + 44 (0) 1727 250 250 Email:
info@gvi.co.uk www.gvi.co.uk

Risk Assessment - Arrival

Expedition	Ref No.	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Seychelles	1	All	Everyday hazards	Probable	Major	#REF!	All personnel (volunteers and staff) are to act as a reasonably prudent person would at all times and whilst undertaking all activities including common day-to-day activities.
Seychelles	2	All	Disregard of general safety	Possible	Major	#REF!	You are under GVI liability cover and hence you should always be with a GVI staff member or qualified personnel during any GVI activity (eg. on base, during transportation, on projects). Non-GVI activities: Always check with a GVI staff member first before going anywhere and inform staff of expected time of return. All volunteers are responsible for their own actions, behaviour and safety when not under direct supervision of a member of staff.
Seychelles	3	All	Poor response to emergencies	Possible	Severe	#REF!	Emergency Action Plans are available on base. All volunteers are shown the Emergency Action Plans and how to follow them. The EAPs have details of evacuation procedures. Ensure that you know exactly what to do in an emergency and become familiar with several evacuation routes.

Seychelles	4	All	Poor HSE (Health, Safety & Environment) awareness	Unlikely	Major	#REF!	All GVI bases will complete & sign a summary HSE form prior to the beginning of each quarter and send to the head office. A HSE meeting will be held in the second week and a minimum of every week thereafter. Discuss all issues or near issues with staff, either in open meeting, in individual discussion or through anonymous suggestion box. A log book of issues, solutions and dates of implementation will be kept. All new issues or changes to this document MUST be forwarded to the management.
Seychelles	5	All	Poor incident reporting	Possible	Major	#REF!	Please discuss all issues and near misses/issues with staff, either in open meetings, in individual discussion, in volunteer rep meetings or through the anonymous suggestion box. If a suitable solution is not agreed and acted upon, please see the Base Manager. If a safety issue is being ignored or insufficiently dealt with, contact the UK head office.
Seychelles	6	All	(Right to say no) Performing a task outside of the scope of training	Possible	Severe	Significant	Do not undertake any activity you are not comfortable with, that you have not received adequate training for or that you feel is unsafe. ALL VOLUNTEERS AND STAFF ALWAYS HAVE THE RIGHT TO REFUSE IF THEY FEEL ANY ACTIVITY IS UNSAFE.
Seychelles	7	All	Causing offence to local communities	Possible	Major	Moderate	Always respect the local laws and customs. Always treat local people with respect and behave in a manner as to gain their respect and not disapproval.
Seychelles	8	All	Theft/Mugging/Assault	Possible	Major	Moderate	Never be alone on or off base, remain in pairs or preferably groups. Take particular care when off base at night. When leaving the base sign out giving your destination and expected return time. Be aware that a lack of clothing may attract unwanted attention. Do not sunbathe topless in remote or unsuitable areas, and wear additional clothing when appropriate. Keep all valuables (credit cards, cash, passport and flight tickets) secured at base. Keep other valuables out of sight. In the unlikely event that you or the base is targeted for your or GVI belongings, hand them over without resistance.
Seychelles	9	All	Travel/Hitching	Unlikely	Major	Minor	All volunteers are strongly advised NEVER to hitch. Always consider and assess the condition of any private vehicle used. Some roads in the Seychelles are dangerous. All volunteers must be constantly vigilant and travel and walk upon them at their own risk. GVI is not insured to carry volunteers in the back of trucks. All volunteers or staff

							travelling in the back of trucks do so at their own risk.
Seychelles	10	All	Medication	Unlikely	Severe	Moderate	Volunteers MUST inform staff of any medication they are currently taking, all medication taken, even seemingly 'trivial', MUST be written up in the medication log and initialled by a staff member. All medications taken must be approved for diving whether prescription or not. This is the responsibility of the volunteer to obtain this information.

Risk Assessment – Base or General

Expedition	Ref No.	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Seychelles	11	All	Minor Injuries / Illness / Allergies / Hygiene	Possible	Severe	Significant	Wear appropriate clothing/footwear when working. Clean small cuts/injuries thoroughly to prevent infection which can occur easily in tropical climates if not attended to. Inform a staff member of injuries and illness. Volunteers will be advised as to the location of first aid kits for use in case of serious injury. Minor illness symptoms can become worse if not treated in the early stages. This is particularly important with regards to diving, where failure to report an illness could result in worsening symptoms or serious injury. Minor illnesses can be prevented by maintaining high standards of personal hygiene at all times during the expedition (especially whilst working in the kitchen). Volunteers must inform staff of any known allergies on arrival. If you suffer any allergic reaction, however slight and even if you have not experienced such symptoms before, alert a member of staff immediately.

Seychelles	1 2	All	Injuries due to improper lifting	Possible	Major	Moderate	Take care to lift heavy items in the correct manner. Do not be afraid to ask for assistance where necessary. When carrying and lifting dive cylinders follow the example demonstrated in the cylinder orientation.
Seychelles	1 3	Kitchen	Rats/Cats - Disease/Infection	Unlikely	Severe	Moderate	Rats can carry many diseases, some of which can lead to death. Any food that has been fouled, or is suspected of being fouled, by rats should be thrown away. Food (and eating/cooking utensils where appropriate) should be stored in the appropriate places to prevent fouling or gnawing by rats. Ensure cupboards are always closed. The cats and dogs around the Cap Ternay base contain worms and should not be touched or fed. Ensure all doors are shut when rooms or kitchen are not in use.
Seychelles	1 4	All	Exposure to sun/heat (dehydration, sunburn, heat exhaustion, heat stroke)	Probable	Severe	Unacceptable	Aim to drink at least four litres of water a day. More if you are undertaking physical work/working outside. Always wear a hat and sunglasses, cover any exposed skin, wear sunscreen. Avoid overexertion and sun exposure, particularly between 11am and 3pm. Remove yourself from heat, cool down, drink water and / or rehydration fluids if you experience any symptoms of heat exhaustion, heat stroke, dehydration or sunburn. Alert a staff member and monitor conditions. In the case of heat stroke, emergency medical services should be sought.
Seychelles	1 5	All	Mosquitoes (Dengue Fever) & Biting/stinging insects/animal bites	Possible	Major	Moderate	Shake out beds, clothes and shoes. Be careful when moving objects which may be housing insects/animals. If bitten or stung alert a member of staff immediately. Use insect repellent, a mosquito net at night, and cover up during the relevant times. Keep bags done up. Use a torch at night. If seen, avoid, do not aggravate or handle and alert a member of staff. Do not scratch mosquito bites as this can lead to infection.
Seychelles	1 6	All	Trees/Coconut Trees/Husking	Possible	Severe	Significant	Do not climb trees. Do not sit directly under coconut trees. Do not climb coconut trees to collect coconuts. Do not husk coconuts until shown by a member of staff, and always exercise extreme caution. Use a stake, NOT a machete. Do not husk coconuts at night, or after drinking.
Seychelles	1 7	All	Derelict buildings	Unlikely	Severe	Moderate	Some bases may have buildings/areas which it is forbidden to enter. Staff will advise all Volunteers of these areas on arrival.

Seychelles	18	All	Fire / Smoking / Candle Use	Pos sible	Sev ere	Signifi cant	No open fires on GVI bases, unless absolutely necessary and at the express request of the Base Manager. ABSOLUTELY NO OPEN FIRES within protected areas. No smoking in any of the buildings on base, on boats, in vehicles, near fuel stores or flammable substances (specific areas will be pointed out to all expedition members on arrival). Fuel and mechanical equipment should be kept out of direct sunlight wherever possible, and fuel containers should be allowed to vent in hot conditions. Extinguish all candles and naked flames when leaving a building. Never leave a naked flame unattended. Never use naked flames near any flammable materials or furnishings, including mattresses and mosquito nets. Suitable, in date, fire extinguishers can be found around camp and in all boats and vehicles. All volunteers will be shown their location and how to operate them. ONLY attempt to use an extinguisher if you are certain you can extinguish the fire without personal injury and that your escape route will remain clear. In case of a fire, raise the alarm by shouting "Fire, Fire, Fire" and exit the area in a calm and controlled fashion. Ring the fire bell in the centre of camp. In case of a fire alarm, gather at the appointed fire assembly point, which will be pointed out to all volunteers on arrival.
Seychelles	19	All	Drug use	Pos sible	Sev ere	Signifi cant	Drugs are strictly prohibited by GVI. Any volunteer found using drugs will be immediately removed from the expedition. GVI accept no responsibility if a volunteer is apprehended by police due to drug involvement. Always ignore suspect looking people or packages on the beach and alert staff. If a volunteer falls ill and drug involvement is suspected, alert a Member of staff and seek immediate medical attention.
Seychelles	20	All	Alcohol use	Prob able	Sev ere	Unacc eptabl e	Never consume alcohol before diving or using machinery and keep alcohol consumption to a minimum the night before a dive. Alcohol can induce DCS and increases risk of dehydration, heat exhaustion and heat stroke, particularly in the tropics. Drinking games are not allowed whilst on base and drunken behaviour will not be tolerated. GVI can accept no responsibility for volunteers who are injured whilst under the influence of alcohol. NO volunteer shall be allowed to use GVI boats for transportation whilst intoxicated by alcohol unless in an emergency situation. NO staff member shall be allowed to use GVI boats for transportation whilst under the influence of alcohol. It is unacceptable to teach or participate in community activities with a hangover. This can lead to immediate expulsion from the expedition
Seychelle	21	Kitchen	Gas Tanks	Pos sible	Sev ere	Signifi cant	Turn off gas tanks after cooking. Never leave the cooker unattended whilst in use.

Seychelles	2 2	Compressor	Compressor Operation	Possible	Severe	Significant	Only volunteers who have received suitable training by staff members may operate the compressor. All rules and guidelines must be followed at all times. Be cautious near high pressure hoses and when approaching an operating compressor. Make sure that long hair is tied back and avoid loose clothing that may get caught in the moving parts of the compressor. Use the ear defenders provided. Only refill the compressor fuel after allowing a cooling down period of at least 30 minutes. The area surrounding the compressor is ABSOLUTELY NO SMOKING. The compressor MUST NEVER be left unattended whilst in use.
Seychelles	2 3	All	Natural Disaster (Tsunamis, Hurricanes)	Unlikely	Severe	Moderate	Emergency Actions Plans are kept in the office. They detail procedures in the event of a natural disaster. If coastal waters suddenly recede, never follow the water out. Move as fast as is safe to do so away from the water's edge, seek higher ground where possible. A sudden drop in sea level is the first sign of an approaching Tsunami. Flooding can occur extremely quickly and can be dangerous, even when not deep. Never attempt to cross flood waters unless absolutely necessary. Flood water may be moving quickly, have underwater obstructions or be contaminated with disease. If necessary to cross to ensure your safety, wade slowly, using a stick to feel ahead and follow visible markers such as fences, using them for support if possible. Always avoid the fastest flowing water and try to stick to the margins of the flood. Move as a group where possible. During heavy rains stay away from steep sided hills or mountains. Never go walking or climbing in heavy rain and if you see evidence of a landslide in the area, move away carefully.
Seychelles	2 4	All	Machete Use	Possible	Severe	Significant	All volunteers will be given a Machete & Axe Orientation before being allowed to use one.
Seychelles	2 5	All	Theft	Possible	Major	Moderate	Doors should be shut at night. When rooms (dorms/kit room/office) are unattended they should be locked and all valuables stored inside.

Risk Assessment – Off base or Specific Activities

Expedition	Ref No.	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Seychelles	26	Off Base	Sporting Activities	Possible	Major	Moderate	All sporting activities such as football, volleyball or rugby are carried out at your own risk and are considered extra-curricular.

Seychelles	27	Off Base	Diving Outside of GVI	Probable	Minor	Moderate	Always ensure that you dive with a reputable company. Ensure that the equipment you use is in safe working order. Always follow safe diving practices and procedures and stay within limits of training.
Seychelles	28	Off Base	Piracy	Possible	Severe	Significant	Advise against boating/yachting activity within the Seychelles Exclusive Economic Zone beyond twenty miles of the granitic islands.
Seychelles	29	Community work	Shouting at, swearing or mistreating children leading to withdrawal of children	Possible	Severe	#REF!	Do not shout at or mistreat the children. Do not show impatience with the children or demonstrate behaviour that would scare them and influence their withdrawal. This will lead to expulsion from the expedition.
Seychelles	30	Community work	Giving home phone-numbers to children	Possible	Major	#REF!	Do not give your personal home phone numbers or details to the children or members of the community. This can lead to them using what little money they earn, find or even steal, to make international phone calls.
Seychelles	31	Community work	Accusation of improper behaviour with a child	Possible	Severe	Significant	Never be alone with a child, make sure there are GVI staff, volunteers or carers around at all times.
Seychelles	32	Off Base	Getting lost when Hiking	Possible	Major	Moderate	When hiking make sure to take adequate supplies of food, water and suitable clothing for changeable weather conditions. Take a mobile phone, first aid kit and inform a member of staff as to where and when you are going. NEVER hike alone and ALWAYS stick to designated paths.

Risk Assessment - Boat

Expedition	Ref No.	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Seychelles	34	All Boat	Lifting/Carrying	Possible	Minor	Minor	Take care when handling heavy/delicate equipment. Injury can occur from lifting incorrectly and from falling tanks, weight belts and other items. All gear must be stored correctly and securely when not in use and during transit.

Seychelles	35	All Boat	Seasickness	Possible	Minor	Minor	If you are prone to seasickness take preventative measures in sufficient time before going to sea. Ensure that any medication you take is safe for diving (i.e. NON-DROWSY) or for the work that you are going to do. Drink plenty of fluids to replenish fluids lost during sickness. Ensure all seasickness medication is written in the medication log BEFORE leaving camp.
Seychelles	36	All Boat	Poachers	Unlikely	Severe	Mode rate	Poachers are known to work illegally within the designated area of the Marine Parks. Poachers should never be approached as this may aggravate/create a hostile situation. If possible you may discretely collect information e.g. time, colour and type of boat, location and activity.
Seychelles	37	All Boat	Man Over Board	Possible	Major	Mode rate	Always stay in designated seating positions while boat is moving, do not sit on edges or on the bow/stern. Never stand up while boat is moving and always listen to the instructions of the skipper. Do not stand unless absolutely necessary, or move quickly as surfaces can be slippery. Listen to the instructions of the boat captain. Only enter or exit the water or approach the engines on permission of the captain. In the event of a 'man overboard' shout to alert the captain, and keep visual contact with the 'man overboard' to assist the captain with recovery. Never enter the water unless instructed to do so by the captain. In the event of a vessel capsize stay together as a group and use available life jackets and buoyancy aids. Follow the instructions of the captain at all times.

Risk Assessment - Diving

Expedition	Ref No.	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Seychelles	38	Diving	Nitrogen Narcosis	Unlikely	Minor	Trivial	Avoid deep dives, maximum dive depth with GVI is 30m for PADI Advanced Open Water Divers or above, 16m for all other training and survey dives. Be aware of the symptoms of nitrogen narcosis, monitor and slowly decrease depth if suspected.
Seychelles Marine	39	Diving	Decompression Sickness/Injury	Unlikely	Severe	Mode rate	Stay within max dive times and depths. All volunteers are responsible for planning dives unless under PADI training. All dives are planned with the PADI RDP Tables and are conducted as no-decompression dives. Never dive beyond the limits of your training or insurance cover and never beyond 30m. Never hold your breath whilst diving. Check your time, depth and air regularly. Personnel

							(volunteers and staff) are advised not to smoke immediately before or after diving as this increases the risk of DCI. NO FREE DIVING is permitted after diving at any time as this greatly increases the risk of DCS.
Seychelles Marine	40	Diving	Dive Equipment	Unlikely	Severe	Mode rate	All personnel (volunteers and staff) are responsible for pre-dive checking their own equipment. Dive equipment is a life support unit and should be properly maintained as shown by staff members. Do not leave dive cylinders standing up if unattended. Leave cylinders in the shade when not in use. Ensure you know how to disconnect an inflator hose in case of free flow. GVI dive equipment may only be used for GVI organised/supervised activities.
Seychelles	41	Diving / Snorkelling	Shallow Water Blackout	Possible	Severe	Significant	NO free diving beyond 5 metres and never for longer than 20 seconds duration. NEVER hyperventilate before free diving.
Seychelles	42	Diving / Snorkelling	Blocked Sinuses and Cold	Possible	Minor	Minor	Never dive with blocked sinuses or a cold. Never use temporary clearing medication. This can result in ear drum perforations, burst ear drum on descent or ascent (reverse block).
Seychelles Marine	43	Diving / Snorkelling	Buddy/Group diving and snorkelling - Separation & Lost Divers	Possible	Major	Mode rate	Always buddy dive, no further than 1-2m from your buddy. This is for your safety and that of your buddy. All dive groups should also stay together maintaining visual contact with the dive leader. When diving: If separated search for no more than 1 minute underwater, before surfacing if you do not find your buddy/group. Ascend without a safety stop unless completing your Advanced Open Water Deep Dive. All dive and snorkelling groups must carry a permanent SMB, in addition all dive buddy pairs must carry a Delayed SMB. Separated divers/groups should deploy the DSMB before surfacing. If separated from the boat, swim directly to shore, stay as a group and exit the water.
Seychelles	44	Swimming / Snorkelling	Drowning/Exposure to Elements/Interaction with dangerous animals	Possible	Major	Mode rate	NEVER swim alone, at night, or after consuming alcohol. Ensure that you have signed out and that someone knows you are going and when you will be back before you leave camp. Volunteers should wear appropriate protection against the sun, jellyfish, cold, etc. such as a wetsuit/rash vest, etc. when swimming and snorkelling. GVI organised swimming or snorkelling taking place MUST have adequate shore/boat support. Volunteers should carry an SMB when swimming in areas of high boat traffic.

Seychelles	4 5	Divin g / Snork elling / Swim ming	Aquatic Life Injury	Poss ible	Majo r	Mode rate	Specific local hazards will be explained on arrival. Do not approach or aggravate potentially dangerous marine life. Inform the rest of your dive group and dive leader if you encounter a dangerous marine animal. If the animal does not move away of its own accord, calmly leave the area. Jewellery can attract biting fish. Shiny jewellery should be removed or covered whilst in the sea. Avoid contact with coral. Coral cuts are slow to heal and can become infected easily, and coral can be easily damaged by diver contact. Fire coral can cause a burning skin irritation. Take care around sea urchins to avoid injuries from spines. Flower urchins have toxic spines which can lead to death. Use good buoyancy control. Do not handle shells or other aquatic life forms as this can lead to injury or even death. In Baie Ternay wear booties whilst walking to and from the boat to avoid injuries from Razor Clams. Wear appropriate protection, i.e. wetsuit, rash vest, to protect against jellyfish. Look upwards whilst ascending to avoid aggregations of jellyfish. Treat with vinegar and hot water if stung.
Seychelles	4 6	Divin g / Snork elling / Swim ming	Collision with boat / Propellor	Poss ible	Majo r	Mode rate	Always adhere to advice given in boat orientation. Never swim, snorkel or dive without SMB. On ascent from dives ensure that you are looking to the surface for overhead boat traffic. Do not approach boat until told to do so by skipper and ensure engines are in neutral before approaching the boat.

Risk Assessment Curieuse

Cover



**RISK
ASSESSMENT**

**GVI
Expedition**

**Seychelles Island
Conservation**

25/09/2019

Reviewed by Name: Victoria
Beasley
Science
Coordinator
Position: Coordinator

Signature: 

**Date
Reviewed:** Date: 25/09/2019

**Risk
Evaluation
Table:**

	Minor	Major	Severe
Unlikely	Trivial	Minor	Moderate
Possible	Minor	Moderate	Significant
Probable	Moderate	Significant	Unacceptable

Risk Assessment 2019.1.Curieuse,
Seychelles.4

GVI Southern Africa Placements,
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Street, Westlake Business Park,
Tokai, Cape Town
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Risk Assessment – Arrival

Hub	Ref No	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Curieuse	1	All	Every day hazards	Probable	Major	Significant	All personnel are to act as a reasonably prudent person would at all times and whilst undertaking all activities including common day-to-day activities.
Curieuse	2	All	Disregard of general safety	Possible	Major	Moderate	You are under GVI liability cover and hence you should always be with a GVI staff member or qualified personnel during any GVI activity. Non-GVI activities: Always check with a GVI staff member first before going anywhere and inform staff of expected time of return. All volunteers are responsible for their own actions, behaviour and safety when not under direct supervision of a member of staff.
Curieuse	3	All	Poor response to emergencies	Possible	Severe	Significant	Emergency Action Plans are available on base. All volunteers are shown the EAPs and how to follow them. They have details of evacuation procedures. Ensure that you know what to do in an emergency and become familiar with several evacuation routes.
Curieuse	4	All	Poor Health, Safety & Environment awareness	Unlikely	Major	Minor	All GVI bases will complete & sign a summary HSE form prior to the beginning of each quarter and send to the SA head office. A HSE meeting will be held in the first week and a minimum of every week thereafter. A volunteer rep will be assigned during the first week as an additional means of highlighting HSE issues.
Curieuse	5	All	Poor incident reporting	Possible	Major	Moderate	Discuss all issues and near misses/issues with staff, either in open meetings, in individual discussion, in volunteer rep meetings or through the anonymous suggestion box. If a suitable solution is not agreed and acted upon please see the Base Manager. If a safety issue is being ignored or insufficiently dealt with, contact the GVI head office.
Curieuse	6	All	Performing a task outside of the scope of training	Possible	Severe	Significant	Do not undertake any activity you are not comfortable with, that you have not received adequate training for or that you feel is unsafe. All personnel always have the right to say no if they feel any activity is unsafe or inappropriate.
Curieuse	7	All	Causing offence to	Possible	Major	Moderate	Always respect the local laws and customs. Always treat local people with respect and behave in a manner as to gain their respect and not disapproval.

			local communities				
Curieuse	8	All	Theft, mugging, assault	Possible	Major	Moderate	Never be alone on or off base. Take particular care when off base at night. When leaving the base sign out giving your destination and expected return time. Be aware that a lack of clothing may attract unwanted attention. Do not sunbathe topless in remote or unsuitable areas, and wear additional clothing when appropriate. Keep all valuables (credit cards, cash, passport and flight tickets) secured at base. Keep other valuables out of sight. In the unlikely event that you or the base is targeted for your or GVI belongings, hand them over without resistance.
Curieuse	9	All	Travel, hitchhiking	Unlikely	Major	Minor	All volunteers are strongly advised never to hitch. Always consider and assess the condition of any private vehicle used. Some roads in the Seychelles are dangerous. All volunteers must be constantly vigilant and travel and walk upon them at their own risk. GVI is not insured to carry volunteers in the back of trucks. All volunteers or staff travelling in the back of trucks do so at their own risk.
Curieuse	10	All	Medication	Unlikely	Severe	Moderate	Volunteers must inform staff of any medication they are currently taking, whether prescription or not. All medication taken, even seemingly 'trivial', must be written up in the medication log and initialled by a staff member.

Risk Assessment – Base and General

Hub	Ref No	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Curieuse	11	All	Minor injuries, illness, allergies, hygiene	Possible	Severe	Significant	Wear appropriate clothing/footwear when working. Clean small cuts/injuries thoroughly to prevent infection which can occur easily in tropical climates if not attended to. Inform a staff member of injuries and illness. Volunteers will be advised as to the location of first aid kits. Minor illness can become worse if not treated in the early stages, and can be prevented by maintaining high standards of hygiene at all times. Volunteers must inform staff of any known allergies on arrival. If you suffer any allergic reaction, however slight and even if you have not experienced such symptoms before, alert a member of staff immediately. All personnel should use adequate lighting around base when dark to prevent trips, falls or toe stub injuries.
Curieuse	12	All	Injuries due to improper lifting	Possible	Major	Moderate	Take care to lift heavy items in the correct manner. Do not be afraid to ask for assistance where necessary.

Curieuse	13	Kitchen	Rats - disease, infection	Unlikely	Severe	Moderate	Rats can carry many diseases, some of which can lead to death. Any food that has been fouled, or is suspected of being fouled, by rats should be thrown away. Food (and eating/cooking utensils where appropriate) should be stored in the appropriate places to prevent fouling or gnawing by rats. Ensure kitchen doors and windows are shut when kitchen is not in use.
Curieuse	14	All	Exposure to sun/heat (dehydration, sunburn, heat exhaustion, heat stroke)	Possible	Severe	Significant	Aim to drink at least four litres of water a day, more if you are undertaking physical work/working outside. Always wear a hat and sunglasses, cover any exposed skin, wear sunscreen. Do not over-exert yourself, particularly in the middle of the day. Avoid lengthy sun exposure between 11am and 3pm. You do not need to sunbathe; you will get a tan anyway. Take particular care when on the water. Remove yourself from heat, cool down, drink water and/or rehydration fluids if you experience any symptoms of heat exhaustion, heat stroke, dehydration or sunburn. Alert a staff member and monitor conditions. In the case of heat stroke, emergency medical services should be sought.
Curieuse	15	All	Mosquitoes (dengue fever) & biting, stinging insects, animal bites	Possible	Severe	Significant	Shake out beds, clothes and shoes. Be careful when moving objects which may be housing insects/animals. If bitten or stung alert a member of staff immediately. Use insect repellent, a mosquito net at night, and cover up during the relevant times. Keep bags done up. Use a torch at night. If seen, avoid, do not aggravate or handle and alert a member of staff. Do not scratch mosquito bites as this can lead to infection.
Curieuse	16	All	Trees, coconut trees, husking	Possible	Severe	Significant	Do not climb trees. Do not sit directly under coconut trees. Do not climb coconut trees to collect coconuts. Do not husk coconuts until shown by a member of staff, and always exercise caution. Use a stake, not a machete. Do not husk coconuts at night, or after drinking.
Curieuse	17	All	Derelict buildings	Unlikely	Severe	Moderate	Some bases may have buildings/areas which it is forbidden to enter. Staff will advise volunteers of these areas on arrival.

Curieuse	18	All	Fire, smoking, candles	Possible	Severe	Significant	<p>Open fires are strictly prohibited anywhere on Curieuse. Smoking is prohibited anywhere on Curieuse, except in designated areas at the GVI base and Ranger Station. No smoking in boats or vehicles, near flammable substances, or on survey, except in designated areas during breaks, volunteers must ask a staff member before smoking. Fuel and mechanical equipment should be kept out of direct sunlight wherever possible, and fuel containers should be allowed to vent in hot conditions. Extinguish all candles and naked flames when leaving a building. Never leave a naked flame unattended. Never use naked flames near any flammable materials.</p> <p>Suitable, in date, fire extinguishers can be found around camp and in all boats and vehicles. Volunteers will be shown their location and how to operate them. Only attempt to use an extinguisher if you are certain you can extinguish the fire without personal injury and that your escape route will remain clear. In case of a fire, raise the alarm by shouting "Fire, Fire, Fire" and exit the area in a calm and controlled fashion. In case of a fire alarm, gather at the appointed fire assembly point, which will be pointed out to volunteers on arrival.</p>
Curieuse	19	All	Drug use	Possible	Severe	Significant	<p>Drugs are strictly prohibited by GVI. Any volunteer found using drugs will be immediately removed from the expedition. GVI accept no responsibility if a volunteer is apprehended by police due to drug involvement. Always ignore suspect looking people or packages on the beach and alert staff. If a volunteer falls ill and drug involvement is suspected, alert a member of staff and seek immediate medical attention.</p>
Curieuse	20	All	Alcohol use	Possible	Severe	Significant	<p>Never consume alcohol before field work or using machinery and keep alcohol consumption to a minimum the night before field work. Alcohol increases risk of dehydration, heat exhaustion and heat stroke, particularly in the tropics. GVI can accept no responsibility for volunteers who are injured whilst under the influence of alcohol. Drinking games are not allowed whilst on base. No volunteer shall be allowed to use GVI boats for transportation whilst intoxicated by alcohol unless in an emergency situation. No staff member shall be allowed to use GVI boats for transportation whilst under the influence of alcohol. It is unacceptable to teach or participate in community activities with a hangover. This can lead to immediate expulsion from the expedition</p>
Curieuse	21	Kitchen	Gas tanks	Possible	Severe	Significant	<p>Turn off gas tanks after cooking. Never leave the cooker unattended whilst in use.</p>

Curieuse	2 2	All	Natural disaster (tsunami, flooding, hurricanes)	Unlikely	Severe	Moderate	Emergency Action Plans are kept in designated places on base. They detail procedures in the event of a natural disaster. If coastal waters suddenly recede, never follow the water out. Move as fast as is safe to do so away from the water's edge, seek higher ground where possible. A sudden drop in sea level is the first sign of an approaching tsunami. Flooding can occur extremely quickly and can be dangerous, even when not deep. Never attempt to cross flood waters unless absolutely necessary. Flood water may be moving quickly, have underwater obstructions or be contaminated with disease. If necessary to cross to ensure your safety, wade slowly, using a stick to feel ahead and follow visible markers such as fences, using them for support if possible. Always avoid the fastest flowing water and try to stick to the margins of the flood. Move as a group where possible. During heavy rains stay away from steep sided hills or mountains. Never go walking or climbing in heavy rain and if you see evidence of a landslide in the area, move away carefully.
Curieuse	2 3	All	Machete use	Possible	Severe	Significant	All volunteers will be given a Machete & Axe Orientation before being allowed to use one.
Curieuse	2 4	All	Theft	Possible	Major	Moderate	Doors should be shut at night. At any time when all staff and volunteers have to leave base, all rooms should be locked and all valuables stored inside.
Curieuse	2 5	Curieuse	Drinking water - disease, infection	Unlikely	Minor	Trivial	Only water from the treatment system is safe to drink. Water from the natural source on Curieuse may be used for cooking (if the water is boiled for a minimum of three minutes in the process), showering and washing.
Curieuse	2 6	All	Lightning strike	Unlikely	Severe	Moderate	If out in the field when a thunder storm strikes immediately stop what you are doing and head for cover. Wait for the storm to pass before resuming survey work or returning to the expedition base. If snorkelling/swimming or out on the boat/kayak return to shore as quickly as possible. Wait 30 minutes for the storm to pass before resuming the activity.
Curieuse	2 7	All	Right to search	Unlikely	Major	Minor	According to GVI's Terms and Conditions, GVI staff hold the right to request searches of the contents of any room, bag or belonging be shown where there is deemed a health and safety, legal or other serious risk including the possession of illegal and illicit substances.

Risk Assessment – Off Base

Hub	Ref No	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
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Curieuse	28	Off Base	Piracy	Possible	Severe	Significant	Advise against boating/yachting activity within the Seychelles Exclusive Economic Zone beyond twenty miles of the granitic islands.
Curieuse	29	Off Base	Extracurricular/free time activities	Unlikely	Severe	Significant	GVI cannot be held responsible for recommending any person or organisation or activity outside of GVI's expeditions and projects. Always assess the health and safety and security for yourself and do not undertake activities if you do not feel safe. Any extracurricular activities outside of GVI organised activities and projects are at your own risk and GVI cannot be held accountable for any incident or injury involved with extracurricular activities.
Curieuse	30	Kayak Use	Drifting out to sea, capsizing, swamping, man overboard	Possible	Major	Moderate	Adequate safety equipment must be carried on board at all times, and lifejackets/buoyancy aids must be worn if conditions are not calm. Kayaks must not be used in conditions (either actual or forecast) outwith the handling capabilities of the vessel and/or crew, and the operating area is not to exceed 200m of the south shore of Curieuse i.e. between Anse Mandarin and Anse Caiman. Proper training and orientation must be carried out prior to use.
Curieuse	31	Community work	Shouting or swearing at, or mistreating children	Possible	Major	Moderate	Do not shout or swear at children. Do not show impatience with the children or demonstrate behaviour that would scare them.
Curieuse	32	Community work	Giving home phone numbers to children	Possible	Major	Moderate	Do not give your personal home phone numbers or details to the children or members of the community. This can lead to them using what little money they earn, find or even steal, to make international phone calls.
Curieuse	33	Community work	Accusation of improper behaviour with a child	Possible	Severe	Significant	Never be alone with a child, make sure there are GVI staff, volunteers or carers around at all times.

Risk Assessment – Boat

Hub	Ref No	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Curieuse	34	All Boat	Lifting, carrying	Possible	Minor	Minor	Take care when handling heavy/delicate equipment. All gear must be stored correctly and securely when not in use and during transit.

Curieuse	35	All Boat	Seasickness	Possible	Minor	Minor	If you are prone to seasickness take preventative measures in sufficient time before going to sea. Ensure that any medication you take is safe (i.e. non-drowsy) for the work that you are going to do. Drink plenty of fluids to replenish fluids lost during sickness. Ensure all seasickness medication is written in the medication log before leaving camp.
Curieuse	36	All Boat	Poachers	Unlikely	Severe	Moderate	Poachers are known to work illegally within the designated area of the Marine Parks. Poachers should never be approached as this may aggravate/create a hostile situation. If possible you may discretely collect information e.g. time, colour and type of boat, location and activity.
Curieuse	37	All Boat	Man overboard	Possible	Major	Moderate	Always listen to and carry out the instructions of the captain. Always stay in designated seating positions while the boat is moving, except at the request of the captain, and do not hang over the edges or sit on the bow/stern, except when required to do so at low speed during shark tracking surveys. Do not move quickly as surfaces can be slippery. Only enter or exit the water or approach the engines on permission of the captain. In the event of a man overboard shout to alert the captain, and keep visual contact with the man overboard to assist the captain with recovery. In the event of a vessel capsize stay together as a group and use available life jackets and buoyancy aids.

Risk Assessment – Snorkelling and Swimming

Hub	Ref No	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Curieuse	38	Snorkelling/ Swimming	Shallow water blackout	Possible	Severe	Significant	No free diving beyond 5 metres and never for longer than 20 seconds duration. Never hyperventilate before free diving.
Curieuse	39	Snorkelling/ Swimming	Blocked sinuses	Possible	Minor	Minor	Never snorkel with blocked sinuses. Never use temporary clearing medication. This can result in ear drum perforations or burst ear drum on descent or ascent (reverse squeeze).
Curieuse	40	Snorkelling/ Swimming	Drowning, exposure to elements	Possible	Major	Moderate	Never swim alone, at night, or after consuming alcohol. Ensure that you have signed out and that someone knows where you are going and when you will be back before you leave camp. Volunteers should wear appropriate protection against the sun, cold, etc. such as a wetsuit/rash vest. Volunteers should always carry a Surface Marker Buoy (SMB). Swimming or snorkelling taking place away from the GVI base during program time must have adequate shore/boat support.

Curieuse	41	Snorkelling/ Swimming/Divining	Aquatic life injury	Possible	Major	Moderate	Specific local hazards will be explained on arrival. Do not approach or aggravate potentially dangerous marine life. If the animal does not move away of its own accord, calmly leave the area. Shiny jewellery can attract biting fish and should be removed or covered whilst in the sea. Avoid contact with coral as cuts are slow to heal and can become infected easily, and coral can be easily damaged. Take care around sea urchins to avoid injuries from spines. Do not handle shells or other aquatic life forms as this can lead to injury or death. Wear appropriate protection, i.e. wetsuit, rash vest, to protect against jellyfish. Swimming or snorkelling during program time must be conducted between the hours of 0800 and 1600, must be in groups of two or more, and a shore or boat marshall must be present if away from the GVI base. Groups must be equipped with an SMB and remain within sight/calling distance of the marshall.
Curieuse	42	Snorkelling/ Swimming/	Collision with boat/propeller	Possible	Major	Moderate	Always adhere to advice given in boat orientation. Never swim or snorkel without an SMB. Do not enter the water or approach the boat until told to do so by the captain and ensure engines are in neutral before approaching the boat. If swimming from one side of the boat to the other, swim around the front of the boat.

Risk Assessment – Project Work

Hub	Ref No	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Curieuse	43	Curieuse	Working with partners	Probable	Minor	Moderate	Volunteers may have the option to work with GVI partners who are professionals in their field, and their advice should be followed unless they feel their own personal safety or that of others is being put at risk, in which case all personnel have the right to say no.
Curieuse	44	Field work General	Falls, cuts, bruises	Probable	Major	Significant	Volunteers should continually assess the terrain on which they are working, understand their own limitations and exercise caution when approaching difficult terrain. All volunteers must wear appropriate clothing e.g. trousers, long sleeve tops and shoes as some work is conducted in dense vegetation. Extra care must be taken when walking on trails at night with volunteers and staff always required to use adequate lighting.
Curieuse	45	Turtle Beach Patrols	Turtle nesting work	Possible	Minor	Minor	All volunteers must remain quiet and be careful not to disturb emerging and nesting turtles. No flash photography should be used around turtles, and light pollution should be kept to a minimum at night.
Curieuse	46	Cocode Mer Survey	Falling from height	Possible	Severe	Significant	When working in the tree crown where there is a risk of serious injury or death from falling from a significant height fall arrest equipment must be used with the appropriate procedures.

Curieuse	47	Shark Survey Including Tracking Work	Bites, stings, impalement	Possible	Major	Moderate	All volunteers must wear appropriate footwear when on surveys and remain vigilant for sting rays in the mangroves and turtle pond survey areas. Volunteers must fully understand and comply with all necessary health and safety advice and survey training procedures provided by staff prior to survey work. Volunteers must always be supervised by a staff member when under training for shark survey work. Volunteers must only handle sharks as directed by staff, and only after appropriate instruction in correct handling procedures. Extra caution must be exercised in conditions of low light or poor water visibility.
Curieuse	48	Beach Profiling Survey	Large waves	Possible	Major	Moderate	Volunteers should exercise caution when working in the vicinity of the offshore step as potentially dangerous waves may approach at certain times of year.
Curieuse	49	Giant Tortoise Survey	Trips, crushing, bites	Possible	Minor	Minor	Volunteers should constantly be aware of their surroundings and exercise caution in the vicinity of tortoises. Take care to avoid being trodden on or bitten as beaks are sharp and powerful.
Curieuse	50	Baited Remote Underwater Video (BRUV) Surveys	Improper lifting, man overboard, cuts	Possible	Major	Moderate	Always lift BRUV frame with at least one other person and lift using an appropriate technique. Ensure that you are not standing on or entangled in any ropes that are attached to the BRUV frame, as this may result in being inadvertently pulled overboard and possibly underwater. Take care to avoid injury whilst preparing bait, as fish bones and knives can be sharp.
Curieuse	51	Rat Eradication Project	Machete injuries, disease	Possible	Major	Moderate	When moving over difficult terrain carrying machetes always use a sheath. Always be aware that any rat eradication equipment may have come into contact with rats, so always use and properly dispose of disposable gloves when handling equipment or deceased rats. Thoroughly wash hands upon completion of any rat eradication activities. Ensure any open cuts or grazes are covered during fieldwork, and disinfect any skin injuries at the earliest opportunity.

Risk Assessment – Under 18s

Hub	Ref No	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Curieuse	52	Under 18s Pro	Underage alcohol	Possible	Severe	Significant	Alcohol consumption is prohibited for participants on GVI Under 18s programs regardless of age. Any participant found to be drinking alcohol risks being expelled from the program.

		gram	consumption				
Curieuse	53	Under 18s Program	Minor smoking tobacco products	Possible	Major	Moderate	All participants must abide by local and UK laws regarding the purchase and use of tobacco products based on their age. Your Under 18s Leader will inform you of the specific requirements.
Curieuse	54	Under 18s Program	Assault or injury occurring off site	Possible	Severe	Significant	Under 18s participants are not allowed outside the program accommodation after dark, either alone or in groups, unless with an Under 18s Group Leader or GVI staff member. Any excursions after dark will be organised and led by Group Leaders or GVI staff and will occur as a group. Failing to follow this rule may lead to expulsion.
Curieuse	55	Under 18s Program	Sexual relationships among minors	Possible	Severe	Significant	Sexual intimacy is not allowed on GVI Under 18s trips.

Risk Assessment - Diving

Hub	Ref No	Activity or Location	Potential Hazard	Likelihood Rating	Severity Rating	Risk Evaluation	Control Measures
Curieuse	56	Diving	Blocked Sinuses and Cold	Possible	Minor	Minor	Never dive with blocked sinuses or a cold. Never use temporary clearing medication. This can result in ear drum perforations, burst ear drum on descent or ascent (reverse block).
Curieuse	57	Diving	Buddy/Group diving - Separation & Lost Divers	Possible	Major	Moderate	Always buddy dive, no further than 1-2m from your buddy. This is for your safety and that of your buddy. All dive groups should also stay together maintaining visual contact with the dive leader. When diving: If separated search for no more than 1 minute underwater, before surfacing if you do not find your buddy/group. Ascend without a safety stop unless completing your Advanced Open Water Deep Dive. All dive groups must carry a permanent SMB, in addition all dive buddy pairs must carry a Delayed SMB. Separated divers/groups should deploy the DSMB before surfacing. If separated from the boat, swim directly to shore, stay as a group and exit the water.

Curieuse	58	Divi ng	Collision with boat / Propellor	Possible	Maj or	Mode rate	Always adhere to advice given in boat orientation. Never dive without SMB. On ascent from dives ensure that you are looking to the surface for overhead boat traffic. Do not approach boat until told to do so by skipper and ensure engines are in neutral before approaching the boat.
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Risk assessment for snorkelling at Four Seasons Resort Seychelles (FSRS)

Guided Snorkel

Risk assessment: Guided snorkel activity at Four Seasons Resort Seychelles (FSRS)								
Contractor:		WiseOceans Ltd Contact Lindsay Sullivan on +248 2795229 (Seychelles) or +44 7840376373 (UK)						
Project:		Guided snorkel activity at FSRS						
Location	Petite Anse, Four Seasons Resort Seychelles, Baie Lazare, Mahe, Seychelles							
Brief description		Snorkelling on the reef within Petite Anse bay at FSRS. Taking resort guests and resort staff on guided snorkels.						
Hazard	Risk of:	Controls/action taken to minimise risk				Risk evaluation after		
						S	L	T
Environmental Conditions	Low tide affecting the safety of the snorkellers by increased risk of coming into contact with the substrate, leading to scratches, stonefish stings and other injuries.	The snorkel will be guided and a key responsibility of the guide will be to lead guests away from shallow areas where they may damage coral or themselves. The groups will be kept to a group size and ability level at which the guide can effectively and safely guide the group, the activity will be aborted if the current is strong enough to prevent snorkellers from being able to control their movement comfortably, and the guests will be briefed prior to entering the water than they should always float and not touch anything on the reef, and that they should stay close to the guide.				3	1	3

Environmental Conditions	Sea state making snorkellers difficult to see from shore or by other water users, or surface swimming by snorkellers difficult therefore inhibiting their ability to return to shore	Snorkelling will only be done when the sea conditions are 4 or less on the Beaufort Scale. At this level the snorkellers and their SMB or brightly-coloured life vest will clearly be seen and surface swimming is not compromised.	3	1	3
	Strong current leading to snorkellers drifting off course and being unable to return	This location is not normally subject to strong currents. Current will be assessed at the start of the snorkel and if the current is strong enough that the snorkellers are unable to control their movements (or in the case of non-swimmers/poor swimmers that the guide is unable to control the guest's movements) then the snorkel will be aborted. Non-swimmers and children will be required to wear a life vest. The group will be briefed to stay together and the guide will wear a whistle and carry an SMB or brightly-coloured life vest so that they can signal the shore in case of emergency.	2	1	2
	surge	This location can experience strong surge very close to the rocks. Surge will be assessed upon approach to the rocky area if the surge is strong enough that the snorkellers are unable to control their movements (or in the case of non-swimmers/poor swimmers that the guide is unable to control the guest's movements) then the rocky areas will be avoided. Non-swimmers and children will be required to wear a life vest.	3	1	3
	Extreme sea temperatures leading to overheating or hypothermia	The temperature range in this location is 26 - 32 deg C on the surface; such temperatures may lead to a snorkeller feeling discomfort from the temperature if inappropriate exposure suits are worn and/or during extended snorkelling times. All snorkellers will be briefed on the expected surface temperature. The snorkel guide is aware of the symptoms of hypothermia and will monitor the guests closely for any such signs. At the earliest signs of such the snorkel will be aborted.	3	1	3
	Sunburn and heatstroke due to sun exposure	Snorkellers will be made aware of the risk of sunburn and heatstroke, that the sun is strongest around midday, and that rash vests are available to borrow.	2	1	2
Participants	Incidents due to the guests being inexperienced snorkellers. These	All guided snorkel excursions are limited to a maximum of four guests per guide. The guests are asked beforehand on their experience of snorkelling and their level of ability is assessed. The guide may reduce the number of guests if they judge the guests to be very nervous, inexperienced or uncomfortable in the water. All guests are encouraged to wear life vests, and snorkel lessons are available. The guide will carry a form of buoyancy aid, such as a life vest or SMB, with sufficient buoyancy	3	1	3

Particip ants	may include the guest feeling uncomfortable or panicked, or not controlling themselves well in the water.	to support a large adult. This can be presented to a struggling swimmer to prevent them from leaning on the guide or other snorkellers.			
	Incidents due to the guests being unable to swim, or struggling to swim, including as a result of a medical emergency	Non-swimming guests will be required to wear life vests. The guide must always carry a form of buoyancy aid, such as a life vest or SMB, with sufficient buoyancy to support a large adult. This can be presented to a struggling swimmer to prevent them from leaning on the guide or other snorkellers.	3	1	3
	Incidents resulting from too many guest snorkellers for the guide to supervise, such as guests venturing too shallow, or guests feeling uncomfortable and not receiving support from the guide	Group size is limited to a maximum of four guests to one guide. At this number the guide can monitor the movements and comfort levels of all guests. The guide will assess the guests prior to snorkelling and reduce the number if the guests are particularly inexperienced or lacking in confidence in the water.	3	1	3
	Shallow water blackout or other injury to snorkellers (including guides)	Snorkellers will be advised not to duck dive unless they are experienced breath-hold divers. Hyperventilating prior to duck diving will not be permitted. Duck diving if the snorkeller has been scuba diving that day will also not be permitted.	3	1	3

	caused by breath-hold or duck diving				
	Injury to snorkellers caused by other inappropriate behaviour	The guide reserves the right to abort the snorkel if the behaviour of snorkellers is judged to pose a risk to any of the group.	3	1	3
Pollution	Negative effect on snorkellers' health due to other nutrient or chemical pollution	Snorkels will not be conducted following the discovery of chemical or nutrient pollution in Petite Anse bay until the pollutant has been sufficiently removed, diluted or dispersed. To be judged on a case by case basis and referred to the Contractor in every case.	3	1	3
Access	Injury to snorkellers caused by slipping or tripping on entry or exit to the water, including as a result of waves.	Snorkellers must always enter the water in the area indicated by the guide and demarked by buoys; the entry point used is typically sandy and gentle in slope but is subject to change. The surf zone can experience large waves even when the sea as a whole is 4 or less on the Beaufort Scale. The guests will be advised to look towards the sea not the beach in order to see waves coming, and the guide will instruct guests on when it is suitable to proceed.	2	1	2
Access	Injury to snorkellers caused by standing on sharp rocks, urchins, sting rays or stonefish on entry or exit to the water	Snorkellers must always enter the water in the area indicated by the guide and demarked by buoys; the entry point used is typically sandy and gentle in slope but is subject to change. Stonefish and sea urchins are not typically found in this immediate area; stingrays are occasionally found in this area. The guide will be vigilant at all times, looking for any hazards, and guests will be advised to proceed slowly and to shuffle their feet. Alternatively, guests may put fins on on land and enter the water in this channel walking slowly and carefully backwards.	3	1	3
	Collision with other water users during entry or exit	This location is used by recreational craft, such as speedboats and catamarans, by small fishing vessels, and commonly by kayakers, pedalos and stand up paddle boarders. Snorkel guides must carry a permanent SMB or brightly coloured life vest at all times to maintain high visibility to other water users. If a motorised boat is approaching or departing the shore, then snorkellers must wait until the boat has vacated the access point before entering it themselves. Snorkellers should keep a careful watch for kayakers and other water users and give them a wide berth of at least 3m.	3	1	3
Communications	Snorkellers being unable to get the	The snorkel guide will carry a long range extra loud whistle which they will use to signal the shore in case of emergency.	3	1	3

	attention of the shore in case of emergency				
Improper emergency actions	Increased severity of injury, illness or emergency caused by inappropriate or ineffective emergency actions	Emergency Action Plans have been produced for the two key scenarios under which incidents during guided snorkels at this location might fall: snorkeller with a marine life injury and snorkeller with a medical emergency. In each case the procedure for locating, retrieving, treating and evacuating the snorkeller are addressed and clearly stated. The snorkel guide must be familiar with the EAPs and drills must be conducted every six months to test the effectiveness and appropriateness of each EAP.	3	1	3
	Increased severity of injury, illness or emergency caused by lack of first aiders	All WiseOceans team, have completed the Emergency First Response course or refresher course, or equivalent course, in the last 24 months. Resort clinic is served by a qualified nurse and the Resort beach and security teams have first aiders on duty.	3	1	3
	Increased severity of injury, illness or emergency caused by lack of first aid equipment	A first aid kit with the contents recommended for a small group working in a non-remote location, with no particular hazards envisaged, is kept in the Coral Cabana.	3	1	3
Hazards	Injury to snorkellers caused by dangerous marine life	There are several marine species that are capable of causing injury which are found at this location, and some which are capable of causing death. All WiseOceans Marine Educators are aware of the potential dangers posed by certain marine species and are proficient at identifying all marine life in this location. Snorkellers are encouraged not to touch anything in the water, which reduces the risk of injury from benthic species, including cryptic and/or highly camouflaged species such as stonefish and flower urchins (more below). Guided snorkels are not conducted between the hours of 6pm and 6am therefore reducing the risk of encountering large predatory sharks. WiseOceans Marine Educators are aware of the symptoms and treatment of marine life injuries. The threat of injury from marine life cannot be completely removed and all snorkellers must be briefed thoroughly to snorkel with care, minimising the contact with all in-water substrates.	3	1	3
	Specifically injury to snorkellers caused by benthic species, including cryptic and/or	All snorkellers will be briefed on the dangers of hazardous benthic species and the importance of not touching the substrate. Snorkelling will not be done if the current or surge is sufficiently strong that snorkellers cannot control their movement in the water, or in the case of non-swimmers/poor-swimmers, if the guide cannot control the snorkeller's movements. The guide will not lead snorkellers over areas of shallow rock and the group size will be limited to four snorkellers to enable the guide to effectively manage all snorkellers.	3	1	3

	highly camouflaged species such as stonefish and flower urchins				
	Injury to snorkellers caused by boat movement	This location is used by recreational craft, such as speedboats and catamarans, by small fishing vessels, and commonly by kayakers, pedalos and stand up paddle boarders. Snorkel guides must carry a permanent SMB or high visibility life vest at all times. The SMB line must be kept taught, to accurately indicate the location of the snorkellers to other water users.	3	1	3
		Lindsay Sullivan			
	Risk assessment undertaken by:		(print name)		
		Director of Resort Marine Education and Development			
			(position)		
			(signature)		
	28/05/2017 (date)				

Other Snorkel

Risk assessment: Other snorkel activity at Four Seasons Resort Seychelles (FSRS)					
Contractor:	WiseOceans Ltd Contact Lindsay Sullivan on +248 2795229 (Seychelles) or +44 7840376373 (UK)				
Project:	Other snorkel activity at FSRS				
Location	Petite Anse, Four Seasons Resort Seychelles, Baie Lazare, Mahe, Seychelles				
Brief description	Snorkelling on the reef within Petite Anse bay at FSRS to conduct surveys, RRP work, other scientific work.				
Hazard	Risk of:	Controls/action taken to minimise risk	Risk evaluation after		
			S	L	T
Environmental Conditions	Low tide affecting the safety of the snorkellers by increased	The snorkel will be guided and a key responsibility of the guide will be to lead guests away from shallow areas where they may damage coral or themselves. The groups will be kept to a group size and ability level at which the guide can effectively and safely guide the group, the activity will be aborted if the current is strong enough to prevent snorkellers from being able to control their movement comfortably, and the guests will be	3	1	3

Environmental Condi tions	risk of coming into contact with the substrate, leading to scratches, stonefish stings and other injuries.	briefed prior to entering the water than they should always float and not touch anything on the reef, and that they should stay close to the guide.			
	Sea state making snorkellers difficult to see from shore or by other water users, or surface swimming by snorkellers difficult therefore inhibiting their ability to return to shore	Snorkelling will only be done when the sea conditions are 4 or less on the Beaufort Scale. At this level the snorkeller(s) and their SMB will clearly be seen and surface swimming is not compromised.	3	1	3
	Strong current leading to snorkellers drifting off course and being unable to return	This location is not normally subject to strong currents. Current will be assessed at the start of the snorkel and if the current is strong enough that the snorkellers are unable to control their movements then the snorkel will be aborted. The snorkeller(s) will wear a whistle and carry an SMB so that they can signal the shore in case of emergency.	2	1	2
	surge	This location can experience strong surge very close to the rocks. Surge will be assessed upon approach to the rocky area if the surge is strong enough that the snorkellers are unable to control their movements then the rocky areas will be avoided.	3	1	3
	Extreme sea temperatures leading to overheating or hypothermia	The temperature range in this location is 26 - 32 deg C on the surface; such temperatures may lead to a snorkeller feeling discomfort from the temperature if inappropriate exposure suits are worn and/or during extended snorkelling times. All snorkellers should be aware of the expected surface temperature before the snorkel commences. The snorkellers are aware of the symptoms of hypothermia. At the earliest signs of such the snorkel will be aborted.	3	1	3

	Sunburn and heatstroke due to sun exposure	Snorkellers are aware of the risk of sunburn and heatstroke, that the sun is strongest around midday, and must wear their WiseOceans rash vests which offers some sun protection.	2	1	2
Behavior	Shallow water blackout or other injury to snorkellers caused by breath-hold or duck diving	Snorkellers will be advised not to duck dive unless they are experienced breath-hold divers. Hyperventilating prior to duck diving will not be permitted. Duck diving if the snorkeller has been scuba diving that day will also not be permitted.	3	1	3
Pollution	Negative effect on snorkellers' health due to other nutrient or chemical pollution	Snorkels will not be conducted following the discovery of chemical or nutrient pollution in Petite Anse bay until the pollutant has been sufficiently removed, diluted or dispersed. To be judged on a case by case basis and referred to the Contractor in every case.	3	1	3
Access	Injury to snorkellers caused by slipping or tripping on entry or exit to the water, including as a result of waves.	Snorkellers must always enter the water in the area indicated by the guide and demarked by buoys; the entry point used is typically sandy and gentle in slope but is subject to change. The surf zone can experience large waves even when the sea as a whole is 4 or less on the Beaufort Scale.	2	1	2
Access	Injury to snorkellers caused by standing on sharp rocks, urchins, sting rays or stonefish on entry or exit to the water	Snorkellers must always enter the water in the area indicated by the guide and demarked by buoys; the entry point used is typically sandy and gentle in slope but is subject to change. Stonefish and sea urchins are not typically found in this immediate area; stingrays are occasionally found in this area. Snorkellers must be vigilant at all times, looking for any hazards.	3	1	3
	Collision with other water users during entry or exit	This location is used by recreational craft, such as speedboats and catamarans, by small fishing vessels, and commonly by kayakers, pedalos and stand up paddle boarders. Snorkellers must carry a permanent SMB at all times to maintain high visibility to other water users. If a motorised boat is approaching or departing the shore, then snorkellers must wait until the boat has vacated the access point before entering it themselves. Snorkellers should keep a careful watch for	3	1	3

		kayakers and other water users and give them a wide berth of at least 3m.			
Communications	Snorkellers being unable to get the attention of the shore in case of emergency	The snorkellers will carry a long range extra loud whistle which they will use to signal the shore in case of emergency.	3	1	3
Improper emergency actions	Increased severity of injury, illness or emergency caused by inappropriate or ineffective emergency actions	Emergency Action Plans have been produced for the two key scenarios under which incidents during guided snorkels at this location might fall: snorkeller with a marine life injury and snorkeller with a medical emergency. In each case the procedure for locating, retrieving, treating and evacuating the snorkeller are addressed and clearly stated. The snorkeller must be familiar with the EAPs and drills must be conducted every six months to test the effectiveness and appropriateness of each EAP.	3	1	3
	Increased severity of injury, illness or emergency caused by lack of first aiders	All WiseOceans team, have completed the Emergency First Response course or refresher course, or equivalent course, in the last 24 months. Resort clinic is served by a qualified nurse and the Resort beach and security teams have first aiders on duty.	3	1	3
	Increased severity of injury, illness or emergency caused by lack of first aid equipment	A first aid kit with the contents recommended for a small group working in a non-remote location, with no particular hazards envisaged, is kept in the Coral Cabana.	3	1	3

Hazards	Injury to snorkellers caused by dangerous marine life	There are several marine species that are capable of causing injury which are found at this location, and some which are capable of causing death. All WiseOceans Marine Educators are aware of the potential dangers posed by certain marine species and are proficient at identifying all marine life in this location. Snorkellers are encouraged not to touch anything in the water, which reduces the risk of injury from benthic species, including cryptic and/or highly camouflaged species such as stonefish and flower urchins (more below). Snorkelling is not permitted between the hours of 6pm and 6am therefore reducing the risk of encountering large predatory sharks. WiseOceans Marine Educators are aware of the symptoms and treatment of marine life injuries. The threat of injury from marine life cannot be completely removed and all snorkellers must be briefed thoroughly to snorkel with care, minimising the contact with all in-water substrates.	3	1	3
	Specifically injury to snorkellers caused by benthic species, including cryptic and/or highly camouflaged species such as stonefish and flower urchins	All snorkellers will be briefed on the dangers of hazardous benthic species and the importance of not touching the substrate. Snorkelling will not be done if the current or surge is sufficiently strong that snorkellers cannot control their movement in the water.	3	1	3
	Injury to snorkellers caused by boat movement	This location is used by recreational craft, such as speedboats and catamarans, by small fishing vessels, and commonly by kayakers, pedalos and stand up paddle boarders. Snorkellers must carry a permanent SMB at all times. The SMB line must be kept taught, to accurately indicate the location of the snorkellers to other water users.	3	1	3
		Lindsay Sullivan			
	Risk assessment undertaken by:		(print name)		
		Director of Resort Marine Education and Development	(position)		
			(signature)		
	28/05/2017 (date)				

EAP – Medical Emergency

SNORKELLER WITH A MEDICAL EMERGENCY	
Emergency Action Plan for a snorkeller with a medical emergency	

Snorkel guides:	
If a snorkeller in your group has a medical emergency and requires immediate evacuation from the water:	
Immediately signal to the beach support using your whistle, giving the emergency signal for retrieval (three short blasts).	
While you await the rescue dingy, treat the snorkeller on the surface as appropriate for the circumstances and in line with your Rescue Diver and EFR training.	
If you are very close to shore and believe that a tow is a quicker way to reach the shore then implement this after notifying the beach support of the emergency.	
Nominated beach support personnel:	
On receiving the emergency signal from the snorkellers, immediately nominate a person to keep permanent watch on them using the binoculars.	
Send the rescue Zodiac dingy to retrieve the snorkellers.	
Call 8888 to notify the Security team of the emergency; they will come to the beach to manage the first aid and transport to medical care when the snorkeller is brought back to the beach.	
IS A MARINE LIFE INJURY SUSPECTED?	
Call 8888 to notify the Security team of the emergency; they will come to the beach to manage the first aid and transport to medical care	
Retrieve the emergency folder from the Coral Cabana	
Look at the sheet of symptoms and descriptions of marine life injuries and treat as appropriate	
Let's prevent an emergency happening by:	
Assessing a snorkeller's health and fitness before a snorkel	
Keeping snorkel excursions within the limits of the least experienced and least capable in the group	
Guided snorkelling is not permitted in sea states of over four on the Beaufort Scale	
All snorkel guides to consider their physical and psychological condition before conducting snorkelling. Do not snorkel if you feel physically or emotionally unfit	
Let's ensure the situation can be managed if it does happen:	
All snorkel guides to be Rescue Diver or above, to ensure they are sufficiently trained in in-water rescue techniques	
All snorkel guides to wear whistles to notify beach support	
Snorkel guides and beach personnel must all be aware of the signal for a medical emergency at sea	
Snorkel guides to have completed the stamina tests so they are able to complete a tow	
All snorkel guides to be up to date with EFR training	
All divers to be familiar with the symptoms of marine life injuries	