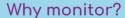
# How to Monitor your Reefs for Stony Coral Tissue Loss Disease





Monitoring your reefs for stony coral tissue loss disease will help to:

- correctly identify the disease;
- > track its spread; and
- ➤ assess the effectiveness of measures you might take to halt its progression.

This fact sheet will help you to determine where to focus your monitoring efforts, how to do roving diver surveys, how to complete the coral disease datasheets and understand the role of underwater photography.



# Assemble and train a team of snorkelers / divers

# Surveyors need to be:

- capable snorkelers or divers.
- ▶ able to maintain good buoyancy when diving, especially while writing on datasheets underwater (Figure 1).
- ➤ able to correctly identify susceptible coral species (Figure 2).



Figure 1. Divers need to maintain good buoyancy. © Fundacion Cayos Cochinos Nicole Webster



Figure 2. Correctly identify susceptible coral species. © Christine O'Sullivan

# Decide which coral datasheet to use

	AGRRA SCTLD-Bleaching Survey Datasheet											
Surveyor Name:		Date:	Time:	Latitude (or Local	ation):	Lon	gitude:			Reef Name (if known):		
AGRRA Site		Detailed Surveyo: MPA Status: Yes? No? Unsure?		Detailed Surveys: If a Restoration Site: Dutplant? Nursery?			Reef Type: Backreef? Other (Describe):			Reef Crest? Patch Reef? Fore Reef?		
Average Depth: m? or ft? Bottom Temp.: "C or "F?		Site Comments (e.g., major organisms):										
Tally all corals (including clumps) of species known to be susceptible to SCTLD.												
			# Corals with SCTLD &/or Fully Dispoked (SL), Partially			# Corals Fully Bleached (BL), Partially Bleached (PB),		# Corats	# Recently Fully	Notes; any		
Species	# He	salthy Consis	#SCTLD Corals	Bleach	ed (PB), or	Pale (P)	BL	or Pala (P)		with other Diseases(s)	Dead Corals	Photos?
OFTEN SEEN Colocohyllis natans:							1	-	Ė			
Copopopius natans: CNAT (Boulder Brain)***												
Dandrogyra cylindrus:												
DCYL (Pillar)*** Dichocoenia afokeaii:								_				
Dichocoenia atokeaii: DSTO (Elliptical Stari***												
Diploria laberinthiformia:												
DLAB (Grocoed Brain)***												
Eusmilia fastigiata: EFAS (Smooth Flower)***												
Meandrina Jacksoni:												
MJAC (White-valley Maze)*** Meandring magnetities*								_				
MMEA (Mazel***												
Vontastraea cavernosa: VCAV (Great Star)**												
Orbicella annularia: DANN (Lobed Star)**												
Orbicella faveolata:												
OFAY (Mountainous Star)** Orbice/la franksi:								_				
OFRA (Boulder Star)**												
Pseudodiploria cilvosa: PCLI (Knobby Brain)***												
Pseudodiploria strigosa:												
PSTR (Symmetrical Brain)***												
Siderastrea siderea: SSID (Massive Starlet)**												
Stephanocoenia interaepta:												
SINT (Blushing Star)** REEN LERS OFTEN												
Agaricia agaricites:					1.	<i>,,,</i>			$\overline{}$	K 11 1	IN LIE	_
AAGA (Lettuce)*					· \	/ I ŀ	- v	v (	( )	NI	INE	
Agaricia lamarcki: ALAM (Whitestar Sheet)							- •		~			
ALAM (Minister Sheet) Aparicia tenulfolia:	-				-							_
ATEN (Thin Leaf Lettuce)												
Space for other species,												
e.g., Porites astroides?: PAST (Mustard HIII?					1		l	l		1	l	
rear (manual PER)?					1		l	l		1	l	
Figure 3. AGRRA SCTLD – Bleaching												
Da	τа	Su	rvey	5h	ee	τ.						
Describe the survey protoco	l used:		Detailed Surveys: W site have each kind New? Trans?	that % of of partial Old?	all corals mortality?	at the	How wen	Surveyo: to the data velv? On		ed?	Comments	
Commitment I Standar				2441		A from the						Service NO. 10. I

<u>use this datasheet</u> if your surveyors are AGRRA-trained surveyors or know corals by their scientific names (Figure 3)

Diver Name:		Date:	Lineups from shore if no GPS:				
Site Name:		Latitude:	Depth Range:		Survey Time (in mins):		
	? Y(Yes) or N (No)	Longitude: Habitat:			Comments:		
	Broup or Species	Tally Number			ocently Dead	Photos? Y (Yes) or N (N	
Code	Name	Live	Diseased	Diseased 5			
DCYL	Pillar Coral						
MAZE	Any Maze Coral						
ERAIN	Any Brain Coral, or						
CNAT	Boulder Brain Coral						
DLAB	Grooved Brain Coral						
PCLI	Knobby Brain Coral						
PSTR	Symmetrical Brain Coral						
STAR	Any Star Coral, or						
DSTO	Elliptical Star Coral						
MCAV	Great Star Coral						
CANN	Lobed Star Coral						
OFAV	Montainous Star Coral		7				
OFRA	Boulder Star Coral		VIEW	$\bigcirc N$	II IN	E D	
SSID	Massive Starlet Coral		VIL VV	VIEVV CIVELIN			
LETTUCE	Any Lettuce Coral		_				
OTHERS (describe)							
(describe)							

▶ <u>use this datasheet</u> if your surveyors don't have advanced training (Figure 4)

# Monitoring SCTLD

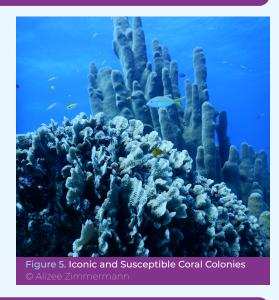
# Decide where to monitor

Some criteria you may want to consider when identifying monitoring sites are:

➤ What species are present?

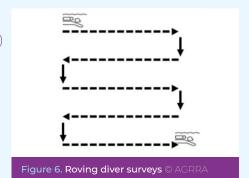
Look for sites that contain the species that are most susceptible to the disease, like the maze, brain, star and starlet corals.

- ► Do you have any sites with iconic coral colonies? Monitor sites that are important for historical, educational or economic purposes (Figure 5).
- ► Has anyone noticed sick looking corals? Visit any sites with a lot of bleached or sick looking corals to determine if the disease is present there.



# Conduct roving diver surveys

- Swim in a lawnmower fashion, back and forth across part of the site. (Figure 6)
- Look for susceptible corals
- Tally how many are affected, or not, by the disease.
- Don't count the same coral more than once.
- Get a representative sample of the corals at the site.



# Document the corals surveyed

On the simpler AGRRA data sheet tally each of the stony corals that are most susceptible to stony coral tissue loss disease as it is encountered during the survey. Tally by species and whether or not the coral is live, diseased, or recently dead (Figure 7). Also record if any pictures of the corals have been taken.

G	roup or Species		Photos? Y (Yes) or N (No)		
Code	Name	Live	Diseased	Recently Dead	Priotos / 1 (1es) or N (No)
DCYL	Pillar Coral				
MAZE	Any Maze Coral	Ш	HH.		
BRAIN	Any Brain Coral, or	1	ı	ı	

Figure 7. Tally of the corals surveyed

color, no signs of active disease, bleaching, or unusual signs of stress (Figure 8).

Live corals look healthy with normal, healthy tissue

Diseased corals are those affected by stony coral tissue loss disease. These may have tissue sloughing off exposing white, intact skeleton (Figure 9).

Recently dead means that the coral's skeletal features are clearly visible (Figure 10).

# Take photographs

Divers should take photos of the dive site, including landscape view shots of the habitat and close-up photos of corals.

Use a scale when taking close up photos. This will help document and monitor disease progression.

