



NOAA
FISHERIES

Pacific Islands
Fisheries
Science Center

REA Benthic Methods

Review

Data Collection Basics: Adult Survey

ADULT CORAL COLONY ≥ 5 cm

Surveys of adult coral colonies are conducted within **four** 1.0×2.5 m segments along each transect.

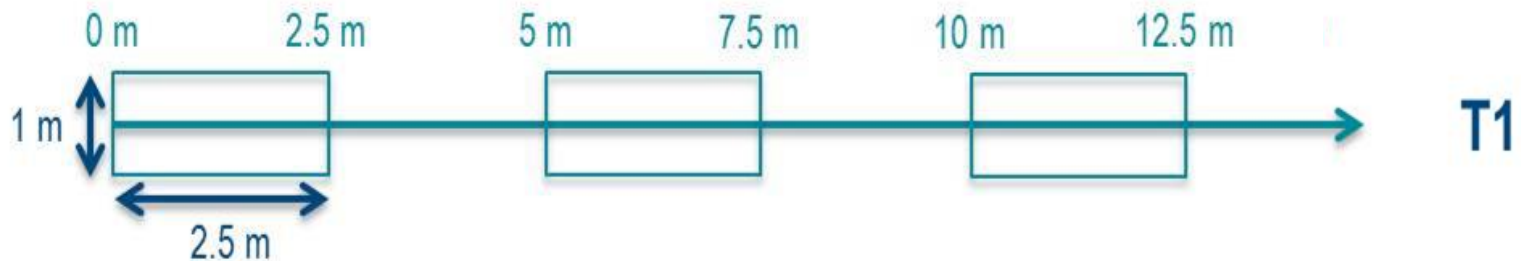
The segments are:

0 – 2.5 m(seg. 0)

5 – 7.5 m(seg. 5)

10 – 12.5 m (seg. 10)

15 – 17.7m (seg. 15) *** omit this segment on deep sites due to bottom time



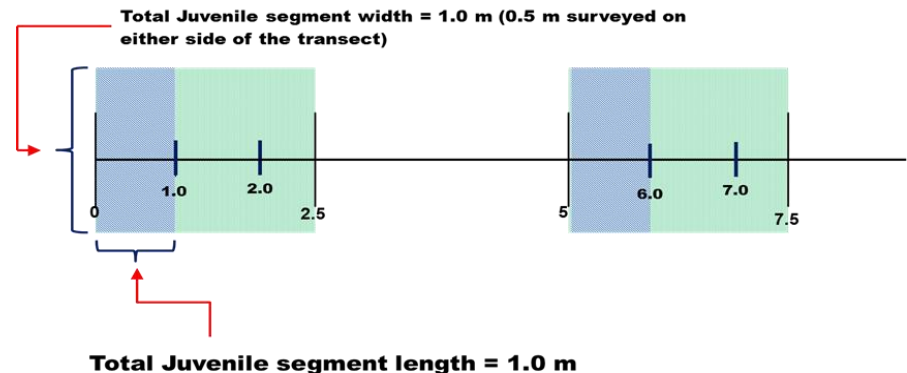
Data Collection Basics: Juvenile Survey

JUVENILE CORAL COLONY < 5 cm

A distinct tissue and skeletal boundary should be visible (not a fragment of larger colony). Survey of juvenile coral colonies are conducted within **three 1.0 × 1.0 m** segments along each transect. **Juveniles recorded to GENUS**

The segments are:

- 0 – 1 m (seg. 0)
- 5 – 6 m (seg. 5)
- 10 – 11 m (seg. 10)



As with adult colonies, the center of the juvenile colony must be within the boundaries of the segment.

Benthic Data Sheet

BENTHIC CORAL DATA SHEET							Observer:				Date:		
Location/Habitat:						Site Notes:							
Site:						Depth T1 (min/max):				Depth T2 (min/max):			
Col	T	Seg	Taxon	Morph	L (cm)	W (cm)	%Dead	%Recent	RD cause	Condition	Ex	Sv	Comment
1													
2													
3													
4													
5													
6													
7													
8													

Coral identification

- Record coral ID (genus or species)

DATA SHEET

Site:

Depth:

Taxon Morph L (cm)

BRANCHES / PLATES OF BR.S WITH AXIAL CORALLITE <i>Acropora</i> sp. ACSP : 14 <i>Acropora abrotanoides</i> Trees from base AABR : 56 <i>Acropora intermedia</i> Growth: rhizome AINT : NA <i>Acropora globiceps</i> (frag. w/ dist. radial) AGLO : 49 <i>Acropora retusa</i> (subventral axial, horizontal) ARET : NA <i>Acropora hyacinthus</i> rosettes AHYA : NA <i>Acropora paniculata</i> tubular upward APAN : NA NO AXIAL CORALLITE: Corallite < 2mm <i>Pocillopora</i> sp. POCSP : 30 <i>Pocillopora grandis</i> No gap PGRA : 42 <i>Pocillopora meandrina</i> Water gap PMEA : 17 <i>Pocillopora verrucosa</i> Big water PVER : 26 <i>Pocillopora damicornis</i> leafy PDAM : 54 <i>Seriatopora</i> sp. Corallite bushes SESP : NA <i>Seriatopora aculeata</i> (fines, short, tapered) SACU : NA <i>Stylophora</i> sp. Chubby bushes STYS : 21 <i>Porites</i> sp. POSP : 10 <i>Porites cylindrical</i> Branching Porites PCYL : 79 <i>Psammocora</i> sp. PSSP : 59 <i>Psammocora stellata</i> Crumpy branches PSTE : 74 NO AXIAL CORALLITE: Corallite > 2mm <i>Isopora</i> sp. Same pores - often in/over corallite ISSP : 64 <i>Caulastrea</i> sp. Fleaky, like LOBS CASP : NA NO AXIAL CORALLITE: Br. Irreg. / Ang. <i>Montipora</i> sp. MOSP : 6 <i>Hydnophora</i> sp. HYSY : 76 <i>Hydnophora rigida</i> Flat branches, ridges HRIG : NA		MASSIVE OR THICK CRUST COR.S W/ SHARED WALLS < 6 MM <i>Porites</i> sp. POSP : 10 <i>Porites lichen</i> Plates and columns PLIC : 50 <i>Porites lobata</i> Deep corals, smooth PLOB : 09 <i>Porites lutea</i> Trail has lumps on lumps PLUT : 46 <i>Goniastrea</i> sp. Strong polt GONS : 65 <i>Goniastrea edwardsi</i> Thick, long GEDW : 07 <i>Goniastrea retiformis</i> Thin, reg GRET : 12 <i>Goniastrea pectinata</i> Fine mesh GPCA : 69 <i>Leptastrea</i> sp. LEPT : 37 <i>Leptastrea bewickensis</i> LBW : 52 <i>Leptastrea purpurea</i> LPUR : 02 <i>Gardineroseris planulata</i> GPCA : 69 <i>Favites</i> sp. Flat, shared walls FAVS : 57 COR.S W/ SHARED WALLS 6-15 MM <i>Goniastrea</i> sp. Strong polt GONS : 65 <i>Favites</i> sp. Flat, shared walls FAVS : 57 COR.S W/ SHARED WALLS > 15 MM <i>Favites</i> sp. Flat, shared walls FAVS : 57 <i>Acanthastrea</i> sp. All teeth ACAS : 18 COLONY W/ RAISED TEXTURES <i>Porites</i> sp. POSP : 10 <i>Porites rus</i> PRUS : 50 <i>Porites monticulosa</i> PMON : 73 <i>Galaxea</i> sp. MOC-DOE GASP : 08 <i>Hydnophora</i> sp. HYSY : 76 <i>Hydnophora exosa</i> Hyd. mass HEXE : NA <i>Hydnophora microconus</i> Hyd. net HMIC : 34 <i>Pachyseris</i> sp. PACS : NA COLUMNS <i>Scaphophyllia cylindrica</i> SCYL : 67 <i>Pavona</i> sp. PAVS : 41 <i>Pavona maldivensis</i> PMAL : NA <i>Isopora</i> sp. ISSP : 64 <i>Goniopora</i> sp. GOSP : 33 <i>Psammocora</i> sp. PSSP : 59 NON-SCLERACTINIAN CORALS <i>Millipora</i> sp. MISP : 44 <i>Helopora coerulea</i> HCOE : 22 COR.S W/ SHARED/NO WALLS > 10 mm <i>Oulophyllia</i> sp. NO grooves, big teeth, capitate OUSP : 78 <i>Symphyllia</i> sp. Grooves, big teeth, capitate SYSP : NA COR.S WITH SEPARATE WALLS <i>Caulastrea</i> sp. Fleaky, like LOBS CASP : NA <i>Lobophyllia</i> sp. Thick, like LOBS LOBS : 70 <i>Euphyllia</i> sp. Tubular teratodes EUSP : NA <i>Euphyllia paradivisa</i> branching structure EPAR : NA		THIN PLATES & CRUSTS ENCRUSTING W/ ROUND COR.S <i>Porites</i> sp. POSP : 10 <i>Porites lichen</i> Plates and columns PLIC : 50 <i>Porites vaughni</i> Small, crinkles PVAU : NA <i>Astreopora</i> sp. Sandy sand ASTS : 60 <i>Turbinaria</i> sp. Wide corals, smooth coen. TUR : 40 <i>Echinopora</i> sp. Beaded sand ECHP : 47 <i>Echinophyllia</i> sp. Hugged gravel ECHL : 62 <i>Stylocoeniella</i> sp. Small, spiky STSP : 80 VASES / TIERS <i>Acropora</i> sp. ACSP : 14 <i>Acropora hyacinthus</i> rosettes AHYA : NA <i>Turbinaria</i> sp. Wide corals, smooth coen. TUR : 40 <i>Montipora</i> sp. MOSP : 06 <i>Leptoseris</i> sp. Pin-stripes LESP : 39 <i>Echinopora</i> sp. Beaded sand ECHP : 47 <i>Merulina</i> sp. Hugged reefsides MESP : 77 <i>Pachyseris</i> sp. Cross ridges PACS : NA <i>Oxyrops</i> sp. Indistinct corals OSXP : NA <i>Echinophyllia</i> sp. Hugged gravel ECHL : 62 MYCADIUM <i>Myccadium</i> sp. Indistinct masses, clear coen. MYSP : NA COR.S W/ NO WALLS / LINKED <i>Pavona</i> sp. broken ridges, not tied PAVS : 41 <i>Pavona chiniquensis</i> not tied PCHI : 05 <i>Pavona varians</i> continuous ridges, variable (black) PVAR : 15 <i>Pavona maldivensis</i> flat, side pocket PMAL : NA <i>Leptoseris</i> sp. Pin-stripes LESP : 39 <i>Psammocora</i> sp. PSSP : 59 <i>Psammocora nierstraszii</i> rough, grey PNIE : 36 <i>Psammocora profundocella</i> (very) PPRO : 28 <i>Coscinaraea</i> sp. beads COSP : 66 <i>Pavona</i> sp. PAVS : 41 <i>Pavona duerdeni</i> flat-chose PDUE : 35 <i>Pavona cf. diffuens</i> polka-dotted PDIF : 63 SOLITARY OR FREE LIVING <i>Ctenactis</i> sp. Fleaky structure CTSP : NA <i>Cycloseris</i> sp. like dry shell CYSP : 55 <i>Fungia</i> sp. (lobate) FUSP : 61 <i>Halomitra</i> sp. Lobate, not tied HASP : NA <i>Herpolitha</i> sp. (LOBS) has hard HERS : NA <i>Polypillia</i> sp. Tentacles + POLY : NA <i>Sandalolitha</i> sp. Thick, hard SASP : 43 LARGE EXPANDED POLYPS <i>Alveopora</i> sp. 12 branching ALSP : 75 <i>Goniopora</i> sp. 24, polypoid GOSP : 33 <i>Pterogorgia</i> sp. bubbles PLER : 72 <i>Euphyllia</i> sp. Tubular teratodes EUSP : NA <i>Euphyllia paradivisa</i> Br. Terat. EPAR : NA LEAFY OR LETTUCE-LIKE <i>Pachyseris</i> sp. Cross ridges PACS : NA <i>Leptoseris</i> sp. Pin-stripes LESP : 39 <i>Pavona</i> sp. PAVS : 41 <i>Oxyrops</i> sp. Indistinct corals OSXP : NA <i>Turbinaria</i> sp. Wide corals, smooth coen. TUR : 40 W/ FINGERS, TUBES, COLUMNS <i>Porites</i> sp. POSP : 10 <i>Porites lichen</i> PLIC : 50 <i>Porites rus</i> PRUS : 50 <i>Porites monticulosa</i> PMON : 73 <i>Montipora</i> sp. MOSP : 06 <i>Pavona</i> sp. Lumpy columns PMNC : 71 <i>Echinopora</i> sp. Beaded sand ECHP : 47 <i>Merulina</i> sp. Hugged reefsides MESP : 77	
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Morphology: Branching (BR)

- Record coral morphology

AL DATA SHEET

Stat:

Taxon	Morph	L (cm)

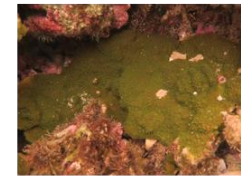
Branching (BR)



Columnar (CO)



Encrusting (EN)



Foliose (FO)



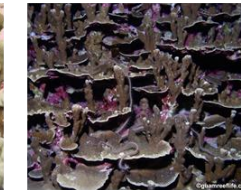
Free Living (FR)



Knobby (FR)



Laminar Columnar (LC)



Plating (LC)



Mounding (MD)



Mounding Lobate (ML)



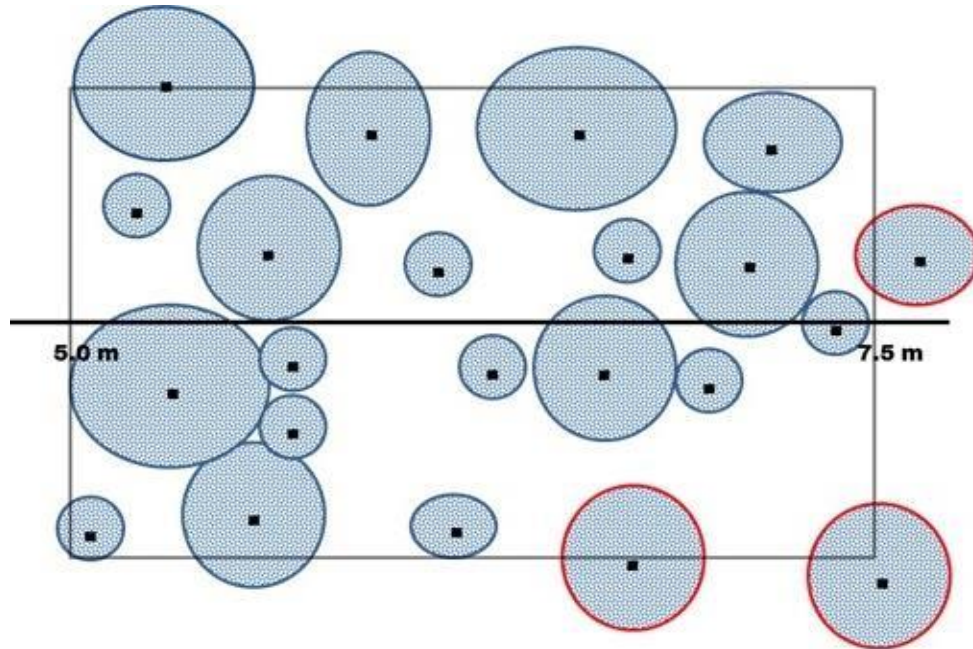
Table (TB)



Colony Boundaries

[illegible]

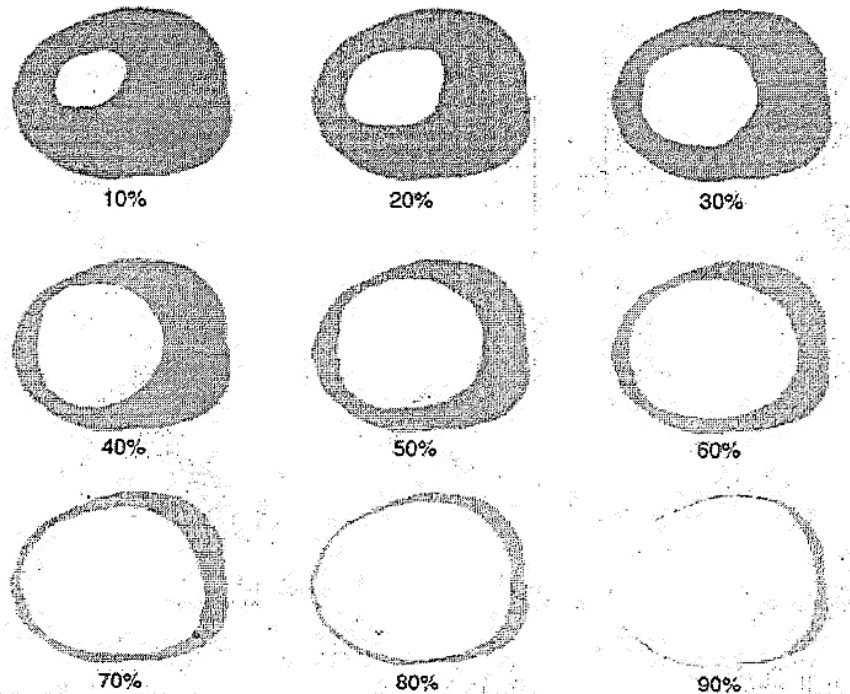
- Identify boundaries of coral colony and measure length of diameter



Percent Mortality

Observer: HB					
Site Notes: Dive # 1 Mod					
Depth T1 (min/m)			Depth T2 (min/m)		
34			37		
(cm)	W (cm)	%Dead	%Recent	RD cause	Condition
12		65			PRS
67		20			
8		10			
13		55			
7					
8		5			
11					
25					
17					
27		60	10	TLS	
2.2	1.8				
.6	0.8				
.5	1.3				
22					
29		10			
12					
21		75	20	TUNI	

Estimate partial mortality (Old Dead and Recently Dead)



White = % mortality

Identify Reason for Recent Death

Three causes of recent death (“RD cause”)

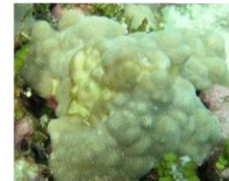
(1) Coral diseases – general (DZGN)

Observer: HB					
Site Notes: Dive # 1 Mod					
Depth T1 (min/max): 34/37			Depth T2 (min/m)		
(cm)	W (cm)	%Dead	%Recent	RD cause	Condition
12		65			PRS
67		20			
8		10			
13		55			
7					
8		5			
11					
25					BLE
17					
27		60	10	TLS	
2.2	1.8				
6	0.8				
5	1.3				
22					
29		10			
12					
21		75	20		

Acute Tissue Loss /
White Syndrome (WSY)



Sub-Acute Tissue
Loss (TLS)



Banded Fungal
Infection (BFI) **rare**



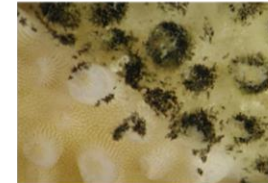
Black Band
Disease (BBD) **rare**



Porites Ulcerative White
Spot (PUS) **rare**

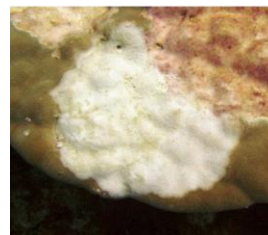


Ciliate Infection (CIL) **rare**



(2) Predation – general (PRED)

Crown of Thorns
(COTS)



Fish
(FISH)



Gastropod
(GAST)



(3) Physical Damage (DAMG)

Identify any conditions of living tissue on coral colony

cent		RD cause	Condition	Ex	Sv	Comment
			PRS	10		
			BLE	50	2	
0		TLS				
0		TUNI				

Endolithic Fungal Infection (FUG)



Algal Infection (ALG)



Pigmentation Response (PRS)



Skeletal Growth Anomalies (SGA)



Porites Trematodiasis (PTR)



Bleaching (BLE)

