METADATA

The 2007 benthic cover data is given in an ArcMap shapefile format and consists of six associated files:

- 1. Heron 2007 benthic Data PhotoTransect
- 2. Heron 2007 benthic Data PhotoTransect.dbf
- 3. Heron 2007 benthic Data PhotoTransect.prj
- 4. Heron_2007_benthic_Data_PhotoTransect.sbn
- 5. Heron 2007 benthic Data PhotoTransect.shx
- 6. Heron_2007_benthic_Data_PhotoTransect.sbx

Data in the *.dbf file are in a tabular format where each line corresponds to a one sample point /photo. The columns for each line give all the associated information for the particular sample photo. Cover for a given benthic class are expressed in percentage based on the 24 points scored for each photo. A description of the column header titles is given by Table 1.

Table 1. Column header description (Note: Fill color in major categories and sub categories denote linkage)

Heading	Heading Info	Notes
	Unique number for each	
ID .	data point	
Transect_n	Transect name	
Trans_date	Transect date	
Photo_name	Associated benthic photo	
Course	Place of origin of the data	
Source	(Center and/or University) Person directly	
	responsible with the data	
Contact	creation	
Comac	Person who analysed the	
Analysis	photos	
EASTWGS84	Eastings in meters	
NorthWGS84	Northings in meters	
	Water depth at time of	
Depth	photo acquisition	
Major categories	(Basic)	
		Can recognise corallites and coral is not white
С	CORAL	or overgrown with turf or coralline algae and
		morphology described according to (Veron et
		al 2000)
SC	SOFT CORAL	Not a hard coral, 8 tentacles per polyp, soft, leathery, sometimes colourful
		Can recognise corallites and coral is
DC	DEAD CORAL	overgrown with turf when white it is recently
		dead
		Grass like flowering plant, not macro algae
SG	SEAGRASS	and in generally green if epiphytes notes can
		be made
MAC	MACRO ALGAE	Large algae with a calcium carbonate
IVIAC	CALCAREOUS	framework
	MAGDO ALGAE NON	
MA	MACRO ALGAE NON CALCAREOUS	Large algae without a calcium carbonate framework
	CALCAREOUS	Iramework
COA	CYANO BACTERIA AND	Small algae / microalgae with no distinct
COA	OTHER ALGAE	morphology and may be filamentous
		Anything which forms the reef bottom and
011	OLIDOTDATE	which has not been colonised by coral, algae
SU	SUBSTRATE	or seagrass on top. In generally it is hard and it can be differentiated between moving and
		not moving.
0	OTHER	Any thing which is not a plant, coral or any substrate categories listed here
		Substrate categories listed fiere
		View of the bottom cover obscured by field
TWS	TAPE, WAND, SHADOW	instrument or shadow, out of focus, overview
		photo
Sub categories		
Coral		
	I	

LBC	Live Branching Coarse (LBC)	Branching but you can stick your fingers through (Veron et al 2000)
LBF	Live Branching Fine (LBF)	Branching but you cannot stick your fingers through (Veron et al 2000)
LD	Live Digitate (LD)	Small finger like projections
LE	Live Encrusting (LE)	A layer of coral which growth over a hard substrate (Dead Coral or Rock) (Veron et al 2000)
LF	Live Foliose (LF)	Leaf like (Veron et al 2000)
LFL	Live Free Living (LFL)	Disk like or Free living coral can move (Veron et al 2000)
LM	Live Massive (LM)	Massive hard thick round big or also sub massive where from a distance it looks like one complete shape. (Veron et al 2000)
LSM	Live Sub Massive (LSM)	Single part which you can pull out of base or sticks out like a single finger (Veron et al 2000), columnar, finger like projections thicker than digitate
LT	Live Tabular (LT)	It looks like a table and not like a little bush, it is flat on the top and it is solid or perforated (Veron et al 2000)
Soft Coral		
LSC	Live Soft (LSC)	Coral with no hard skeleton
Dead Coral		
DSTT	Dead Tabular Turf (DSTT)	Solid plate like coral overgrown with turf (small layer of algae)
DBCC	Dead Branching Coarse CCA (DBCC)	Branching but you can stick your fingers through overgrown with crustose coralline algae
DBCT	Dead Branching Coarse Turf (DBCT)	Branching but you can stick your fingers through overgrown with turf (small layer of algae)
DBFC	Dead Branching Fine CCA (DBFC)	Branching but you cannot stick your fingers through overgrown with crustose coralline algae
DBFT	Dead Branching Fine Turf (DBFT)	Branching but you cannot stick your fingers through overgrown with turf (small layer of algae)
DEC	Dead Encrusting CCA (DEC)	A layer of coral which growth over a hard substrate (dead coral or rock) overgrown with crustose coralline algae
DET	Dead Encrusting Turf (DET)	A layer of coral which growth over a hard substrate (dead coral or rock) overgrown with turf (small layer of algae)
DFC	Dead Foliose CCA (DFC)	Leave like overgrown with crustose coralline algae
DFT	Dead Foliose Turf (DFT)	Leave like overgrown with turf (small layer of algae)

DFLC	Dead Free Living CCA (DFLC)	Free living coral can move overgrown with crustose coralline algae
DFLT	Dead Free Living Turf (DFLT)	Free living coral can move overgrown with turf (small layer of algae)
DMC	Dead Massive CCA (DMC)	Massive hard thick round big where from a distance it looks like one complete shape. Overgrown with crustose coralline algae
DMT	Dead Massive Turf (DMT)	Massive hard thick round big where from a distance it looks like one complete shape. Overgrown with turf (small layer of algae)
DSMC	Dead Sub Massive CCA (DSMC)	Single part which you can pull out of base or sticks out like a single finger, columnar, overgrown with crustose coralline algae
DSMT	Dead Sub MassiveTurf (DSMT)	Single part which you can pull out of base or sticks out like a single finger, columnar, overgrown with turf (small layer of algae)
DDT	Dead Digitate Turf (DDT)	A layer of coral which growth over a hard substrate (dead coral or rock) overgrown with turf (small layer of algae)
T_DT	Dead Tabular All	Total percentage of dead coral subcategories that is tabular (subcategories included: DSTT)
T_DBC	Dead Branching Coarse All	Total percentage of dead coral subcategories that is branching coarse (subcategories included: DBCC, DBCT)
T_DBF	Dead Branching Fine All	Total percentage of dead coral subcategories that is branching fine (DBFC, DBFT)
T_DE	Dead Encrusting All	Total percentage of dead coral subcategories that is encrusting (DET, DEC)
T_DF	Dead Foliose All	Total percentage of dead coral subcategories that is foliose (DFC, DFT)
T_DFL	Dead Free Living All	Total percentage of dead coral subcategories that is free living (DFLC, DFLT)
T_DM	Dead Massive All	Total percentage of dead coral subcategories that is massive (DMC, DMT)
T_DSM	Dead Sub Massive All	Total percentage of dead coral subcategories that is sub massive (DSMC, DSMT)
T_DD	Dead Digitate All	Total percentage of dead coral subcategories that is digitate (DDT)
Seagrass		
SGHO	Halophila ovalis (SGHO)	Oval to oblong like leaf, leaf margins smooth, no leaf hairs (Waycott et al. 2005)
SGD	Seagrass detritus (SGD)	Dead seagrass floating around on benthos of mixed with other dead stuff

	Seagrass – Species	
SGOT	Unknown (SGOT)	Unknown species of seagrass
Macro Algae Calcareous		
ACH	Halimeda (ACH)	Green calcareous algae, form looks like little leafs which looked to be stacked on top of each other
ACO	Macroalgae -Calcareous - Species Unknown (ACO)	Unknown species of calcareous macroalgae
ACP	Padina (ACP)	White calcareous semi circle shapes in leave like forms
ACU	Udotea (ACU)	Green calcareous fan like shape
Macro Algae Noi	n Calcareous	
ACA	Caulerpa (ACA)	Green, grape like connected through green roots looking structures branching over the substrate
ATG	Chlorodesmis (ATG)	Bunch of green grass like form, also known as turtle weed also known as turtle grass (TG)
ACHN	Chnoospora (ACHN)	Intricate spongy clumps or mats usually 15 cm or more across made up of repeatedly forked and entangled branches which may be somewhat flattened by not ribbon-like
ACS	Colpemenia sinuosa (ACS)	Rounded or irregular gas filled vesicles, usually 2-6 cm diameter
ADI	Dictyota (ADI)	Brown branching algae with little round tips
AHY	Hydroclathrus (AHY)	Sac-like thallus with perforations throughout. Resembles a brown, soft Swiss cheese. Few to several cm in length. Net-like structure.
ALA	Laurentia (ALA)	Brown,Green, Red looking branching algae oft in little bushes
ALO	Lobophora (ALO)	Brown orange semi circle shapes in leave like forms
AOT	Macro Algae Non- Calcareous - Species Unknown (AOT)	Unknown species of non-calcareous macroalgae
ASA	Sargassum (ASA)	Brown colour, as if floating in the water column due to air bubbles trapped in little chambers
ATU	Turbinaria (ATU)	Brown colour looks like <i>Sargassum</i> but with little brown trumpets
Cyanobacteria and other algae		
CABR	Branching Coralline Algae (CABR)	Coralline algae with a branching form
CARO	Crustose Coralline Algae on Rock (CARO)	Rock with crustose coralline algae on it

CARU	Crustose Coralline Algae on Rubble (CARU)	Rubble with crustose coralline algae on it
MCS	Cyano on Sediment (MCS)	Hairy like strings of cyano bacteria on sand in generally longer and higher then MPB or turf
МСО	Cyano-other (MCO)	Cyano bacteria on coral, algae, seagrass, gorgonion
MCRO	Cyano-rock (MCRO)	Cyano bacteria on rock
MCRU	Cyano-rubble (MCRU)	Cyano bacteria on rubble
TADE	Dense Turf (TADE)	Dense enough such that you cannot see the bottom type on which it is growing on
MPS	MPB on Sediment (MPS)	Microphytobenthos (MPB) on sand where there is sand patches visible (every CPCe point could have MPB but still sand visible)
МРМ	MPB-mat (MPM)	Microphytobenthos (MPB) is covering completely image and no sand patches are visible so is always 100% cover.
TARO	Turf on rock (TARO)	Turf not higher then 1 cm overgrowing on a rock
TARU	Turf on rubble (TARU)	Turf not higher then 1 cm overgrowing on a rubble
Substrate		
SP	Pavement (SP)	Flat hard bottom having a low relief
SR	Rock Clean (SR)	Cannot be moved, cannot recognise it as coral, cannot see corallites, nothing growth on it
SRU	Rubble (SRU)	Can be moved, and can be held in one hand
SS	Sediment (SS)	Can be moved, can be held in one hand but falls out easy because it is small previously this was sand light dark, or silt mud
Other		
OGC	Clam (OGC)	Clam
OCS	Crown of Thorns (OCS)	Crown of Thorns Starfish
OG	Gorgonians (OG)	Gorgonian
OSP	Sponge (OSP)	Sponge
OSF	Star Fish (OSF)	Star fish
OUR	Urchins (OUR)	Sea urchin
OZ	Zoanthid (OZ)	Zoanthid
Totals Categories (Derived from a particular set of subcategories)		
T_C_C	Total CCA on coral	Derived from the Subcategories with crustose coralline algae on a coral: DBCC, DBFC, DEC, DFC, DFLC, DMC, DSMC
T_T_C	Total Turf on coral	Derived from the Subcategories with turf algae on a coral (subcategories included: DSTT, DBCT, DBFT, DET, DFT, DFLT, DMT, DSMT, DDT)

T C C	Total CCA or substant	Derived from the Subcategories with crustose
T_C_S	Total CCA on substrate	coralline algae on a substrate: CARO, CARU
T_T_S	Total Turf on substrate	Derived from the Subcategories with turf algae on a substrate : TADE, TARO, TARU
T_CCA	Total CCA	Derived from the Totals Categories with crustose coralline algae: T_C_C , T_C_S
T_TUR	Total Turf	Derived from the Totals Categories with turf algae (subcategories included: T_T_C , T_T_S)
T_MPB	Total MPB	Derived from the Subcategories with microphytopbenthos: MPS, MPM
T_CYA	Total Cyano	Derived from the Subcategories with cyanobacteria: MCS, MCO, MCRO, MCRU
T_Rub	Total Rubble	Derived from the Subcategories with rubble: CARU, MCRU, TARU, SRU
T_ROC	Total Rock	Derived from the Subcategories with rock: CARO, MCRO, TARO, SR
T_SED	Total Sediment	Derived from the Subcategories with sediment (subcategories: MCS, MPS, SS)
Major Categories	s (Extensive) - Some derive	d from a set of subcategories
N_C	CORAL	Derived from Major Category (Basic): Coral "C"
N_SC	SOFT CORAL	Derived from Major Category (Basic): Soft Coral "SC"
N_DC	DEAD CORAL	Derived from Major Category (Basic): Dead Coral "DC"
N_SG	SEAGRASS	Derived from Major Category (Basic): Seagrass "SG"
N_MAC	MACRO ALGAE CALCAREOUS	Derived from Major Category (Basic): Macroalgae Calcareous "MAC"
N_MA	MACRO ALGAE NON CALCAREOUS	Derived from Major Category (Basic): Macroalgae Non Calcareous "MA"
N_TRU	Total Rubble	Derived from Totals Category: T_Rub
N_TRO	Total Rock	Derived from Totals Category: T_ROC
N_TSED	Total Sediment	Derived from Totals Category: TSED
N_TPA	Pavement (SP)	Derived from Sub Category: Pavement "SP"
N_OTCY	OTHER + CyanoOther	Derived from Major Category Other and Subcategory "MCO"
N_NOTS	TAPE, WAND, SHADOW	Derived from Major Category: Tape, Wand and Shadow "TWS"
N_TSUB	Total Sediment, Rubble, Rock, Pavement	Derived from Major Categories (Extensive): N_TRU, N_TRO, N_TSED, N_TPA, N_OTCY
TAPE, WAND, SHADOW		
DK	Don't Know (DK)	Cannot determine substrate cover type
OF	Out of Focus (OF)	Photo is out of focus
OV	Overview (OV)	Overview image, not included in photo scoring

Shade	Shade (Shade)	Picture is in the shade
Tape	Tape (Tape)	View obstructed by transect tape
Wand	Wand (Wand)	View obstructed by wand or other instrument/equipment
NOTES (% of photo)		
NB	Bleached Coral or Algae	Corallites are visible no turf or coralline algae on top, pale, fluoro, and white surface bleaching
NCD	Coral disease	Corallites are visible no turf or coralline algae on top and fluoro surface bleaching
NCS	Coral scars	Corallites are visible no turf or coralline algae on top and completely white bleaching
NSE	Seagrass Epiphyte present	A photosynthetic organism the lives on the surface of seagrass blades