

Appendix E. Climate Monitoring Site Benthic Habitat Characterization

SITE: BOB-02

DEPTH: 14.0m

LOCATION: Batugade, Bobonaro



Figure 65. Landward view of Batugade from site BOB-02.



Figure 66. Underwater views of site BOB-02.

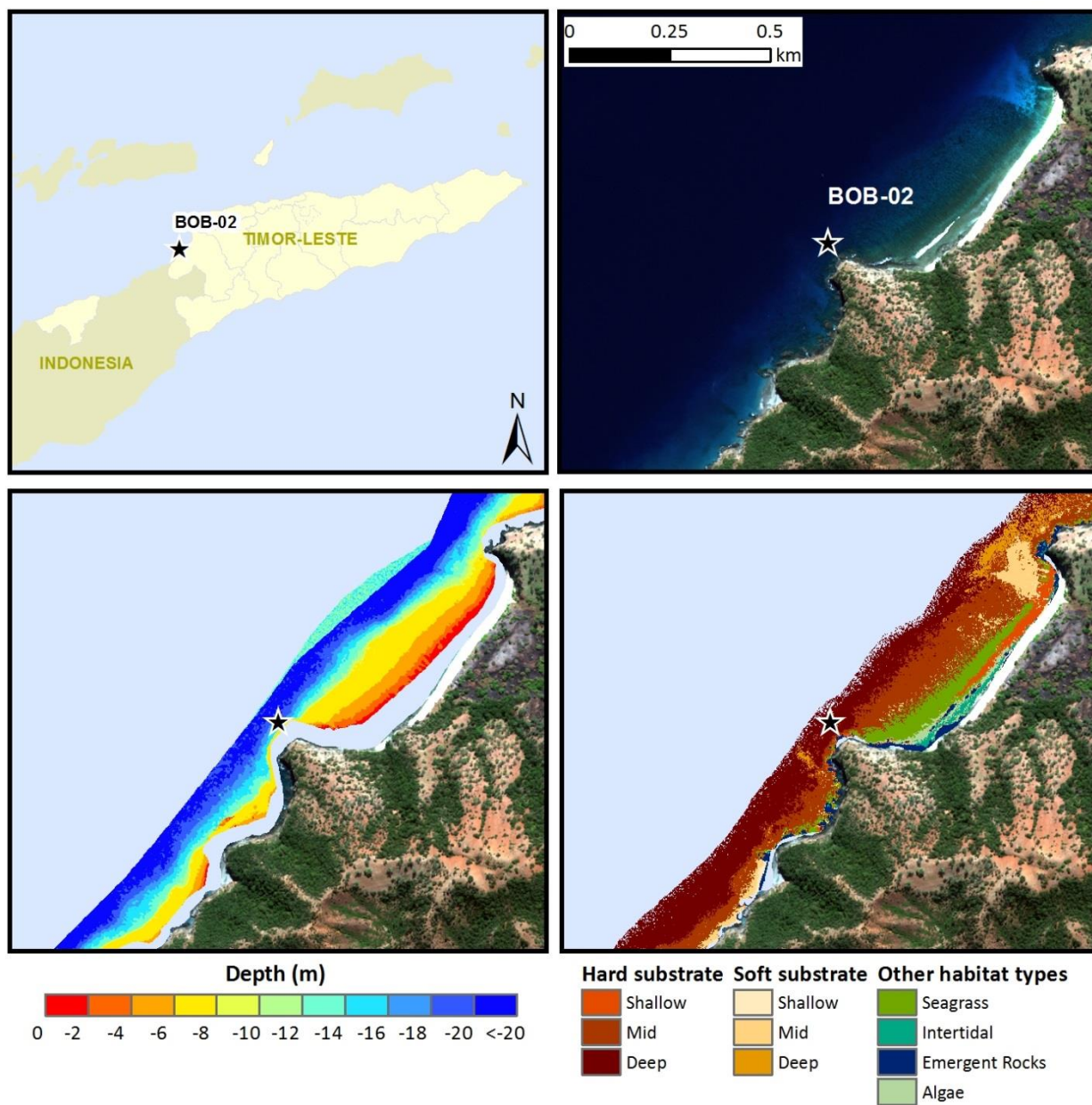


Figure 67. Maps of site BOB-02 (indicated by the black star), including WorldView-2 satellite image (*top right*), bathymetry (*bottom left*) and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*).

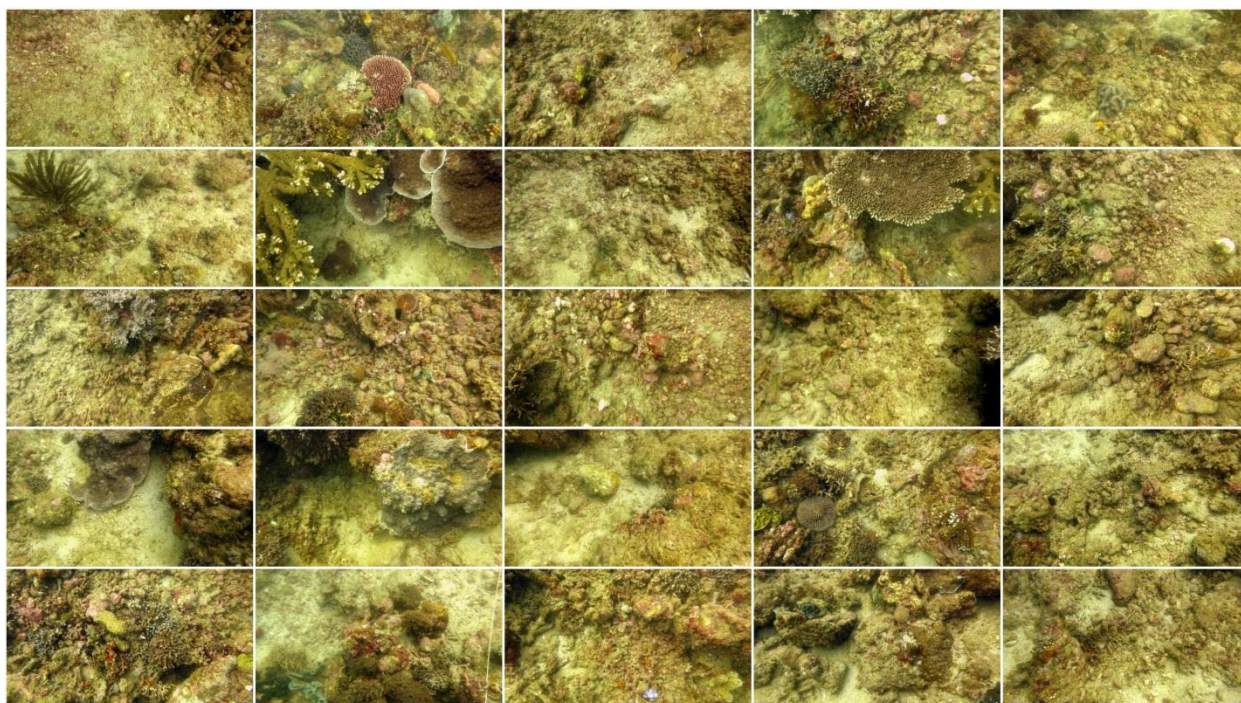


Figure 68. A collage of benthic photographs illustrating the benthic composition at site BOB-02 from the photographs taken around the perimeter in 2014.

Table 15. Benthic composition (i.e., mean percent cover) at site BOB-02. The benthic substrate ratio is the ratio of corals and crustose coralline algae (CCA) to nonaccreting organisms (macroalgae and turf algae), calculated from the mean percent cover.

BENTHIC CATEGORY	COVER (%)
Hard coral	11.6
Soft coral	2.7
CCA	6.6
Macroalgae	5.5
Turf algae	61.7
Invertebrates	2.7
Sand	2.7
Unclassified	6.5
TOTAL	100.0
BENTHIC SUBSTRATE RATIO	0.3



Figure 69. Photos of the ARMS plates from an ARMS unit recovered from site BOB-02. There are 9 plates per ARMS unit, with the topside and underside of each plate photographed except for the bottom plate that had only the topside photographed since the underside was resting on the base plate, for a total of 17 photos per ARMS unit. ARMS plate photos are displayed starting from the top plate in the upper left corner moving in a left to right direction for each row of photos. The photos with the cross hatches represent semi-closed layers.

SITE: DIL-02
DEPTH: 13.1m
LOCATION: Dili Rock, Manatuto



Figure 70. Landward view of Dili from site DIL-02.



Figure 71. Underwater views of site DIL-02.

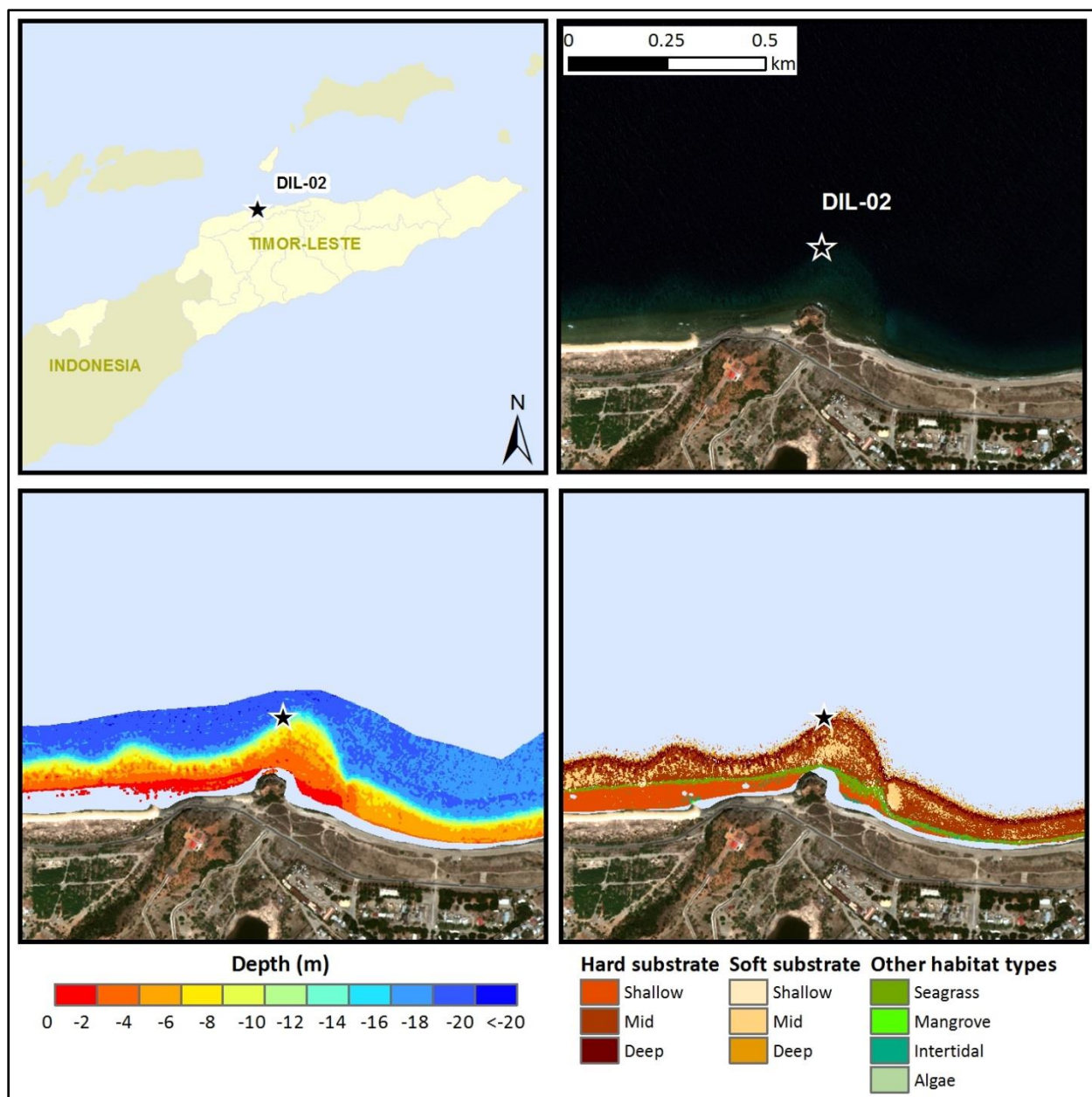


Figure 72. Maps of site DIL-02 (indicated by the black star), including WorldView-2 satellite image (*top right*), bathymetry (*bottom left*) and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*).

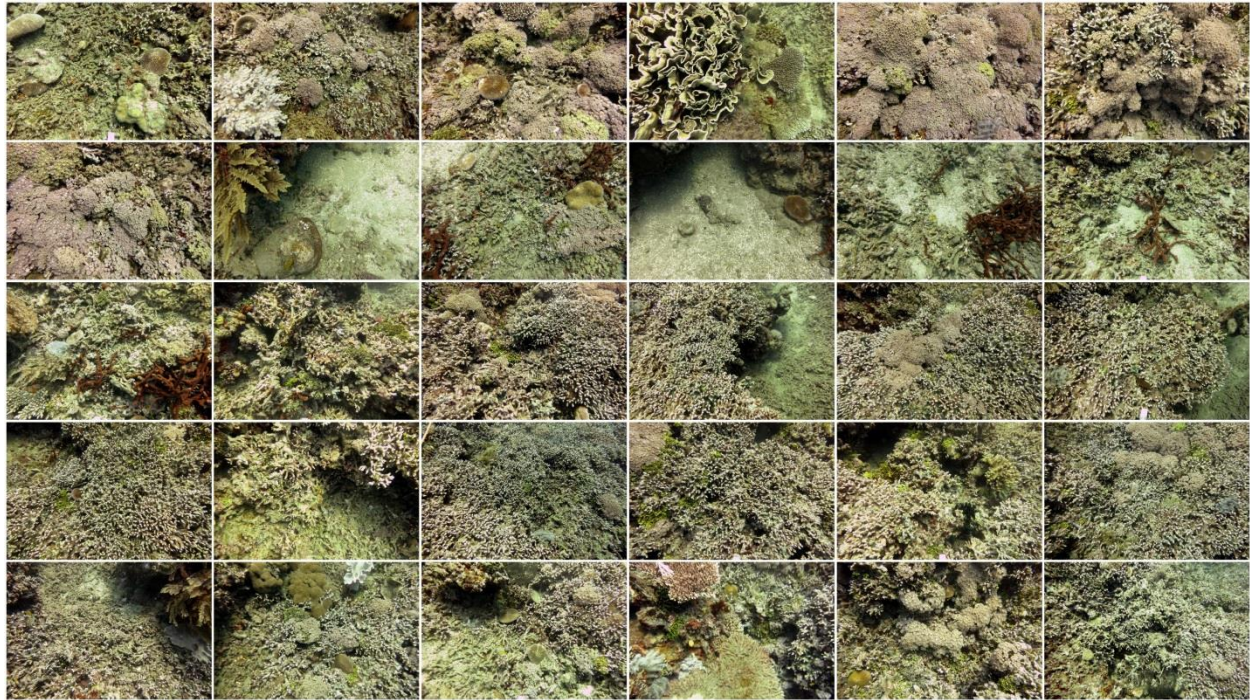


Figure 73. A collage of benthic photographs illustrating the benthic composition at site DIL-02 from the photographs taken around the perimeter in 2014.

Table 16. Benthic composition (i.e., mean percent cover) at site DIL-02. The benthic substrate ratio is the ratio of corals and crustose coralline algae (CCA) to nonaccreting organisms (macroalgae and turf algae), calculated from the mean percent cover.

BENTHIC CATEGORY	COVER (%)
Hard coral	21.6
Soft coral	17.5
CCA	1.7
Macroalgae	4.0
Turf algae	26.7
Invertebrates	4.3
Sand	4.0
Unclassified	20.1
TOTAL	100.0
BENTHIC SUBSTRATE RATIO	1.3

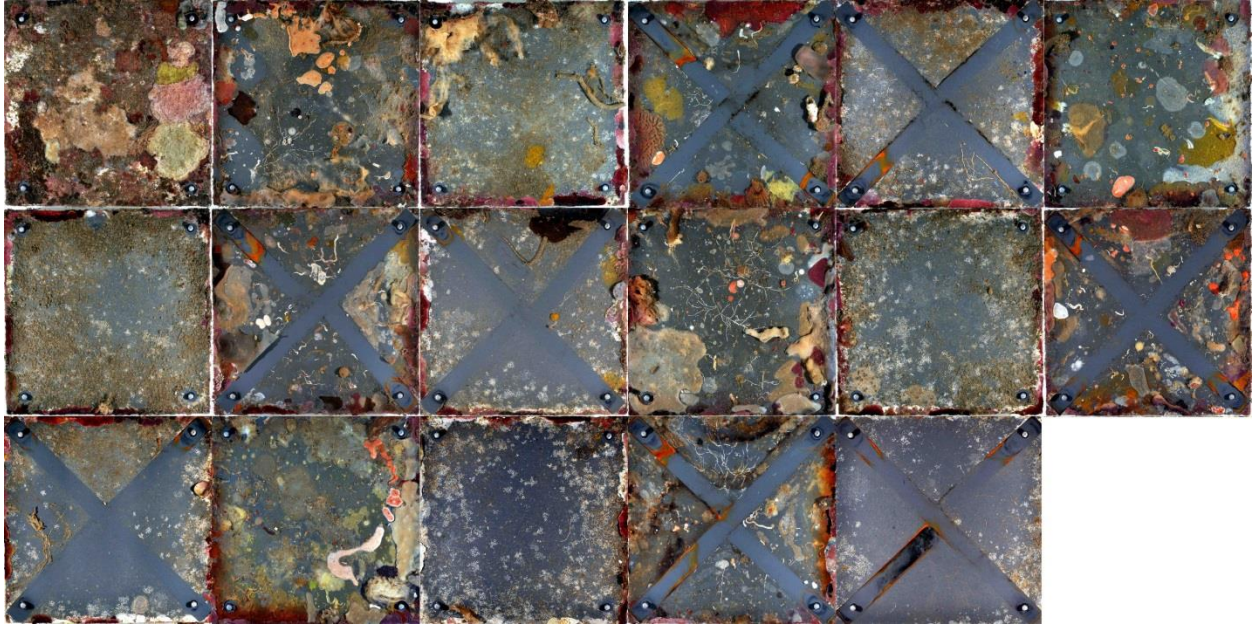


Figure 74. Photos of the ARMS plates from an ARMS unit recovered from site DIL-02. There are 9 plates per ARMS unit, with the topside and underside of each plate photographed except for the bottom plate that had only the topside photographed since the underside was resting on the base plate, for a total of 17 photos per ARMS unit. ARMS plate photos are displayed starting from the top plate in the upper left corner moving in a left to right direction for each row of photos. The photos with the cross hatches represent semi-closed layers.

SITE: VIL-03
DEPTH: 14.3m
LOCATION: South Atauro Island, Dili



Figure 75. Landward view of the east coast of Atauro Island from site VIL-03.

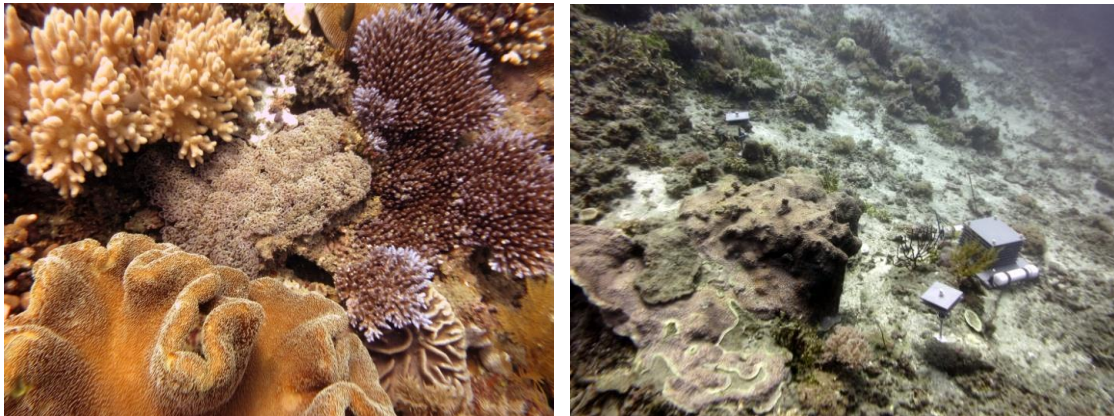


Figure 76. Underwater views of site VIL-03.

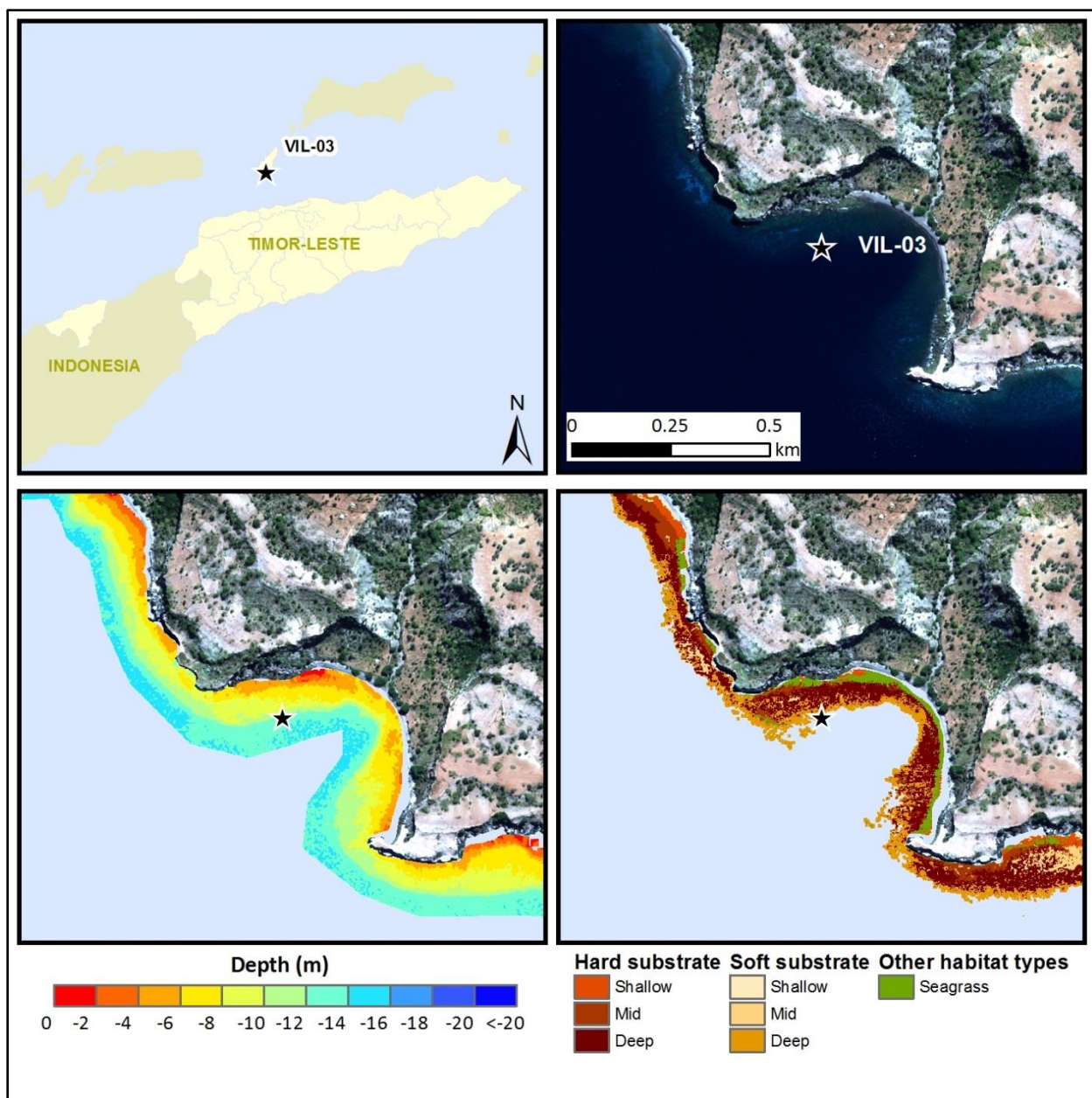


Figure 77. Maps of site VIL-03 (indicated by the black star), including WorldView-2 satellite image (*top right*), bathymetry (*bottom left*) and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*).

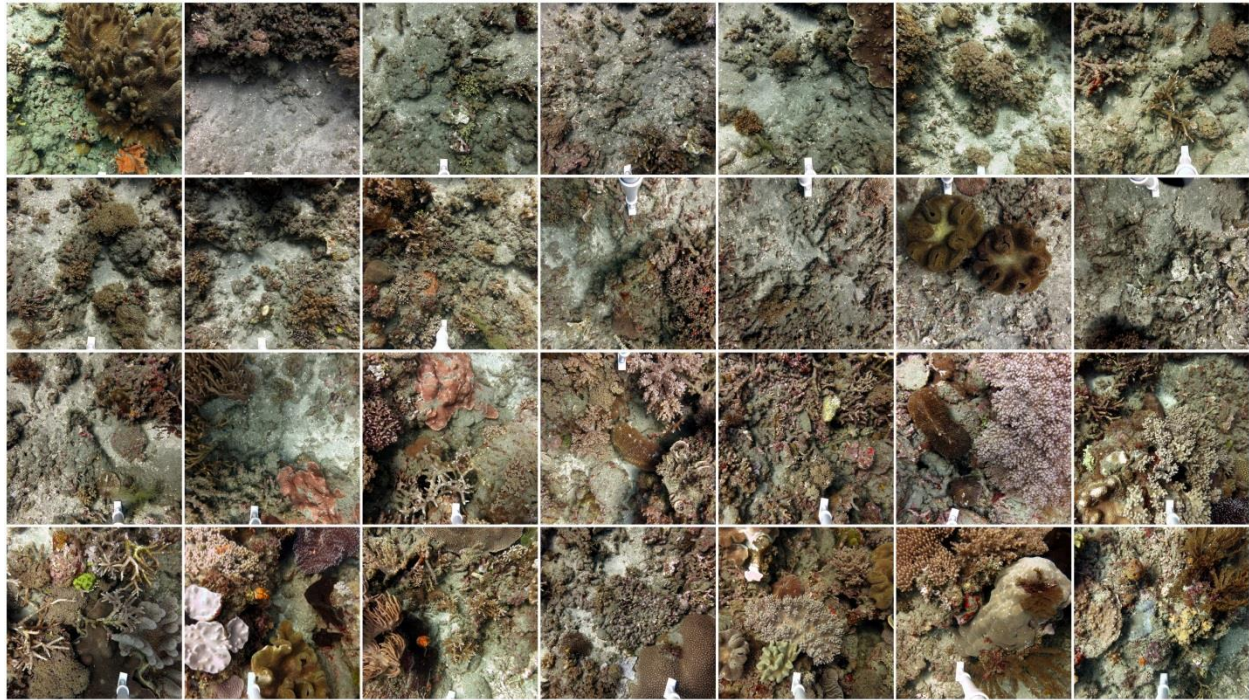


Figure 78. A collage of benthic photographs illustrating the benthic composition at site VIL-03 from the photographs taken around the perimeter in 2014.

Table 17. Benthic composition (i.e., mean percent cover) at site VIL-03. The benthic substrate ratio is the ratio of corals and crustose coralline algae (CCA) to nonaccreting organisms (macroalgae and turf algae), calculated from the mean percent cover.

BENTHIC CATEGORY	COVER (%)
Hard coral	9.7
Soft coral	16.5
CCA	2.5
Macroalgae	1.4
Turf algae	55.0
Invertebrates	2.8
Sand	9.3
Unclassified	2.8
TOTAL	100.0
BENTHIC SUBSTRATE RATIO	0.5

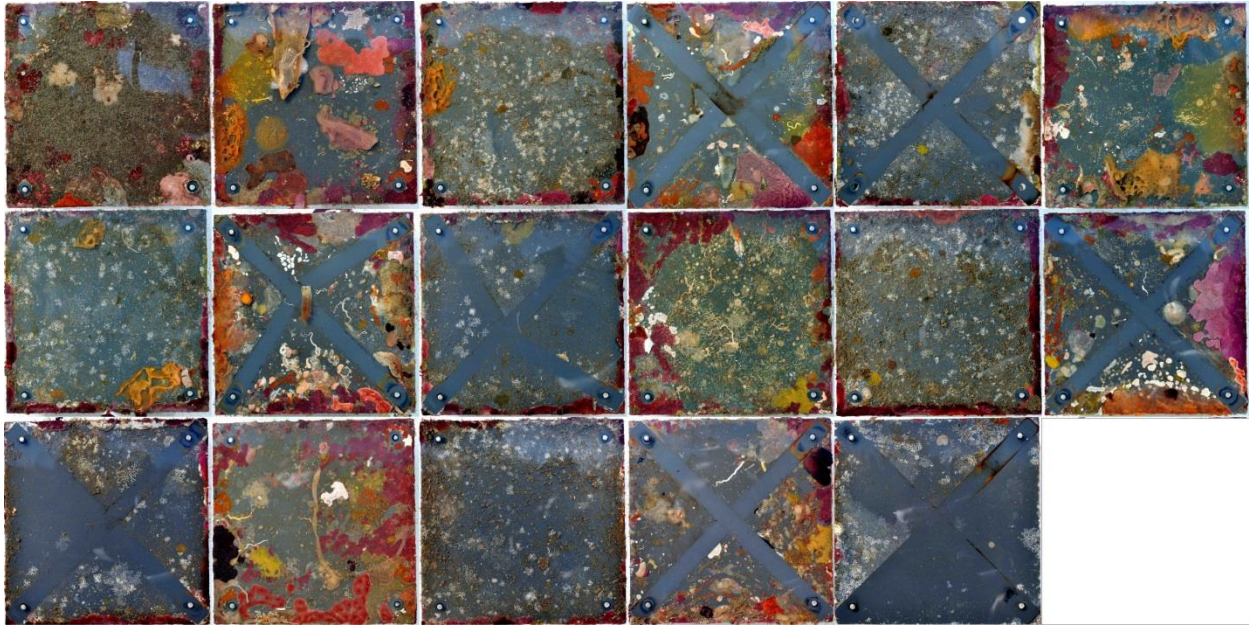


Figure 79. Photos of the ARMS plates from an ARMS unit recovered from site VIL-03. There are 9 plates per ARMS unit, with the topside and underside of each plate photographed except for the bottom plate that had only the topside photographed since the underside was resting on the base plate, for a total of 17 photos per ARMS unit. ARMS plate photos are displayed starting from the top plate in the upper left corner moving in a left to right direction for each row of photos. The photos with the cross hatches represent semi-closed layers.

SITE: VIL-10
DEPTH: 13.1m
LOCATION: East Atauro Island, Dili



Figure 80. Underwater views of site VIL-10.

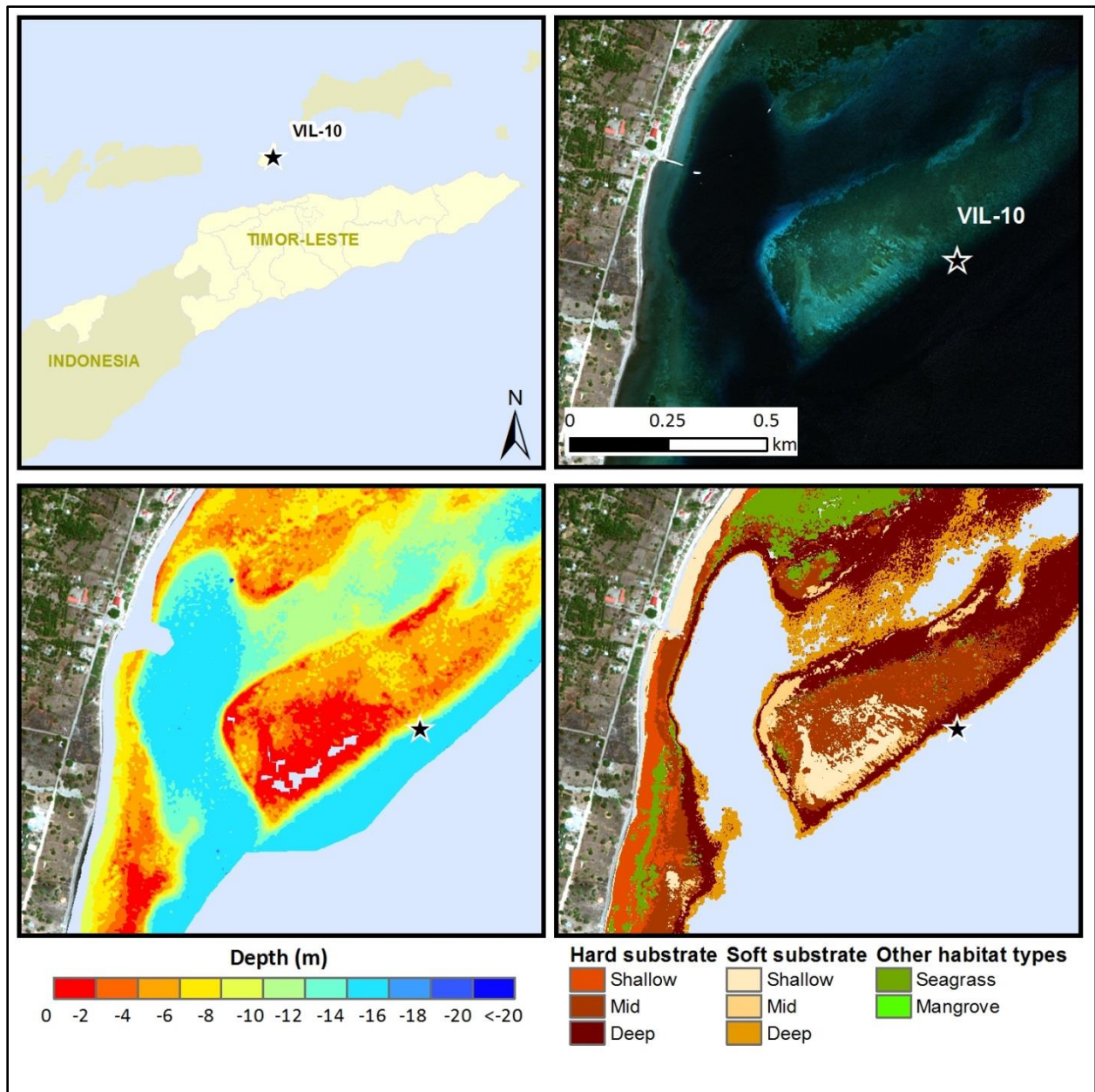


Figure 81. Maps of site VIL-10 (indicated by the black star), including WorldView-2 satellite image (*top right*), bathymetry (*bottom left*) and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*).



Figure 82. A collage of benthic photographs illustrating the benthic composition at site VIL-10 from the photographs taken around the perimeter in 2014.

Figure 83. Benthic composition (i.e., mean percent cover) at site VIL-10. The benthic substrate ratio is the ratio of corals and crustose coralline algae (CCA) to nonaccreting organisms (macroalgae and turf algae), calculated from the mean percent cover.

BENTHIC CATEGORY	COVER (%)
Hard coral	38.1
Soft coral	12.8
CCA	5.7
Macroalgae	11.1
Turf algae	11.4
Invertebrates	7.7
Sand	0.7
Unclassified	12.6
TOTAL	100.0
BENTHIC SUBSTRATE RATIO	2.5



Figure 84. Photos of the ARMS plates from an ARMS unit recovered from site VIL-10. There are 9 plates per ARMS unit, with the topside and underside of each plate photographed except for the bottom plate that had only the topside photographed since the underside was resting on the base plate, for a total of 17 photos per ARMS unit. ARMS plate photos are displayed starting from the top plate in the upper left corner moving in a left to right direction for each row of photos. The photos with the cross hatches represent semi-closed layers.

SITE: MAF-01
DEPTH: 14.6m
LOCATION: Betano, Manufahi



Figure 85. Underwater views of site MAF-01.

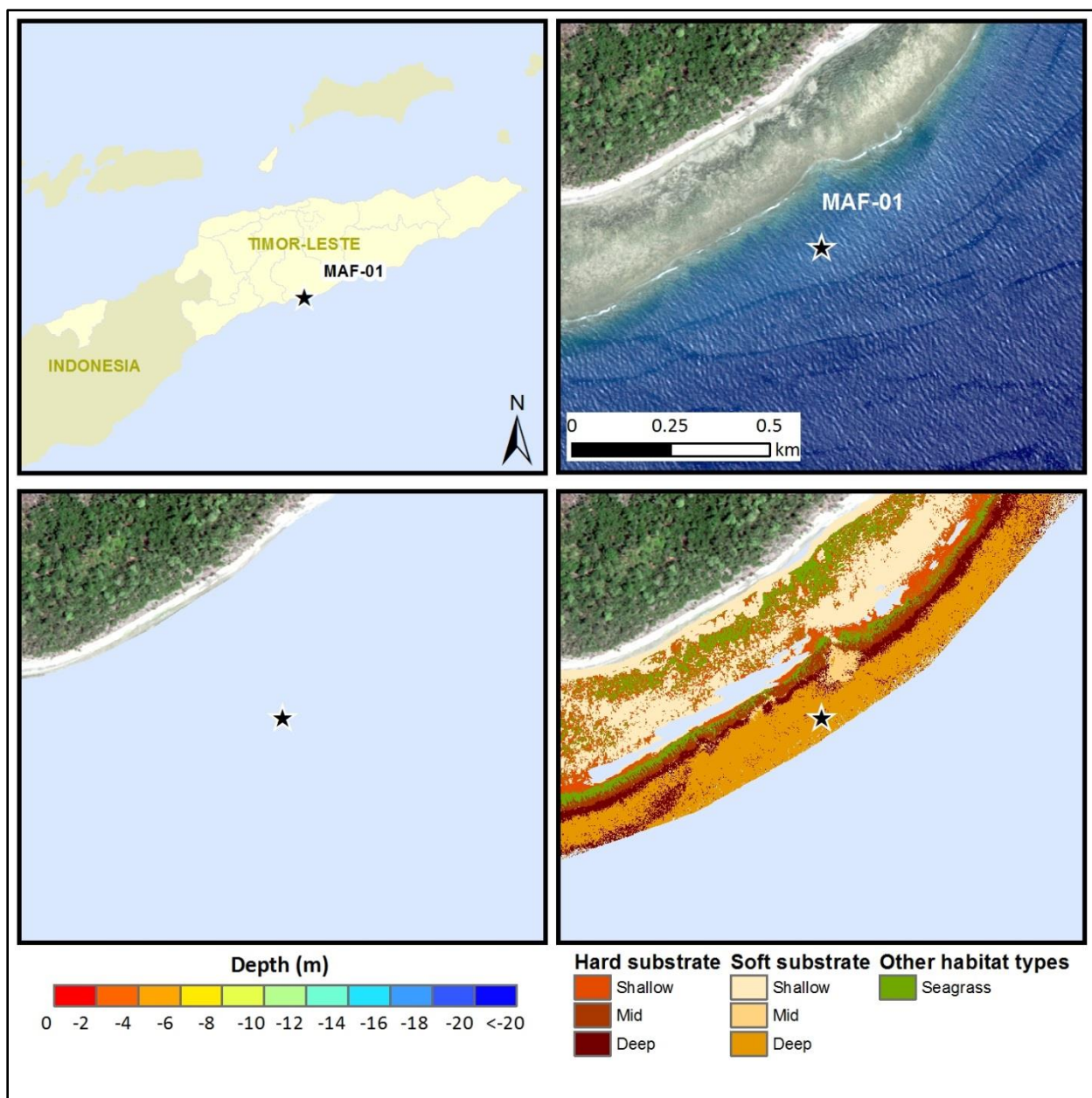


Figure 86. Maps of site MAF-01 (indicated by the black star), including WorldView-2 satellite image (*top right*), and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*). Bathymetry data was not generated for the south shore (*bottom left*).

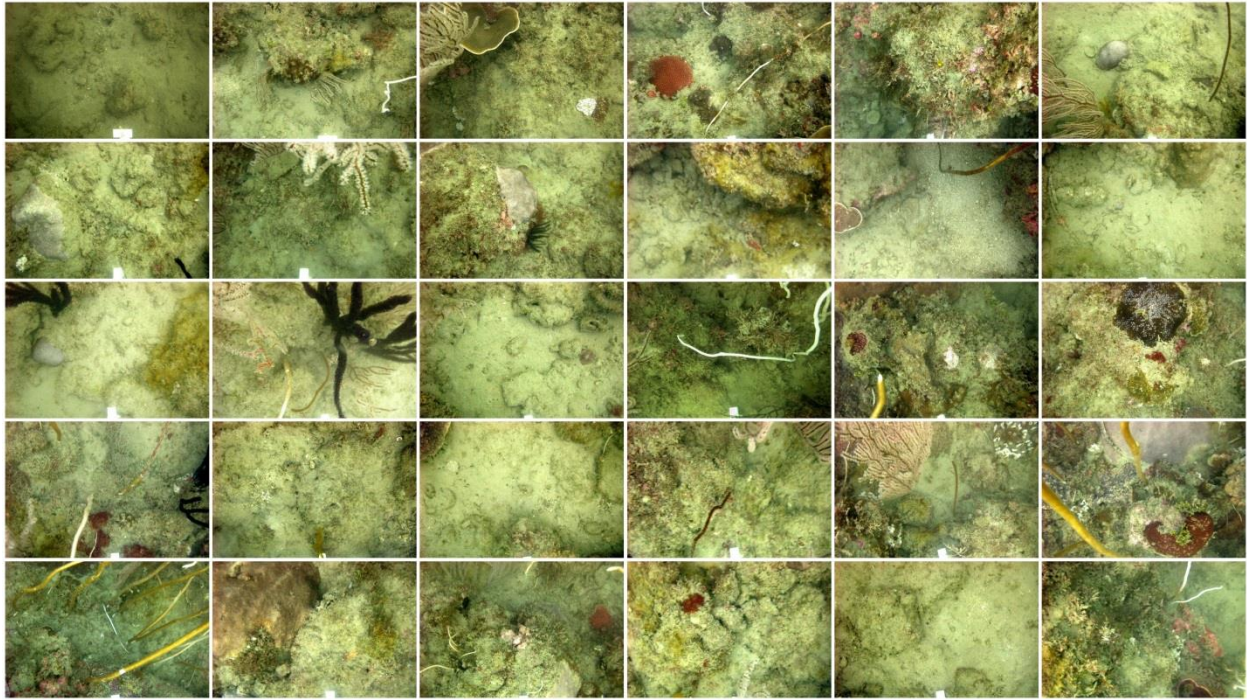


Figure 87. A collage of benthic photographs illustrating the benthic composition at site MAF-01 from the photographs taken around the perimeter in 2012.

There are no benthic composition data or ARMS plate photos for site MAF-01 since it was not revisited in 2014. Photographs collected in 2012 were not analyzed for benthic cover.

SITE: MAN-09

DEPTH: 14.6m

LOCATION: Ilimano, Manatuto



Figure 88. Underwater views of site MAN-09.

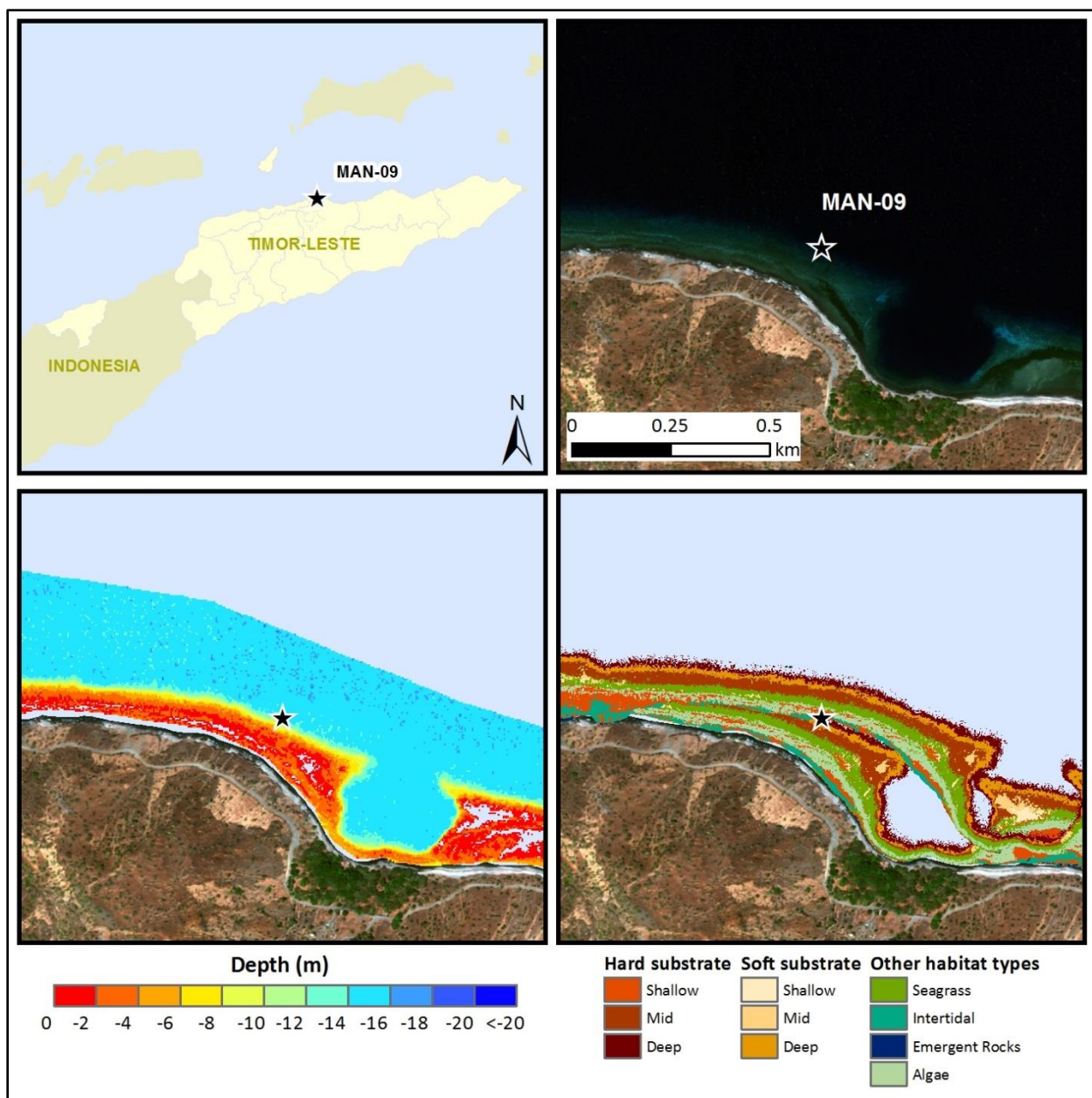


Figure 89. Maps of site MAN-09 (indicated by the black star), including WorldView-2 satellite image (*top right*), bathymetry (*bottom left*) and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*).

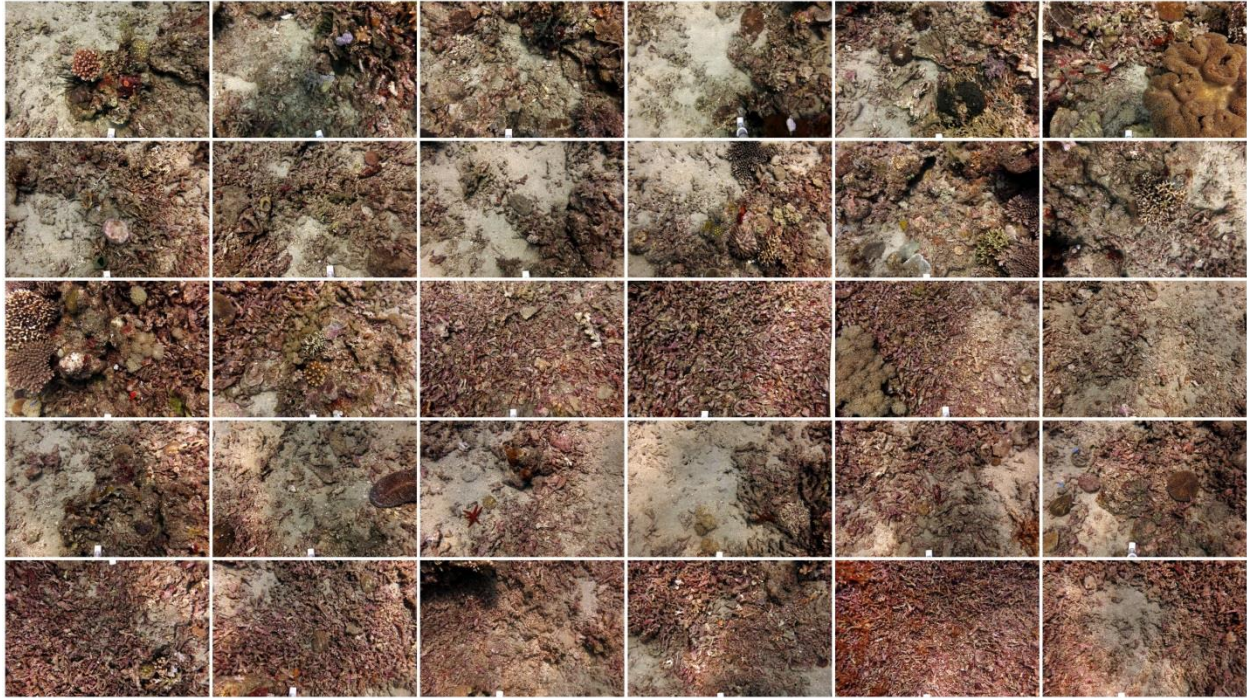


Figure 90. A collage of benthic photographs illustrating the benthic composition at site MAN-09 from the photographs taken around the perimeter in 2014.

Table 18. Benthic composition (i.e., mean percent cover) at site MAN-09. The benthic substrate ratio is the ratio of corals and crustose coralline algae (CCA) to nonaccreting organisms (macroalgae and turf algae), calculated from the mean percent cover.

BENTHIC CATEGORY	COVER (%)
Hard coral	6.4
Soft coral	2.0
CCA	10.4
Macroalgae	7.1
Turf algae	59.6
Invertebrates	1.3
Sand	11.9
Unclassified	1.3
TOTAL	100.0
BENTHIC SUBSTRATE RATIO	0.3



Figure 91. Photos of the ARMS plates from an ARMS unit recovered from site MAN-09. There are 9 plates per ARMS unit, with the topside and underside of each plate photographed except for the bottom plate that had only the topside photographed since the underside was resting on the base plate, for a total of 17 photos per ARMS unit. ARMS plate photos are displayed starting from the top plate in the upper left corner moving in a left to right direction for each row of photos. The photos with the cross hatches represent semi-closed layers.

SITE: BAU-04
DEPTH: 13.7m
LOCATION: Baucau



Figure 92. Landward view of Baucau from site BAU-04.

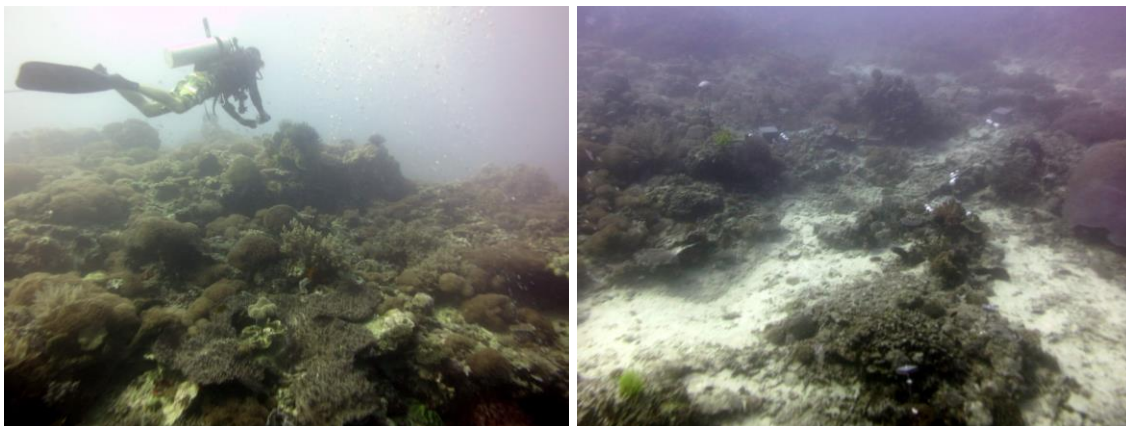


Figure 93. Underwater views of site BAU-04.

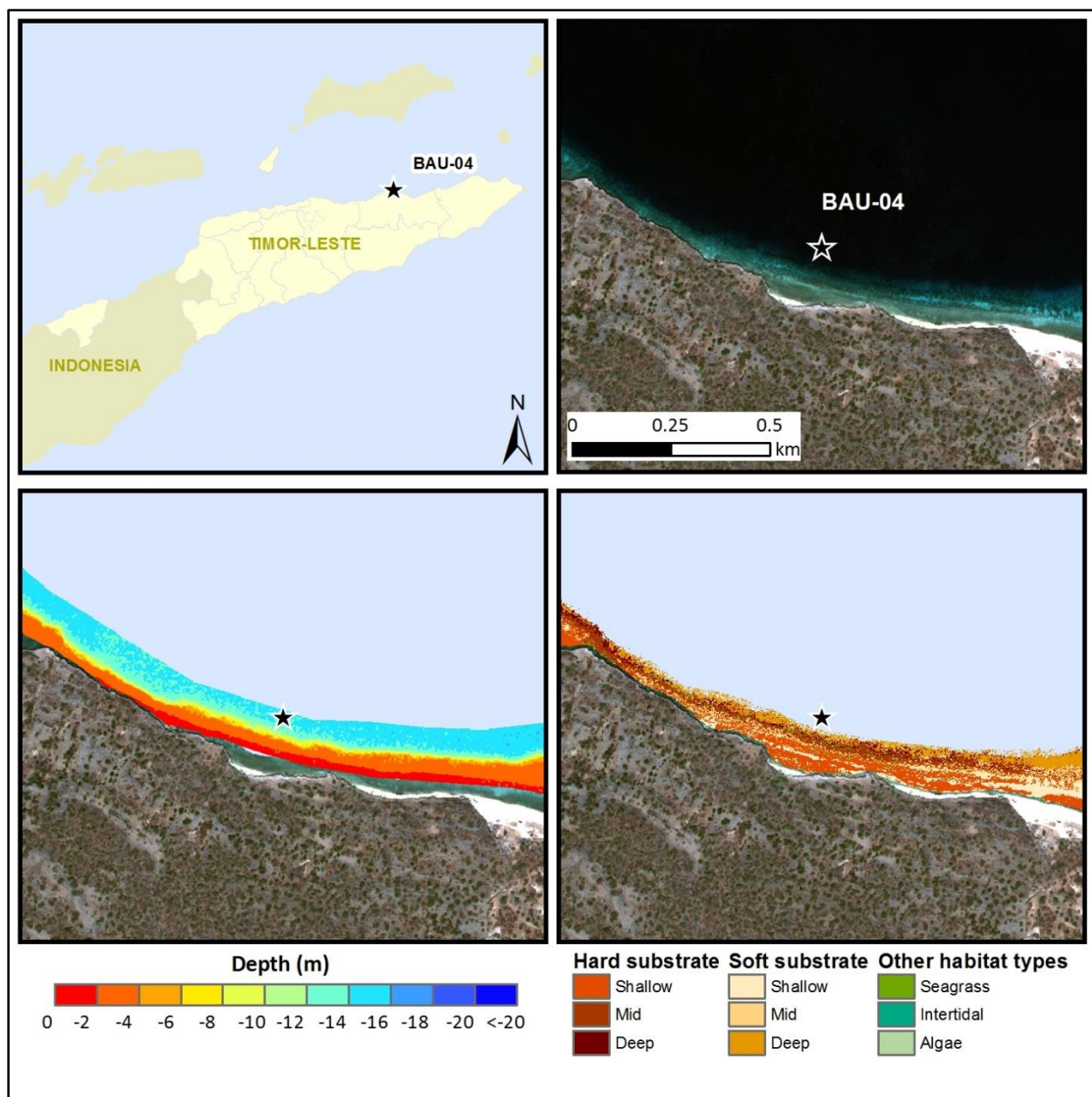


Figure 94. Maps of site BAU-04 (indicated by the black star), including WorldView-2 satellite image (*top right*), bathymetry (*bottom left*) and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*).



Figure 95. A collage of benthic photographs illustrating the benthic composition at site BAU-04 from the photographs taken around the perimeter in 2014.

Table 19. Benthic composition (i.e., mean percent cover) at site BAU-04. The benthic substrate ratio is the ratio of corals and crustose coralline algae (CCA) to nonaccreting organisms (macroalgae and turf algae), calculated from the mean percent cover.

BENTHIC CATEGORY	COVER (%)
Hard coral	17.0
Soft coral	41.3
CCA	1.7
Macroalgae	0.0
Turf algae	22.3
Invertebrates	4.3
Sand	9.7
Unclassified	3.7
TOTAL	100.0
BENTHIC SUBSTRATE RATIO	2.7

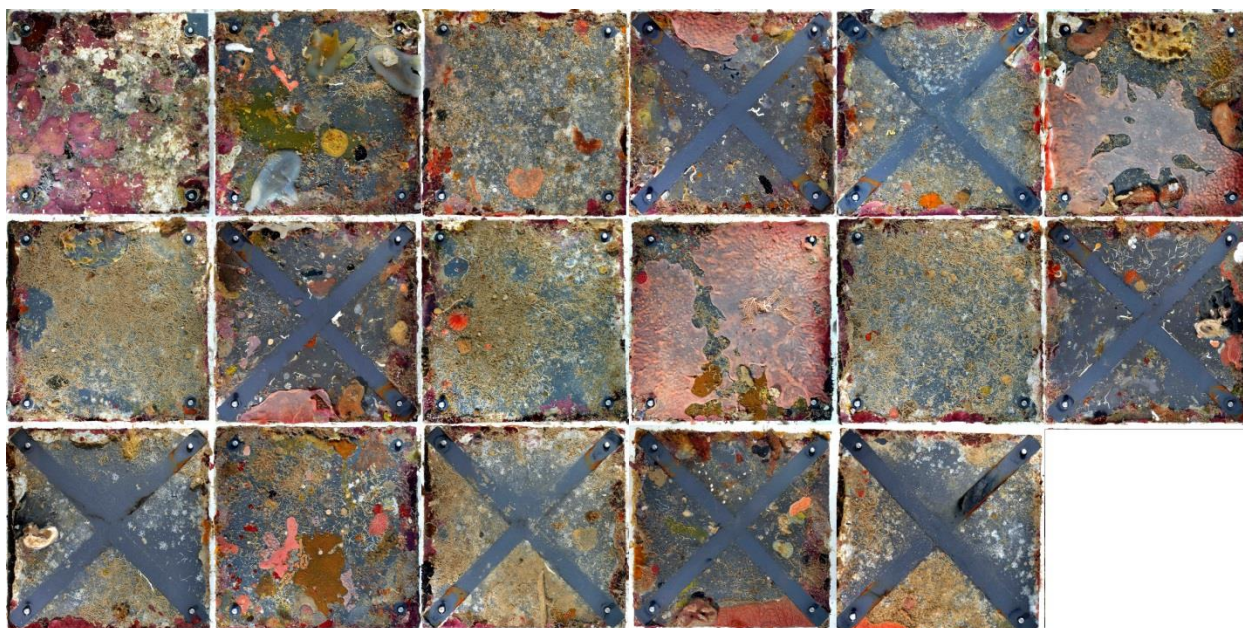


Figure 96. Photos of the ARMS plates from an ARMS unit recovered from site BAU-04. There are 9 plates per ARMS unit, with the topside and underside of each plate photographed except for the bottom plate that had only the topside photographed since the underside was resting on the base plate, for a total of 17 photos per ARMS unit. ARMS plate photos are displayed starting from the top plate in the upper left corner moving in a left to right direction for each row of photos. The photos with the cross hatches represent semi-closed layers.

SITE: LAU-07
DEPTH: 11.0 m
LOCATION: Lore, Lautem

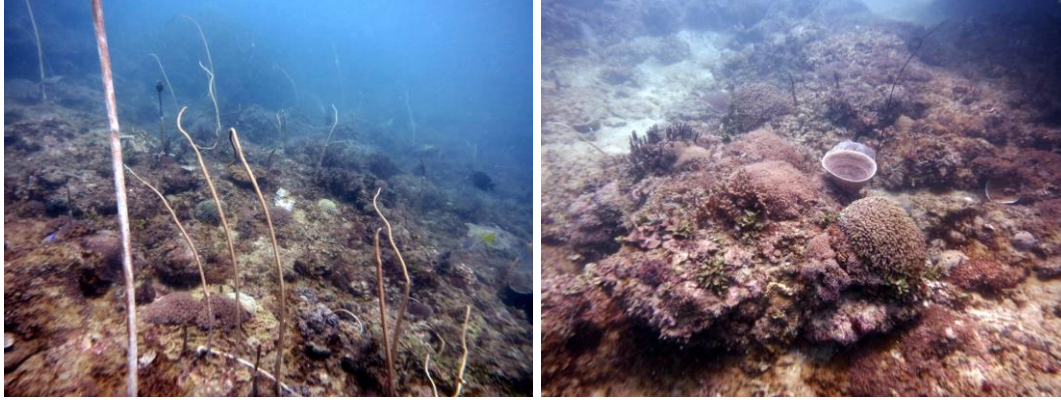


Figure 97. Underwater views of site LAU-07.

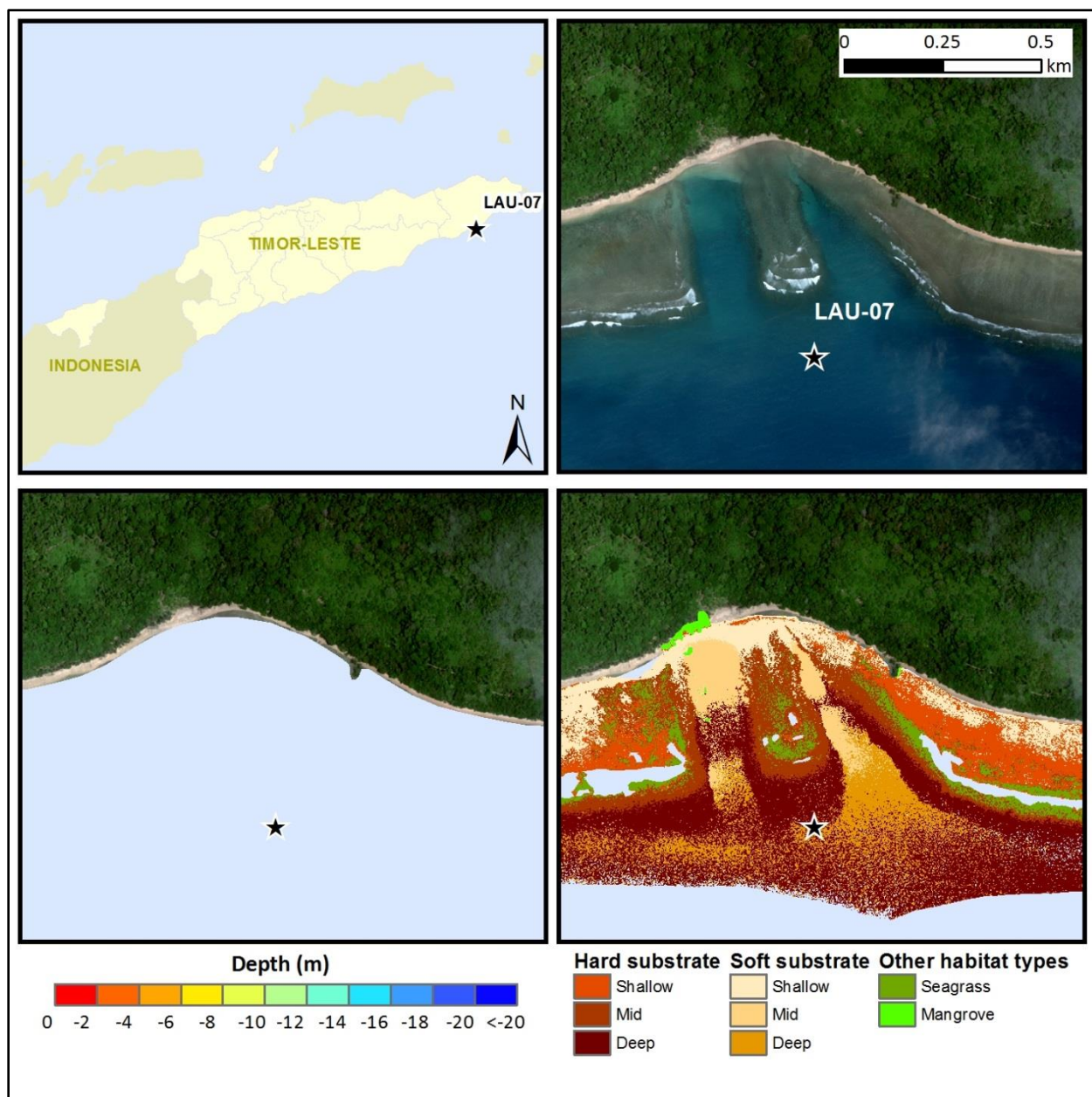


Figure 98. Maps of site LAU-07 (indicated by the black star), including WorldView-2 satellite image (*top right*), and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*). Bathymetry data was not generated for the south shore (*bottom left*).



Figure 99. A collage of benthic photographs illustrating the benthic composition at site LAU-07 from the photographs taken around the perimeter in 2014.

There are no benthic composition data or ARMS plate photos for site LAU-07 since it was not revisited in 2014. Photographs collected in 2012 were not analyzed for benthic cover.

SITE: LAU-01
DEPTH: 14.6m
LOCATION: Com, Lautem



Figure 100. Landward view of Com from site LAU-01.

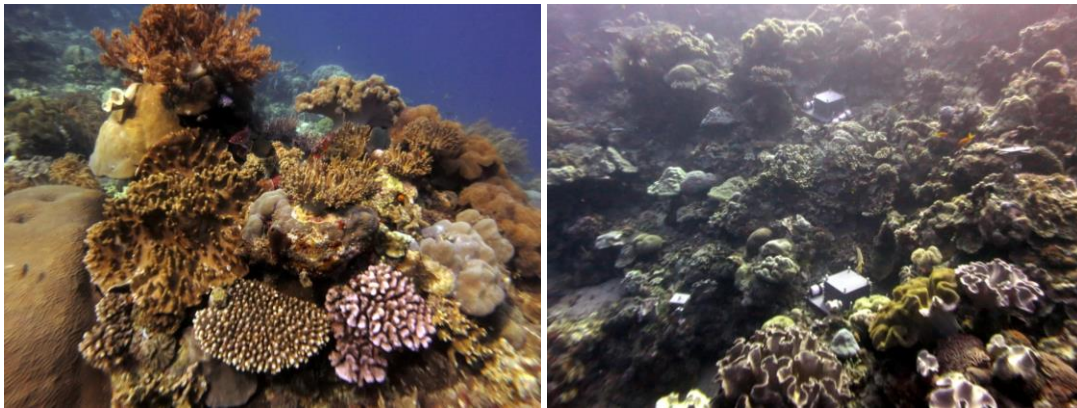


Figure 101. Underwater views of site LAU-01.

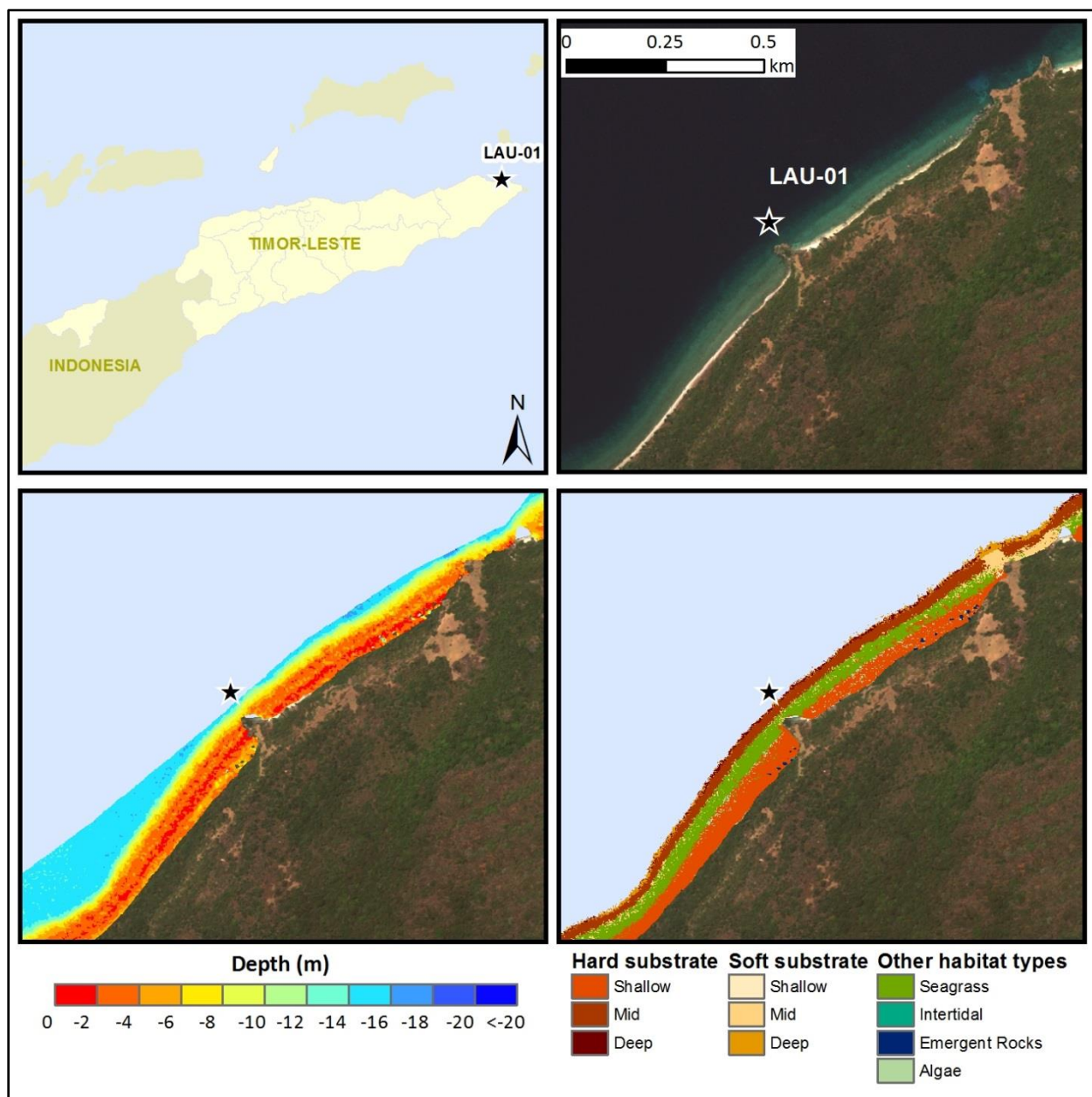


Figure 102. Maps of site LAU-01 (indicated by the black star), including WorldView-2 satellite image (*top right*), bathymetry (*bottom left*) and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*).

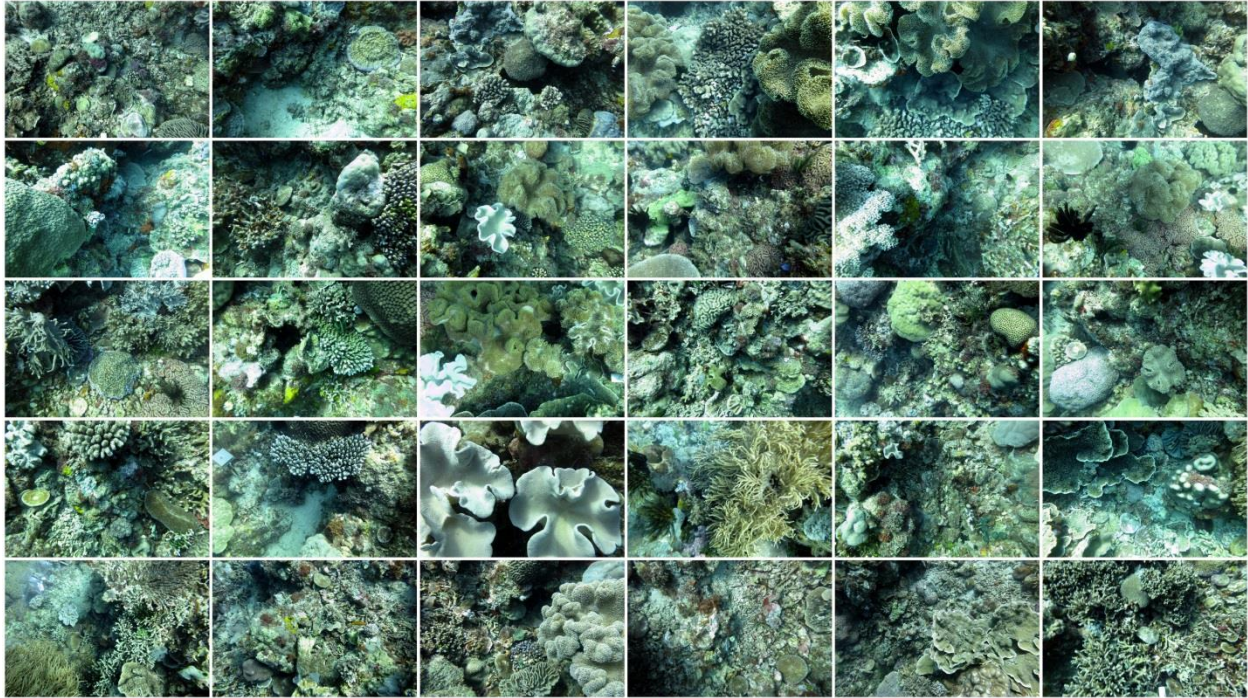


Figure 103. A collage of benthic photographs illustrating the benthic composition at site LAU-01 from the photographs taken around the perimeter in 2014.

Table 20. Benthic composition (i.e., mean percent cover) at site LAU-01. The benthic substrate ratio is the ratio of corals and crustose coralline algae (CCA) to nonaccreting organisms (macroalgae and turf algae), calculated from the mean percent cover.

BENTHIC CATEGORY	COVER (%)
Hard coral	40.1
Soft coral	14.6
CCA	3.0
Macroalgae	7.1
Turf algae	22.5
Invertebrates	4.7
Sand	0.3
Unclassified	7.7
TOTAL	100.0
BENTHIC SUBSTRATE RATIO	2.0



Figure 104. Photos of the ARMS plates from an ARMS unit recovered from site LAU-01. There are 9 plates per ARMS unit, with the topside and underside of each plate photographed except for the bottom plate that had only the topside photographed since the underside was resting on the base plate, for a total of 17 photos per ARMS unit. ARMS plate photos are displayed starting from the top plate in the upper left corner moving in a left to right direction for each row of photos. The photos with the cross hatches represent semi-closed layers.

SITE: LAU-05
DEPTH: 14.6m
LOCATION: Jaco Island, Lautem



Figure 105. Landward view of Jaco Island from site LAU-05.

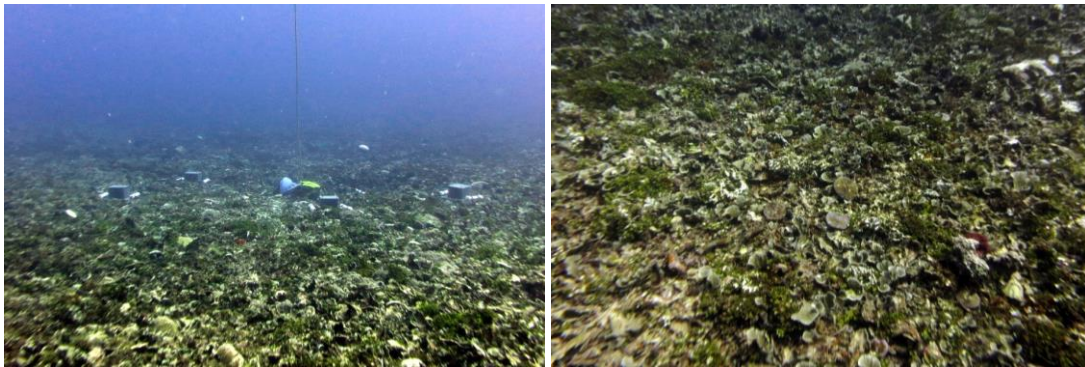


Figure 106. Underwater views of site LAU-05.

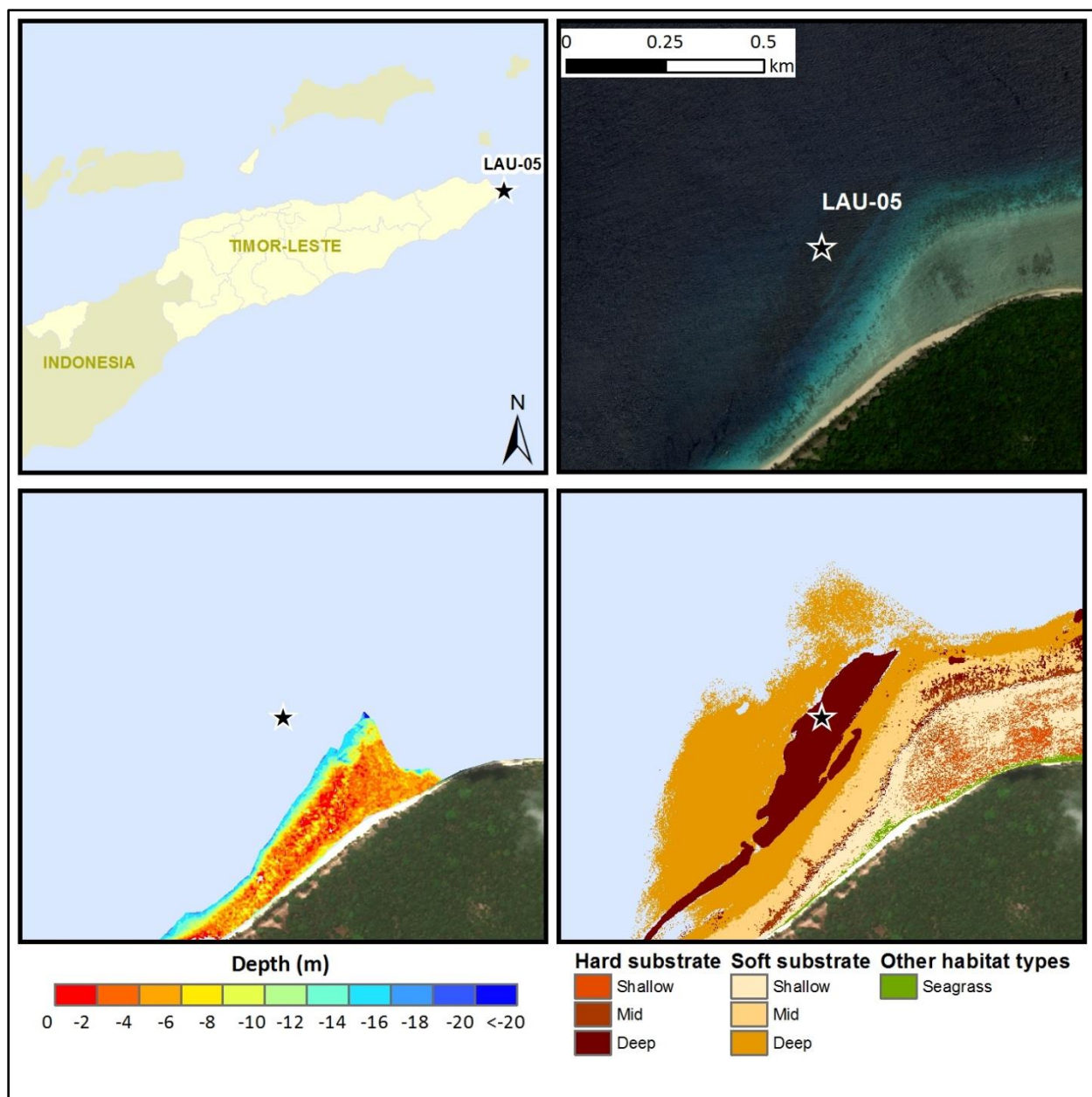


Figure 107. Maps of site LAU-05 (indicated by the black star), including WorldView-2 satellite image (*top right*), bathymetry (*bottom left*) and habitat classes (*bottom right*) derived from satellite imagery, and an overview map showing the location of the site in Timor-Leste (*top left*).

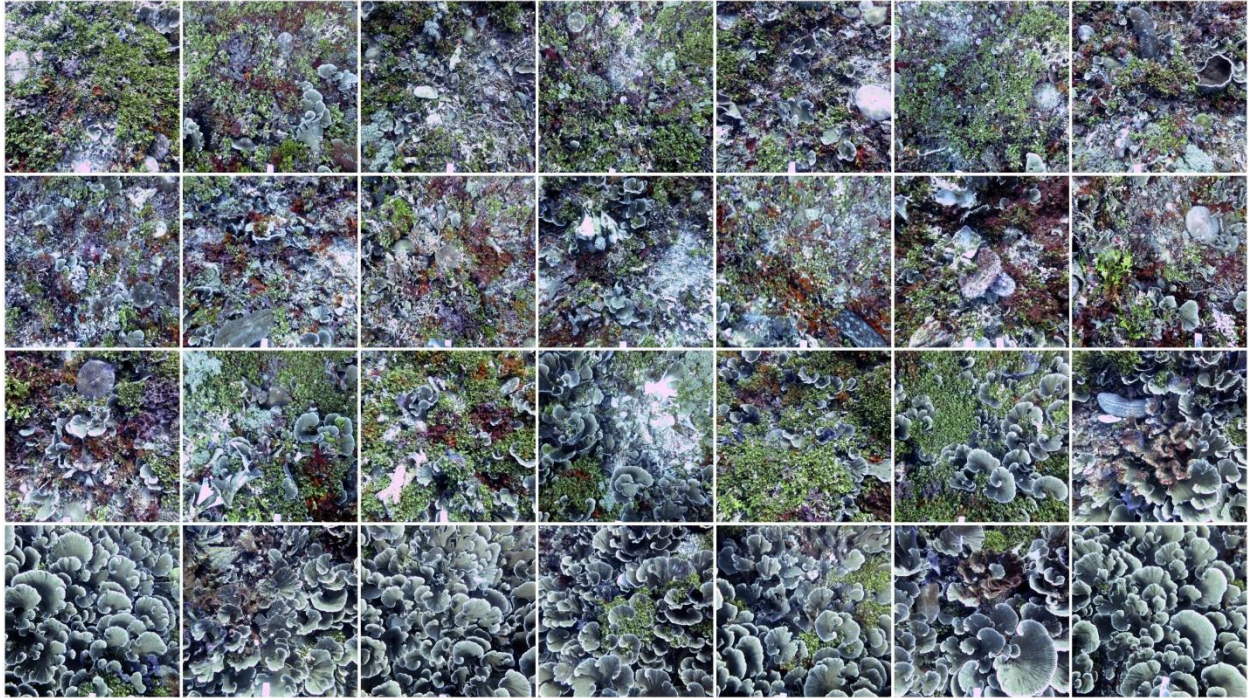


Figure 108. A collage of benthic photographs illustrating the benthic composition at site LAU-05 from the photographs taken around the perimeter in 2014.

Table 21. Benthic composition (i.e., mean percent cover) at site LAU-05. The benthic substrate ratio is the ratio of corals and crustose coralline algae (CCA) to nonaccreting organisms (macroalgae and turf algae), calculated from the mean percent cover.

BENTHIC CATEGORY	COVER (%)
Hard coral	32.1
Soft coral	0.4
CCA	1.5
Macroalgae	40.5
Turf algae	9.6
Invertebrates	3.0
Sand	0.4
Unclassified	12.7
TOTAL	100.0
BENTHIC SUBSTRATE RATIO	0.7



Figure 109. Photos of the ARMS plates from an ARMS unit recovered from site LAU-05. There are 9 plates per ARMS unit, with the topside and underside of each plate photographed except for the bottom plate that had only the topside photographed since the underside was resting on the base plate, for a total of 17 photos per ARMS unit. ARMS plate photos are displayed starting from the top plate in the upper left corner moving in a left to right direction for each row of photos. The photos with the cross hatches represent semi-closed layers.