

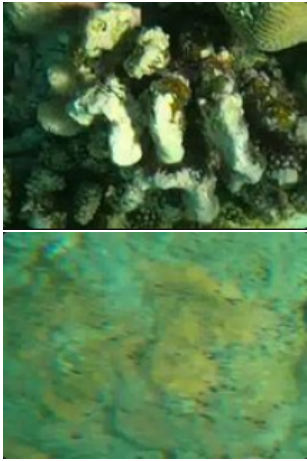
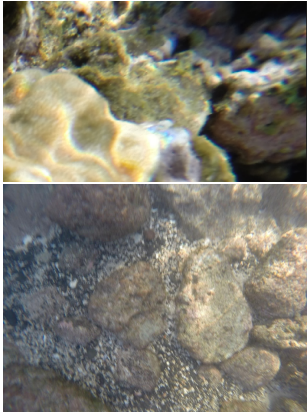



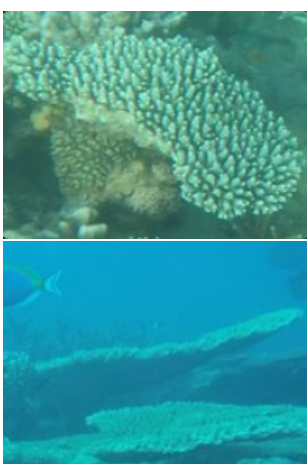




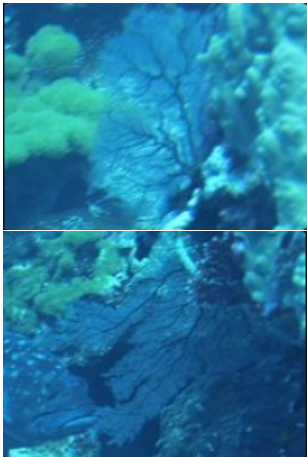
1 Supplementary information


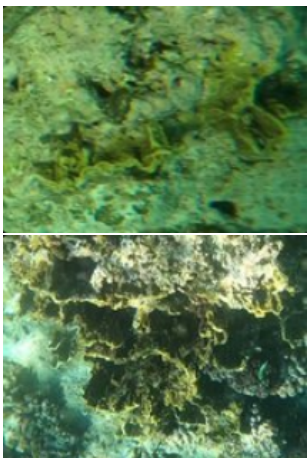

In Table 1, we present a complete list of the labels that we used for annotating images. These labels do not necessarily represent the phylogenetics of the species. While some labels correspond to monophyletic groups, others are based on morphological similarities that often reflect similar ecological roles. For example, the label *Non-acropora Massive* is not a clade (it does not represent a common ancestor and all its descendants) and includes polyphyletic species. The **Group** column specifies the group to which each label belongs, and the **Label** column indicates the name of the label in annotation files. The **Notes** column provides a brief description justifying annotator choices. Finally the column **Level of Expertise** indicates the taxonomic rank. Thus, a Level of Expertise of 1 represents labels differentiated by close morphology, while Levels of Expertise 2 and 3 correspond to clades at the genus and species levels, respectively.

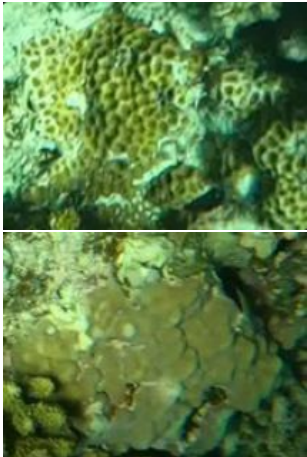


Group	Label	Notes	Level of Expertise	Example Image
Algae	Algal Assemblage	Algal turfs containing several species of algae.	1	
	Algae Halimeda	Upright algae $\geq 10\text{mm}$, rigid and with complex structures. Green, brown or red algae (e.g., <i>Halimeda</i> , <i>Turbinaria</i>).	1	


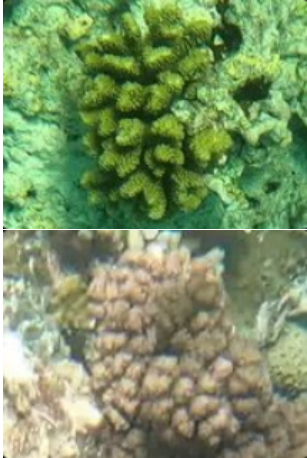

Group	Label	Notes	Level of Expertise	Example Image
Coral	Algae Coralline	Often encrusting, of the corallinaceous type. The thallus can be encrusting and strongly adherent to the substrate (<i>Hydrolithon</i>), lamellar (<i>Mesophyllum</i>) or branched (<i>Cheilosporum</i> , <i>Lithophyllum</i>).	1	
	Algae Turf	Short filamentous algae. An assemblage of filamentous algae, often ≤ 10 mm in height, which are fast-growing and highly productive. (e.g., Turf algal).	1	
	Acropora Branching	With secondary branches (e.g., <i>A. formosa</i> , <i>A. palmata</i>).	2	





Group	Label	Notes	Level of Expertise	Example Image
	Acropora Digitate	No secondary branches (e.g., <i>A. digitifera</i> , <i>A. humilis</i>).	2	
	Acropora Sub-massive	Robust with few digitized branches (e.g., <i>A. monticulosa</i>).	2	
	Acropora Tabular	Large horizontal plates (e.g., <i>A. hyacinthus</i> , <i>A. cytherea</i>).	2	



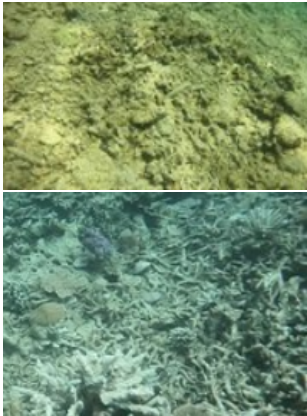
Group	Label	Notes	Level of Expertise	Example Image
	Bleached Coral	Coral that has turned white due to the loss of its symbiont zooxanthellae, typically as a result of stress factors.	1	
	Dead Coral	Recent mortality (different bleached coral), white to light brown coral.	1	
	Gorgonian	A type of soft coral characterized by a flexible, tree-like structure.	1	





Group	Label	Notes	Level of Expertise	Example Image
	Living Coral	Used only when the coral cannot be distinguished and not for each living coral.	1	
	Non-acropora Millepora	Fire coral (e.g., <i>Millepora platyphylla</i>).	2	
	Non-acropora Branching	With secondary branches (e.g., <i>Seriatopora hystrix</i>).	1	




Group	Label	Notes	Level of Expertise	Example Image
	Non-acropora Encrusting	A large part is attached to the substrate (e.g., <i>Porites vaughani</i> , <i>Montipora undata</i>).	1	
	Non-acropora Foliose	Attached to the substrate by one or more points, leaf-like appearance (e.g., <i>Echinopora mammiformis</i> , <i>Pavona cactus</i>).	1	
	Non-acropora Massive	Massive form resembling a large rock (e.g., <i>Porites lutea</i> , <i>Platygyra daedalea</i>).	1	



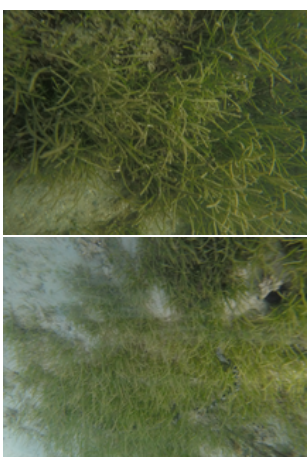
Group	Label	Notes	Level of Expertise	Example Image
	Non-acropora Coral free	Free-living solitary coral (e.g., <i>Fungia</i>).	1	
	Non-acropora Submassive	Very large group. Corals that tend to form small colonies without digitization (e.g., <i>Porites nigrescens</i> , <i>Pocillopora verrucosa</i>).	1	
Custom Classes	Blurred	Part of the image that is blurred or has air bubbles in it but does not render the image useless	-	





Group	Label	Notes	Level of Expertise	Example Image
	Homo Sapiens	Part of human body	3	
	Human Object	Human object that is not waste (e.g., snorkelling fins, surf-board fins)	-	
	Trample	All pieces of coral removed mechanically	-	
	Useless	Images that cannot be used because they were taken out of the water or show great depths with a lot of blue	-	




Group	Label	Notes	Level of Expertise	Example Image
	Waste	Human waste	-	
Habitat	Rock	Basaltic, granitic or other nature	-	
	Rubble	Scrap, debris, particularly coral	-	

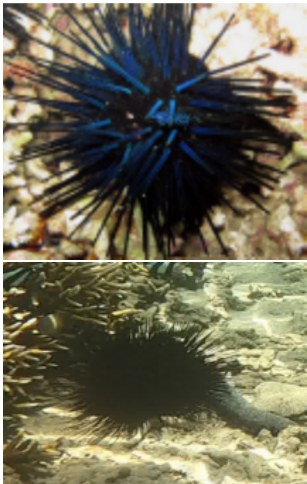


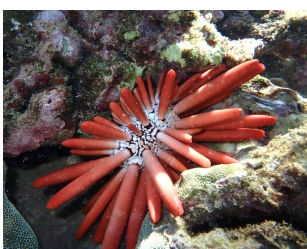
Group	Label	Notes	Level of Expertise	Example Image
	Sand	Sand of coral or basaltic nature, etc.	-	
Other	Thorny starfish	Coral-eating starfish (e.g., <i>Acanthaster planci</i>)	2	
	Sea anemone	Marine invertebrates that belong to the phylum <i>Cnidaria</i> , typically characterized by a columnar body topped with a ring of tentacles.	1	
	Ascidians	Also known as sea squirts, these are sessile filter-feeding tunicates, often found attached to substrates in the ocean.	1	

Group	Label	Notes	Level of Expertise	Example Image
	Giant clam	Bivalve mollusks with two hinged shells, commonly found burrowed in sand or mud in marine environments.	1	
	Fish	Generic class for all fishes	1	
	Other starfish	Starfish other than <i>Acanthaster</i>	1	

Group	Label	Notes	Level of Expertise	Example Image
	Sponges	Filter-feeding organism through their aquifer system, e.g., <i>Cliona</i> sp.	1	
	Turtle	Generic class for all marine turtles	1	
Seagrass	<i>Syringodium isoetifolium</i>	A species of seagrass known for its long, cylindrical leaves.	3	

Group	Label	Notes	Level of Expertise	Example Image
	<i>Thalassodendron ciliatum</i>	A species of seagrass with flattened, strap-like leaves	3	
Sea cucumber	<i>Actinopyga echinites</i>	Color ranging from yellowish beige to orange-brown	3	
	<i>Actinopyga mauritiana</i>	Prefers hard substrates, dark brown back and grayish sides	3	
	<i>Bohadschia vitiensis</i>	Yellowish color with a black spot at the base of each portion	3	

Group	Label	Notes	Level of Expertise	Example Image
	<i>Holothuria atra</i> and <i>Holothuria leucospilota</i>	Group of species with bodies sometimes often covered with a thin layer of sand, variable in color and size up to 30 to 60 cm long and 10 cm wide	3	
	<i>Stichopus chloronotus</i>	Quadrangular section body, dark green and covered with radii	3	
	<i>Synapta maculata</i>	Up to 3m long and 5cm wide, beige body with brown bands	3	

Group	Label	Notes	Level of Expertise	Example Image
Sea urchin	<i>Diadema savi-gnyi</i> , <i>Stomop-neustes vario-laris</i> , <i>Echinothrix calamaris</i> and <i>Echinothrix di-adema</i>	Group of species with black color with gray or blue reflections and generally numerous and long radioles	3	
	<i>Echinometra mathaei</i>	Uniform color (e.g., beige, violet, gray)	3	
	<i>Echinostrephus molaris</i>	Color ranging from violet to black through brown, long and thin radioles	3	
	<i>Heterocentrotus mamillatus</i>	Large diameter radioles, body and radioles tending towards brown/red	3	



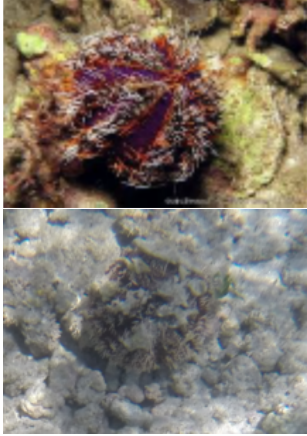
Group	Label	Notes	Level of Expertise	Example Image
	<i>Heterocentrotus trigonarius</i>	Triangular section radioles, body and radioles tending towards dark brown/red	3	
	<i>Toxopneustes pileolus</i>	Slightly flattened body, beige, short radioles and flower-shaped	3	
	<i>Tripneustes gratilla</i>	10 bands dotted with short radioles separated by bands without radioles	3	

Table 1: Classes Table

Echinostrephus molaris (Blainville, 1825) observed in Maldives by John Hepburn (licensed under CC BY 4.0), source: iNaturalist. *Heterocentrotus mamillatus* (Linnaeus, 1758) observed in United States of America by blitzen1986 (licensed under CC BY-NC 4.0), source: iNaturalist. *Toxopneustes pileolus* (Lamarck, 1816) observed in Kenya by thehousebunting (licensed under CC BY-NC 4.0), source: iNaturalist.