Using revolutionary remote sensing technologies to advance large-scale coral reef and coastal conservation

### MAPPING MARINE HABITATS
**FROM OUTER SPACE TO UNDERSEA**

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<th><strong>DOVE SATELLITES</strong></th>
<th><strong>GLOBAL AIRBORNE OBSERVATORY</strong></th>
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<td>Maps marine habitat across the Caribbean, guides optimal marine protected area design</td>
<td>Reveals live coral and algal cover, identifies sites that can improve restoration outcomes</td>
<td>Reveals coral species, evaluates the impact of habitat protection and restoration efforts</td>
<td>Reveals coral health and growth, determines if coral colonies are thriving and creating habitat</td>
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</table>

### WHO USES THE MAPS?
- Conservation scientists and practitioners
- Marine protected area and fishery managers
- International governments
- Hotel and tourism associations
- Educational institutions

### WHAT DO THE MAPS ALLOW US TO DO?
- Promote effective marine spatial planning and management of protected areas
- Quantify the economic and protection value of marine habitats to support policymaking
- Determine sites for nature-based, climate resilience solutions for coastal communities
- Identify areas for urgent coral restoration, including sites that improve survival rates
- Catalyze conservation action and education by making vital habitat data readily available

Combining layers of information ensures that precise, detailed maps are generated and allows each of these methods to validate the data collected by the others.
GLOBAL AIRBORNE OBSERVATORY
Aircraft with a high-tech spectrometer capturing images across an area the size of ~135,000 football fields per day

- Captures images across an area the size of ~135,000 football fields per day.
- Identifies sites that can improve survival rates of outplanted corals.
- Creates 3D habitat models at a pixel size of .1 - 10 ft² and reveals % live coral and algal cover.

AERIAL DRONES
Vehicles that fly over the ocean capturing images across an area the size of ~700 football fields per day

- Captures images across an area the size of ~700 football fields per day.
- Evaluates the impact of protection and restoration efforts on coral cover and reef complexity.
- Creates 3D habitat models at a pixel size of 1 in² and reveals individual coral species type.

SUB-SURFACE IMAGERY
Divers and underwater drones capturing images across an area the size of <1 football field per day

- Captures images across an area the size of <1 football field per day.
- Determines if individual coral colonies are thriving and creating habitat for marine life.
- Creates 3D habitat models at a pixel size of .01 in² and reveals coral health and growth rates.

DOVE SATELLITES
Constellation of satellites capturing images across ~60 million mi² of the Earth’s surface per day

- Captures images across ~60 million mi² of the Earth’s surface per day.
- Guides optimal marine protected area design and management planning.
- Creates maps of coral reefs and other habitats across the Caribbean at a pixel size of 150 ft².
- Guides optimal marine protected area design and management planning.

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The Nature Conservancy
ASU Center for Global Discovery and Conservation Science
Arizona State University
Mapping Marine Habitats from Outer Space to Undersea

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- **DOVE SATELLITES**
  - **PIXEL SIZE**: 150 ft²
  - **COVERAGE**: 30% of the Earth's surface, or ~60 million mi² per day

- **GLOBAL AIRBORNE OBSERVATORY**
  - **PIXEL SIZE**: .1 - 10 ft²
  - **COVERAGE**: area the size of ~135,000 football fields per day

- **AERIAL DRONE**
  - **PIXEL SIZE**: 1 in²
  - **COVERAGE**: area the size of ~700 football fields per day

- **SUB-SURFACE IMAGERY**
  - **PIXEL SIZE**: .01 in²
  - **COVERAGE**: area the size of <1 football field per day