



Reef Check
HAWAII

Annual Report 2024



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Hawai'i Program

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A Message from Our Program Coordinator



We had quite a start to our program re-launch. With the expansion of our survey sites along the Kona Coast on Hawai'i, to growing our volunteer dive team; it has been quite an amazing ride so far! I am beyond grateful for our wonderful volunteer dive team, our partners, my fellow Reef Check Hawai'i Trainers, and the Reef Check Foundation team.

Without you, none of this is possible. With you, the future looks bright!

Mahalo and Happy Diving!

Brad

Brad Giles
Program Coordinator
Reef Check - Hawai'i

Reef Check Hawai'i 2024 Program Highlights



December 2024



Reef Check Hawai'i Team completes 11 surveys on Hawai'i.

October 2024



Two EcoDiver courses and one EcoDiver Trainer course completed.

September 2024



Reef Check Foundation rekindles Long-Term Monitoring Program in Hawai'i.

Executive Summary



This report presents data from coral reef surveys conducted in Hawai'i during 2024 using the Reef Check survey protocol. Reef Check is a coral reef monitoring methodology used to assess the health of coral reefs in 102 countries and territories worldwide. Surveys were carried out by trained volunteers.

A total of 11 sites were surveyed in 2024, all on the island of Hawai'i.

The results indicate that, on average, the coral reefs surveyed had 29% live coral coverage. Yellow Tang were the most abundant indicator fish species observed with 8.40 per 500 m³, while Red Pencil Urchins were the most abundant invertebrate indicator species observed with 30.57 per 100 m².

Two Reef Check EcoDiver courses were conducted with seven EcoDiver Certifications issued.

One Reef Check EcoDiver Trainer course was conducted, producing three new EcoDiver Trainers.

1. Background

Background



Reef Check Hawai'i is part of the world-wide Reef Check network. Established in 1997, Reef Check has conducted over 16,000 surveys in 102 countries and territories. Reef Check was established by a group of scientists who developed a simple, rapid method of surveying coral reefs. Reef Check is both the name of the organization and the survey methodology.

Reef Check takes on the conservation challenge of long-term monitoring of coral reefs and kelp forests globally.

The first-ever survey utilizing the Reef Check protocol was conducted on the island of Kauai, here in Hawai'i. From 1996 to 2023, 114 surveys had been conducted across the islands of Hawai'i, Maui, Oahu, and Kauai. The Hawai'i program was revitalized in September 2024. The information shown highlights information about coral reef health in Hawai'i.

2. Methodology

Methodology Overview



Reef Check surveys are based on the philosophy of “Indicator Species.” These are marine organisms that:

- Are widely distributed on coral reefs, regionally or globally,
- Are easy for non-scientists to identify, and
- Provide information about the health of a coral reef.

Using a standardized methodology, data from surveys in different areas can be compared, whether it be on an island, regional, national, or international basis (see www.reefcheck.org for more information).

The Reef Check monitoring methodology allows scientists, researchers, and managers to track changes to coral reefs over time. By surveying reefs on a regular basis, harmful or damaging changes can be highlighted early, before they become problems. This gives managers the opportunity to intervene, carry out additional more detailed studies and/or initiate management actions to try to reverse the change before permanent damage is done to the reef.

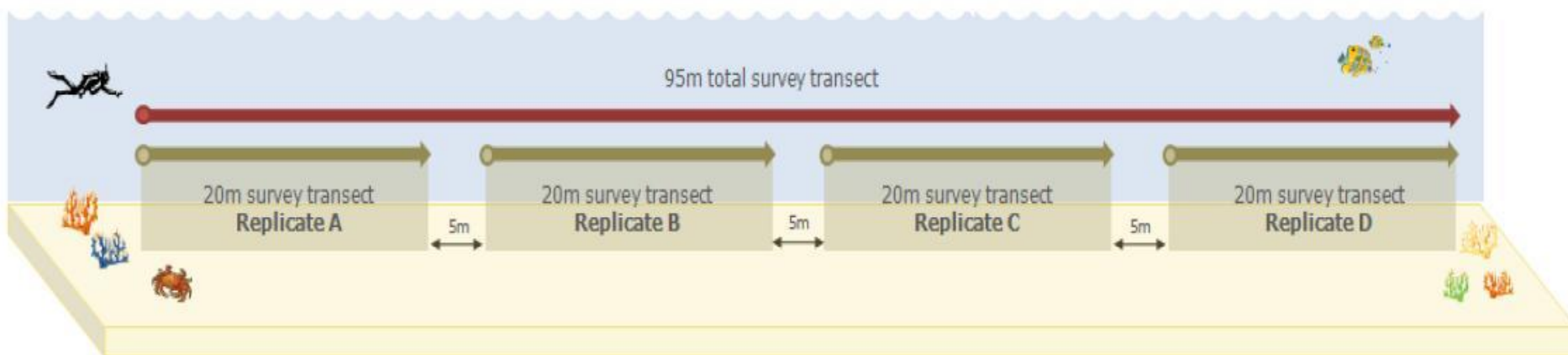
Methodology Overview



A 100-meter transect line is deployed and along it, four 20-meter transects are surveyed. Each separated by five meters, providing four replicates per transect for statistical analysis (see figure below).

Four types of data are collected:

1. Fish
2. Invertebrate
3. Substrate
4. Impact



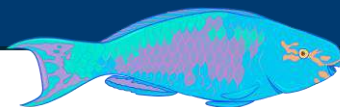
Divers count the indicator fish along the four 20 m long x 5 m wide x 5 m high corridors.

Megafauna and rare animals including Hawaiian Monk Seals, Manta Rays, Sharks, and Dolphins are also counted.

Reef Check indicator fish species were chosen on the basis of targeted demand for:

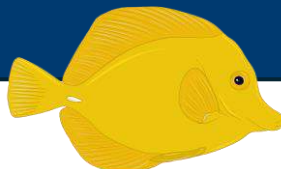
Food

- Parrotfish
- Jacks
- Snapper
- Moray Eel
- Yellowfin Goatfish



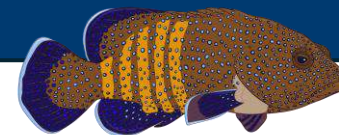
Aquarium

- Butterflyfish
- Orangespine Unicornfish
- Yellow Tang



Invasive Species

- Bluestripe Snapper
- Peacock Grouper



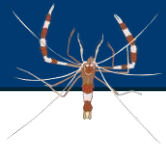
Invertebrates Survey

Divers count the indicator invertebrates along the four 20 m long x 5 m wide belts.

Reef Check indicator invertebrate species were chosen on the basis for:

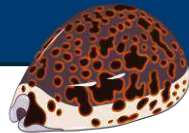
Aquarium

- Banded Coral Shrimp



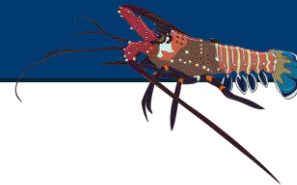
Curio

- Cowries
- Pencil Urchin
- Triton



Food

- Collector Urchin
- Lobster



Ecological Imbalance / Predator Outbreaks

- Longspined Black Sea Urchin
- Crown of Thorns Sea Star

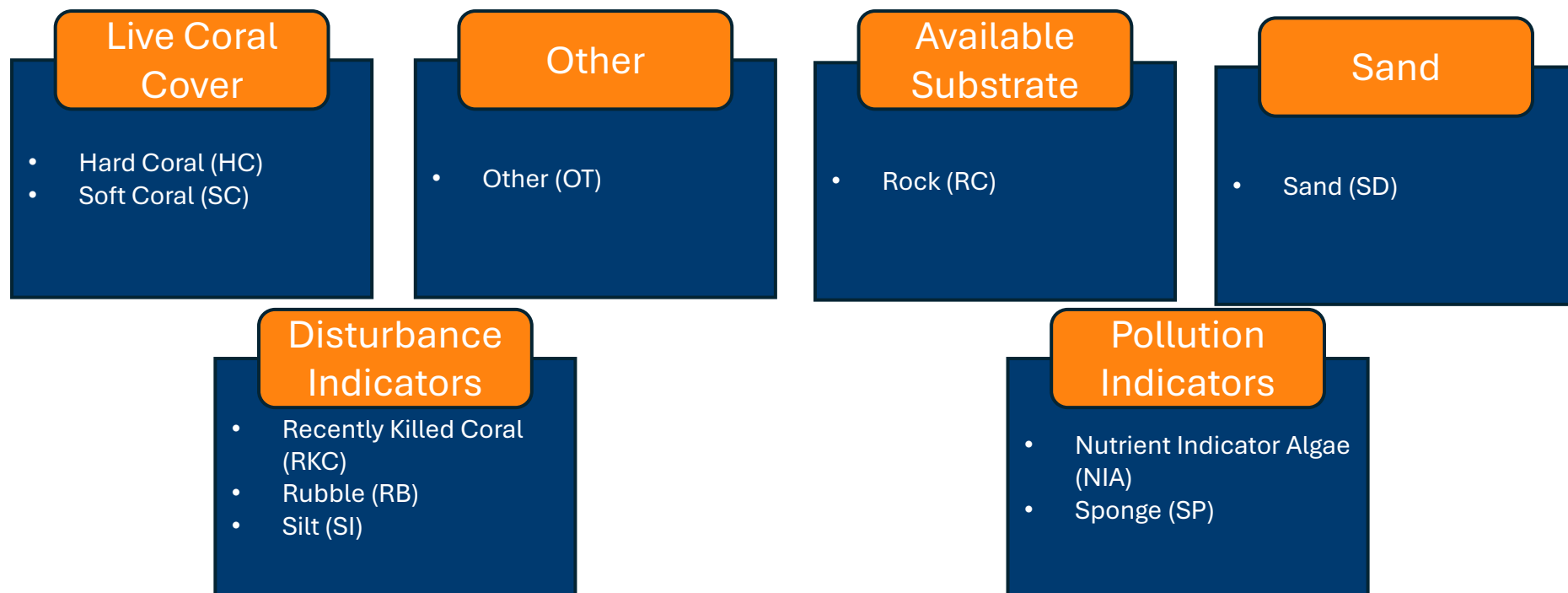


Substrate Survey



Using Point Intercept method, substrate is noted at every 0.5 m along the four 20 m lines.

The substrate types are divided into categories that reflect reef health:

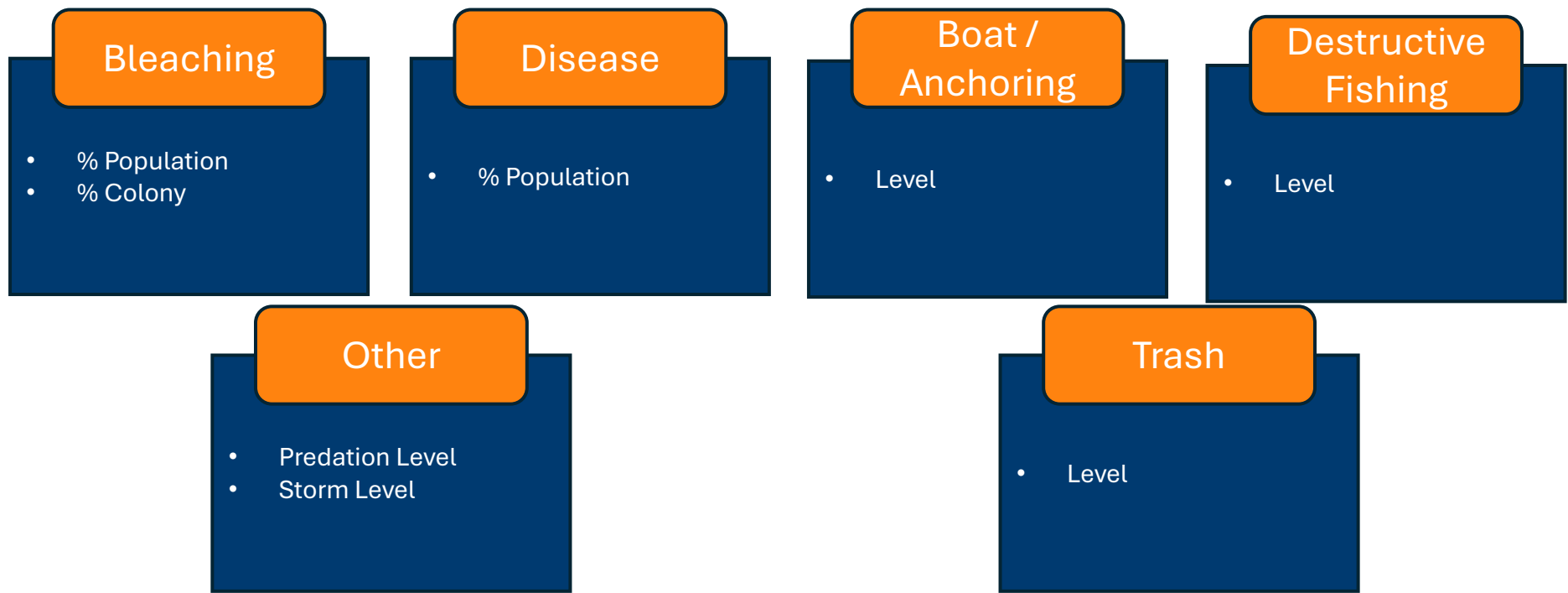


Impact Survey



Assess the damage to coral from bleaching, disease, boat/anchoring, destructive fishing, other (predation, storm) and trash along the four 20 m long x 5 m wide belts.

Impact levels are based on a 0-3 scale, from "0" no impacts observed to "3" high impact.



3. Survey Results

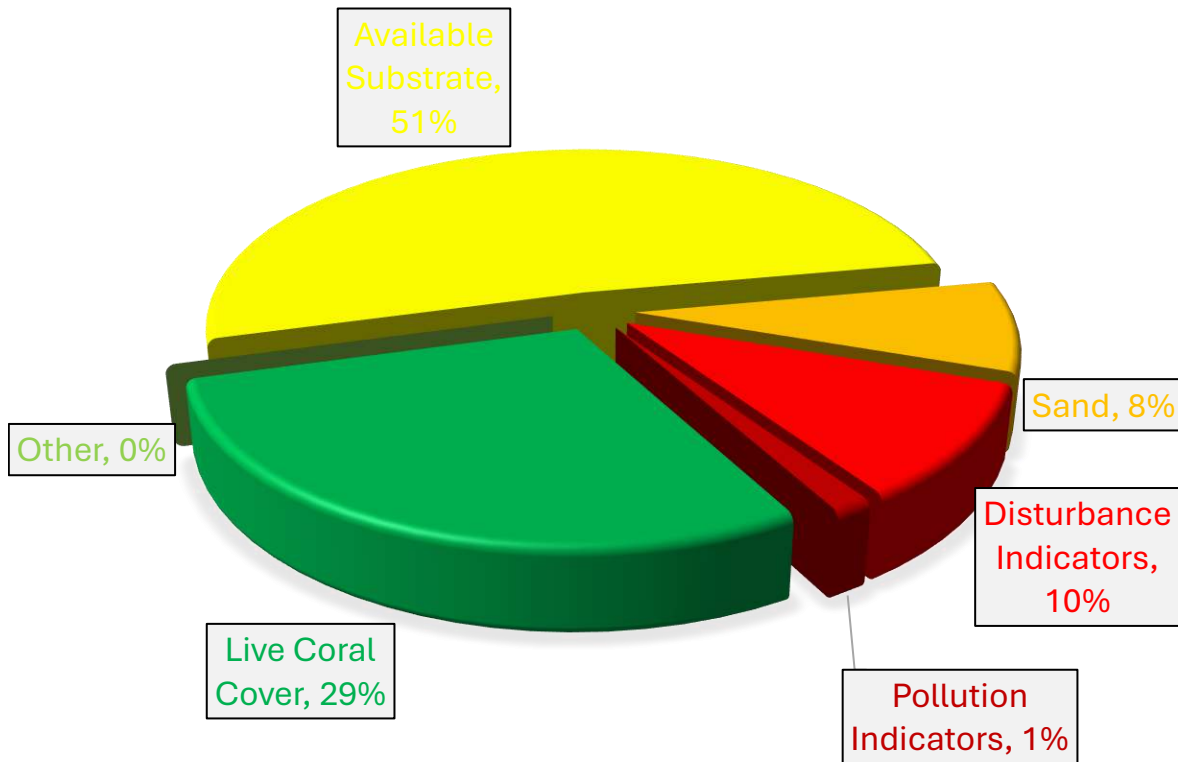
Survey Overview 2024



A total of 11 sites were surveyed in 2024, all on the island of Hawai'i. As far as possible, the same sites will be visited each year to provide consistent data over time, while new sites will be added in future years.



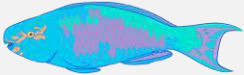




Percentage Substrate Coverage by Category 2024



| | | |
|--------------------------|--------|--|
| Live Coral Cover | | |
| Hard Coral | 28.86% | |
| Soft Coral | 0.00% | |
| Other | | |
| Other | 0.00% | |
| Available Substrate | | |
| Rock | 51.48% | |
| Sand | | |
| Sand | 8.18% | |
| Disturbance Indicators | | |
| Recently Killed Coral | 1.14% | |
| Rubble | 8.98% | |
| Silt | 0.17% | |
| Pollution Indicators | | |
| Nutrient Indicator Algae | 0.28% | |
| Sponge | 0.91% | |

Fish Abundance per 500 m³



Food 4.85

| | |
|--------------------|---|
| Parrotfish |  |
| 0.80 | |
| Snapper |  |
| 0.07 | |
| Jacks |  |
| 0.14 | |
| Moray Eel |  |
| 0.34 | |
| Yellowfin Goatfish |  |
| 3.50 | |

Aquarium 12.35

| | |
|-------------------------|---|
| Butterflyfish |  |
| 3.39 | |
| Orangespine Unicornfish |  |
| 0.57 | |
| Yellow Tang |  |
| 8.40 | |

Invasive Species 0.16

| | |
|---------------------|---|
| Peacock Grouper |  |
| 0.16 | |
| Bluestriped Snapper |  |
| 0.00 | |

Invertebrate Abundance per 100 m²

Food 17.07

Collector Urchin

17.05



Lobster

0.02



Aquarium 0.32

Banded Coral Shrimp

0.32



Curio 30.64

Cowries

0.07



Pencil Urchin

30.57



Triton

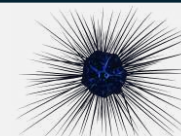
0.00



Ecological Imbalance / Predator Outbreaks 9.04

Long Spined Black Sea
Urchin

8.95







Crown of Thorns Sea
Star

0.09



Megafauna / Rare Species per 500 m³

| Rare Species | |
|--------------|--|
| Sharks |  |
| 0.00 | |
| Turtles |  |
| 0.11 | |
| Mantas |  |
| 0.00 | |
| Other |  |
| 0.11 | |

Island: Hawai'i

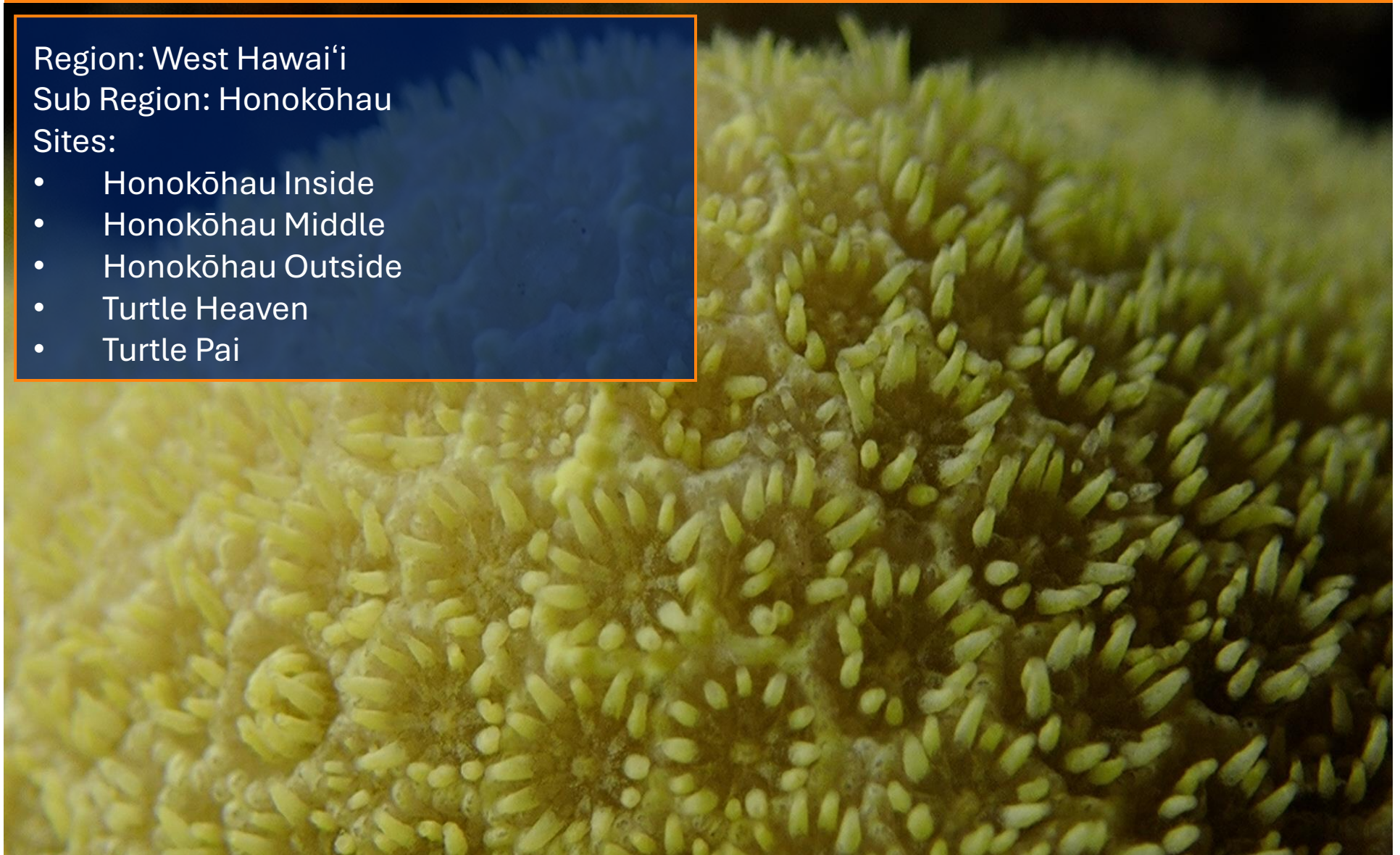


Region: West Hawai'i

Sub Region: Honokōhau

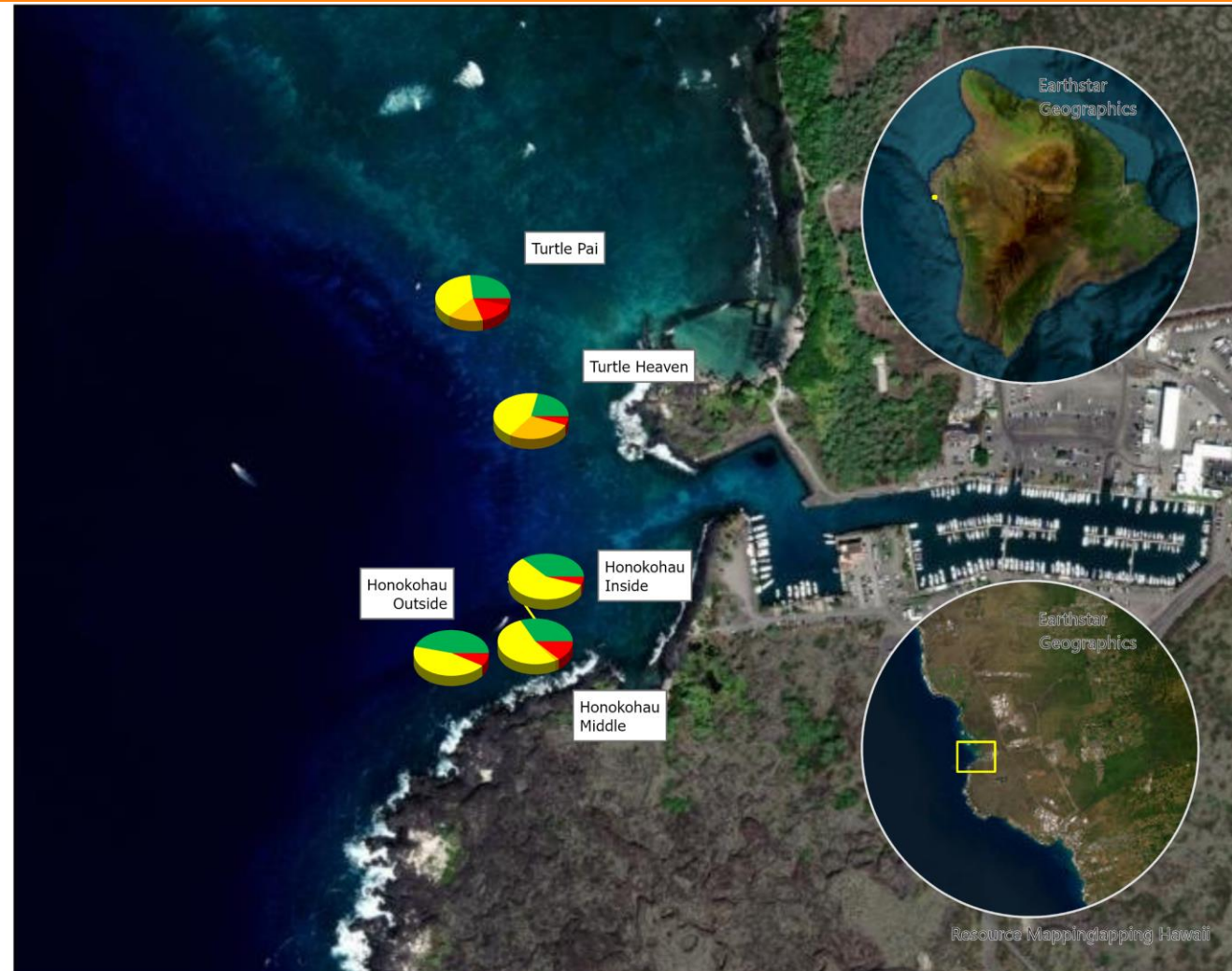
Sites:

- Honokōhau Inside
- Honokōhau Middle
- Honokōhau Outside
- Turtle Heaven
- Turtle Pai



Honokōhau

Year: 2024



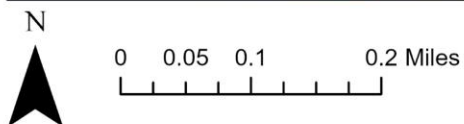
Legend

Substrate



- Live Coral Cover
- Other Cover
- Available Substrate
- Sand
- Disturbance Indicators
- Pollution Indicators

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.



Honokōhau

Year: 2024



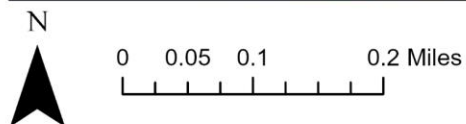
Legend

Hard Coral
Coverage

Hard Coral (HC)

- Excellent 75.01 - 100.00%
- Good 50.01% - 75.00%
- Fair 25.01% - 50.00%
- Poor $\leq 25\%$

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.

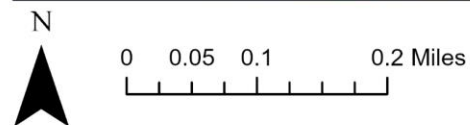


Honokōhau

Year: 2024

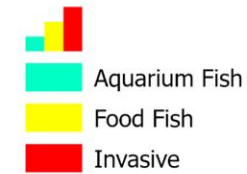


Reef Check
HAWAII

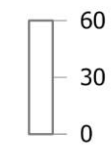


Legend

Fish



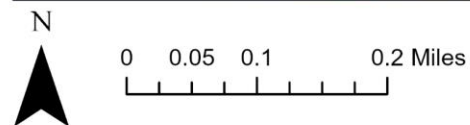
Selected fields



Reef Check fish surveys are conducted along 4 x 20 meter long x 5 meter wide x 5 meter high corridors.

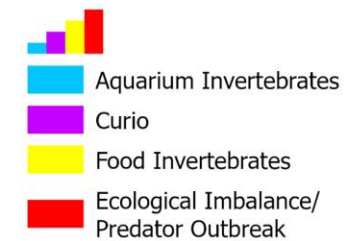
Honokōhau

Year: 2024

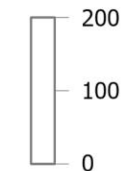


Legend

Invertebrates



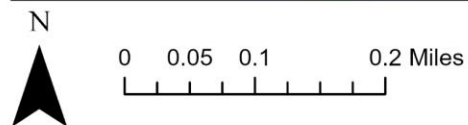
Selected fields



Reef Check invertebrate surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Honokōhau

Year: 2024



Legend

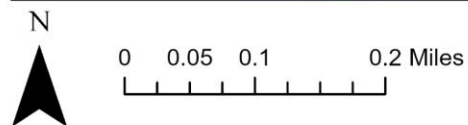
Bleaching (% of population)*

- 75.01 - 100.00%
- 50.00 - 75.00%
- 25.01 - 50.00%
- 0.01 - 25.00%
- No Bleaching Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Honokōhau

Year: 2024



Legend

Black Band Disease

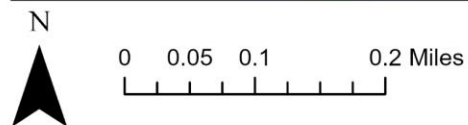
Black Band

- No Black Band Disease Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Honokōhau

Year: 2024



Legend

White Band
Disease

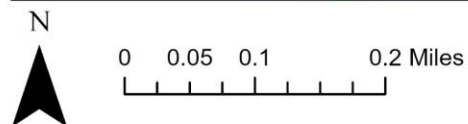
White Band

- No White Band Disease Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Honokōhau

Year: 2024



Legend

Coral Damage:
Boat/Anchor

Coral damage: boat/
anchor

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Honokōhau

Year: 2024



Legend

Coral Damage:
Dynamite

Coral damage:
dynamite

● No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Honokōhau

Year: 2024



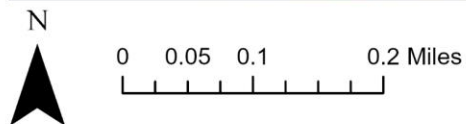
Legend

Coral Damage:
Other

Coral damage: other

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Honokōhau

Year: 2024



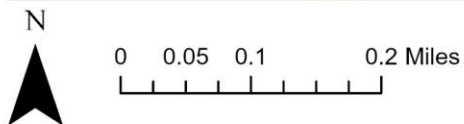
Legend

Trash: Fish Nets

Trash: fish nets

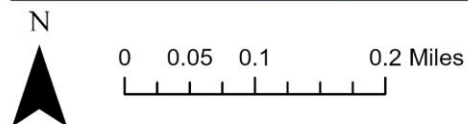
● No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Honokōhau

Year: 2024



Legend

Trash: General

Trash: general

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Island: Hawai'i



Region: West Hawai'i
Sub Region: Honokōhau
Sites:

- Honokōhau Inside
- Honokōhau Middle
- Honokōhau Outside
- Turtle Heaven
- Turtle Pai

Survey Date: 9/29/2024
Latitude: 19.66793
Longitude: -156.029
Depth (m): 3

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 38.12% |
| Hard Coral | 38.12% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 56.87% |
| Rock | 56.87% |
| Sand | 0.63% |
| Sand | 0.63% |
| Disturbance Indicators | 4.38% |
| Recently Killed Coral | 0.00% |
| Rubble | 4.38% |
| Silt | 0.00% |
| Pollution Indicators | 0.00% |
| Nutrient Indicator Algae | 0.00% |
| Sponge | 0.00% |

| Fish per 500m ³ | |
|----------------------------|--------------|
| Aquarium Fish | 6.50 |
| Butterfly Fish | 2.75 |
| Orangespine Unicornfish | 0.00 |
| Yellow Tang | 3.75 |
| Food Fish | 38.25 |
| Jacks | 0.00 |
| Yellowfin Goatfish | 37.50 |
| Parrotfish | 0.50 |
| Snapper | 0.00 |
| Moray Eel | 0.25 |
| Invasive | 0.00 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.00 |

| Invertebrates per 100m ² | |
|---|--------------|
| Aquarium Invertebrates | 0.00 |
| Banded Coral Shrimp | 0.00 |
| Curio | 88.00 |
| Cowries | 0.00 |
| Pencil Urchin | 88.00 |
| Triton | 0.00 |
| Food Invertebrates | 53.50 |
| Collector Urchin | 53.50 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 43.50 |
| Long Spined Black Sea Urchin | 43.50 |
| Crown of Thorns Sea Star | 0.00 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.25 |
| Trash: General | 0.00 |

| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.00 |

Island: Hawai'i



Region: West Hawai'i
Sub Region: Honokōhau
Sites:

- Honokōhau Inside
- **Honokōhau Middle**
- Honokōhau Outside
- Turtle Heaven
- Turtle Pai

Survey Date: 9/25/2024
Latitude: 19.66786
Longitude: -156.0291
Depth (m): 7

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 33.12% |
| Hard Coral | 33.12% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 52.50% |
| Rock | 52.50% |
| Sand | 1.88% |
| Sand | 1.88% |
| Disturbance Indicators | 11.87% |
| Recently Killed Coral | 0.00% |
| Rubble | 11.87% |
| Silt | 0.00% |
| Pollution Indicators | 0.63% |
| Nutrient Indicator Algae | 0.00% |
| Sponge | 0.63% |

| Fish per 500m ³ | |
|----------------------------|--------------|
| Aquarium Fish | 24.00 |
| Butterfly Fish | 3.75 |
| Orangespine Unicornfish | 0.25 |
| Yellow Tang | 20.00 |
| Food Fish | 3.25 |
| Jacks | 0.25 |
| Yellowfin Goatfish | 1.00 |
| Parrotfish | 1.25 |
| Snapper | 0.25 |
| Moray Eel | 0.50 |
| Invasive | 0.00 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.00 |

| Invertebrates per 100m ² | |
|---|--------------|
| Aquarium Invertebrates | 0.00 |
| Banded Coral Shrimp | 0.00 |
| Curio | 81.00 |
| Cowries | 0.25 |
| Pencil Urchin | 80.75 |
| Triton | 0.00 |
| Food Invertebrates | 19.75 |
| Collector Urchin | 19.75 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 1.75 |
| Long Spined Black Sea Urchin | 1.75 |
| Crown of Thorns Sea Star | 0.00 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.50 |
| Trash: General | 0.00 |

| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.00 |

Island: Hawai'i



Region: West Hawai'i
Sub Region: Honokōhau
Sites:

- Honokōhau Inside
- Honokōhau Middle
- **Honokōhau Outside**
- Turtle Heaven
- Turtle Pai

Survey Date: 9/29/2024
Latitude: 19.66773
Longitude: -156.0295
Depth (m): 11

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 46.87% |
| Hard Coral | 46.87% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 46.25% |
| Rock | 46.25% |
| Sand | 0.00% |
| Sand | 0.00% |
| Disturbance Indicators | 6.88% |
| Recently Killed Coral | 0.63% |
| Rubble | 6.25% |
| Silt | 0.00% |
| Pollution Indicators | 0.00% |
| Nutrient Indicator Algae | 0.00% |
| Sponge | 0.00% |

| Fish per 500m ³ | |
|----------------------------|--------------|
| Aquarium Fish | 39.25 |
| Butterfly Fish | 5.75 |
| Orangespine Unicornfish | 0.25 |
| Yellow Tang | 33.25 |
| Food Fish | 2.00 |
| Jacks | 0.00 |
| Yellowfin Goatfish | 0.00 |
| Parrotfish | 1.75 |
| Snapper | 0.00 |
| Moray Eel | 0.25 |
| Invasive | 0.25 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.25 |

| Invertebrates per 100m ² | |
|---|--------------|
| Aquarium Invertebrates | 0.50 |
| Banded Coral Shrimp | 0.50 |
| Curio | 40.25 |
| Cowries | 0.25 |
| Pencil Urchin | 40.00 |
| Triton | 0.00 |
| Food Invertebrates | 5.50 |
| Collector Urchin | 5.50 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 1.75 |
| Long Spined Black Sea Urchin | 1.75 |
| Crown of Thorns Sea Star | 0.00 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.25 |
| Trash: General | 0.00 |

| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.00 |

Island: Hawai'i



Region: West Hawai'i
Sub Region: Honokōhau
Sites:

- Honokōhau Inside
- Honokōhau Middle
- Honokōhau Outside
- Turtle Heaven
- Turtle Pai

Survey Date: 9/30/2024
Latitude: 19.67038
Longitude: -156.0292
Depth (m): 11

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 21.25% |
| Hard Coral | 21.25% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 42.50% |
| Rock | 42.50% |
| Sand | 31.88% |
| Sand | 31.88% |
| Disturbance Indicators | 3.75% |
| Recently Killed Coral | 0.62% |
| Rubble | 3.13% |
| Silt | 0.00% |
| Pollution Indicators | 0.62% |
| Nutrient Indicator Algae | 0.62% |
| Sponge | 0.00% |

| Fish per 500m ³ | |
|----------------------------|--------------|
| Aquarium Fish | 12.25 |
| Butterfly Fish | 2.75 |
| Orangespine Unicornfish | 1.00 |
| Yellow Tang | 8.50 |
| Food Fish | 2.00 |
| Jacks | 0.00 |
| Yellowfin Goatfish | 0.00 |
| Parrotfish | 1.00 |
| Snapper | 0.25 |
| Moray Eel | 0.75 |
| Invasive | 0.25 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.25 |

| Invertebrates per 100m ² | |
|---|--------------|
| Aquarium Invertebrates | 0.75 |
| Banded Coral Shrimp | 0.75 |
| Curio | 6.50 |
| Cowries | 0.00 |
| Pencil Urchin | 6.50 |
| Triton | 0.00 |
| Food Invertebrates | 33.00 |
| Collector Urchin | 33.00 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 1.25 |
| Long Spined Black Sea Urchin | 1.25 |
| Crown of Thorns Sea Star | 0.00 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.75 |
| Trash: General | 0.00 |

| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 1.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 1.00 |

Island: Hawai'i



Region: West Hawai'i
Sub Region: Honokōhau
Sites:

- Honokōhau Inside
- Honokōhau Middle
- Honokōhau Outside
- Turtle Heaven
- **Turtle Pai**

Survey Date: 10/2/2024
Latitude: 19.6717
Longitude: -156.0299
Depth (m): 10

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 27.50% |
| Hard Coral | 27.50% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 36.25% |
| Rock | 36.25% |
| Sand | 19.37% |
| Sand | 19.37% |
| Disturbance Indicators | 15.63% |
| Recently Killed Coral | 3.13% |
| Rubble | 12.50% |
| Silt | 0.00% |
| Pollution Indicators | 1.25% |
| Nutrient Indicator Algae | 1.25% |
| Sponge | 0.00% |

| Fish per 500m ³ | |
|----------------------------|-------------|
| Aquarium Fish | 3.25 |
| Butterfly Fish | 2.00 |
| Orangespine Unicornfish | 0.25 |
| Yellow Tang | 1.00 |
| Food Fish | 2.25 |
| Jacks | 0.00 |
| Yellowfin Goatfish | 0.00 |
| Parrotfish | 1.75 |
| Snapper | 0.00 |
| Moray Eel | 0.50 |
| Invasive | 0.25 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.25 |

| Invertebrates per 100m ² | |
|---|--------------|
| Aquarium Invertebrates | 1.25 |
| Banded Coral Shrimp | 1.25 |
| Curio | 7.25 |
| Cowries | 0.25 |
| Pencil Urchin | 7.00 |
| Triton | 0.00 |
| Food Invertebrates | 29.00 |
| Collector Urchin | 29.00 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 2.00 |
| Long Spined Black Sea Urchin | 1.75 |
| Crown of Thorns Sea Star | 0.25 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.50 |
| Trash: General | 0.00 |

| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.00 |

Island: Hawai'i



Region: West Hawai'i

Sub Region: Kaloko

Sites:

- Lone Tree





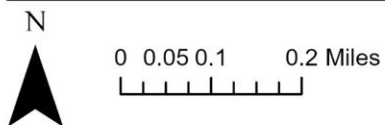
Legend

Substrate



- Live Coral Cover
- Other Cover
- Available Substrate
- Sand
- Disturbance Indicators
- Pollution Indicators

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.



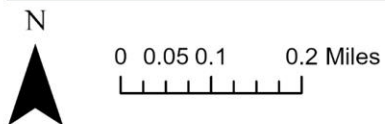


Legend

Hard Coral (HC)

- Excellent 75.01% - 100.00%
- Good 50.01% - 75.00%
- Fair 25.01% - 50.00%
- Poor $\leq 25\%$

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.





Legend

Fish



Aquarium Fish

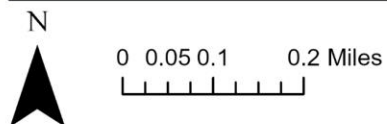
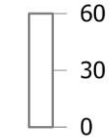


Food Fish

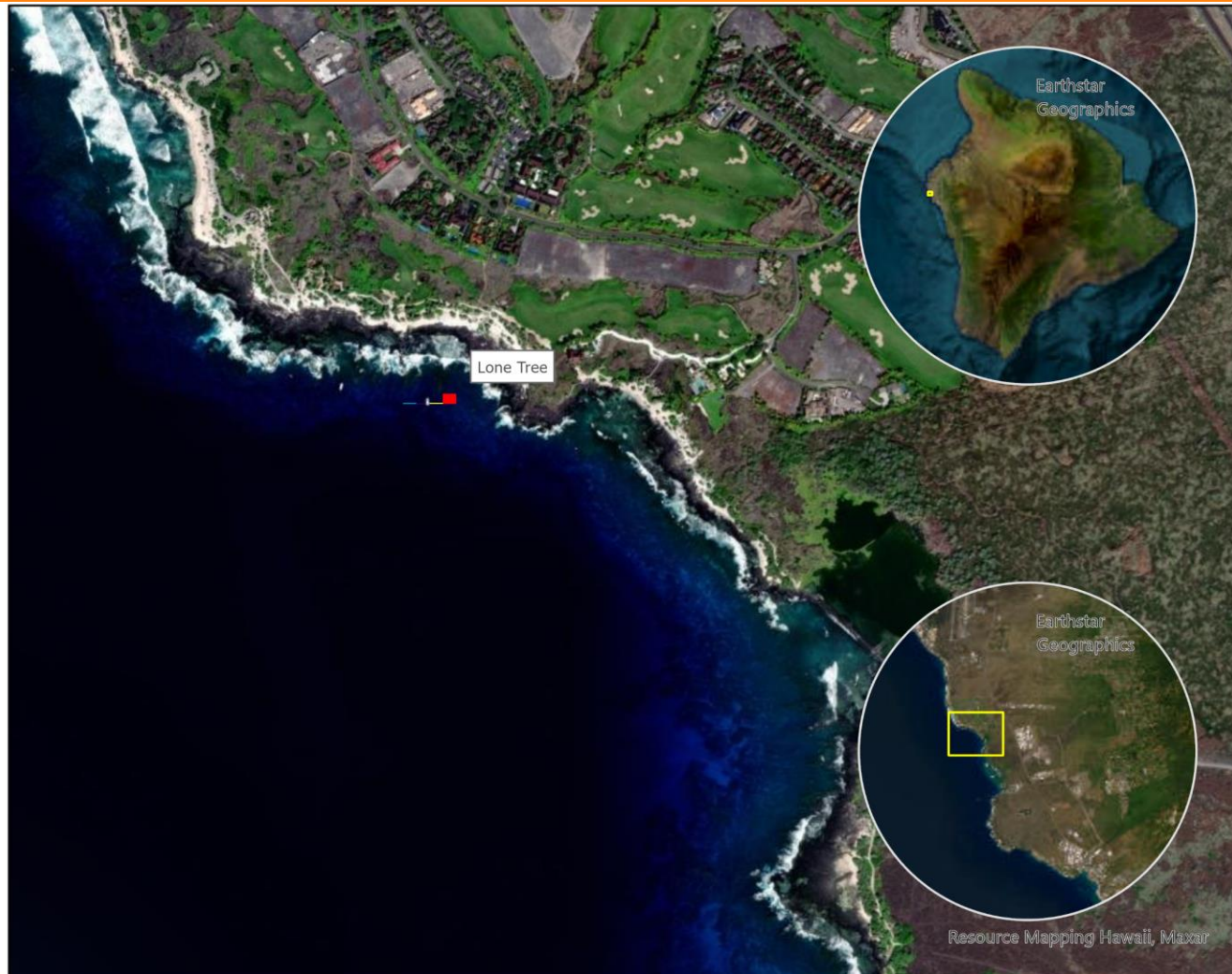


Invasive

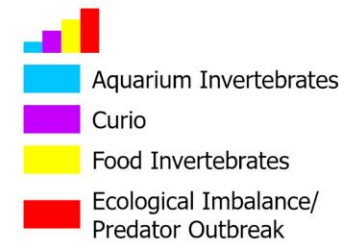
Selected fields



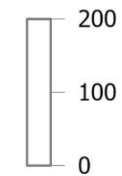
Reef Check fish surveys are conducted along 4 x 20 meter long x 5 meter wide x 5 meter high corridors.



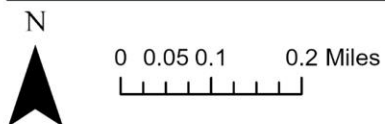
Legend



Selected fields



Reef Check invertebrate surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



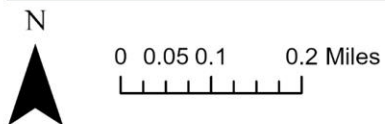


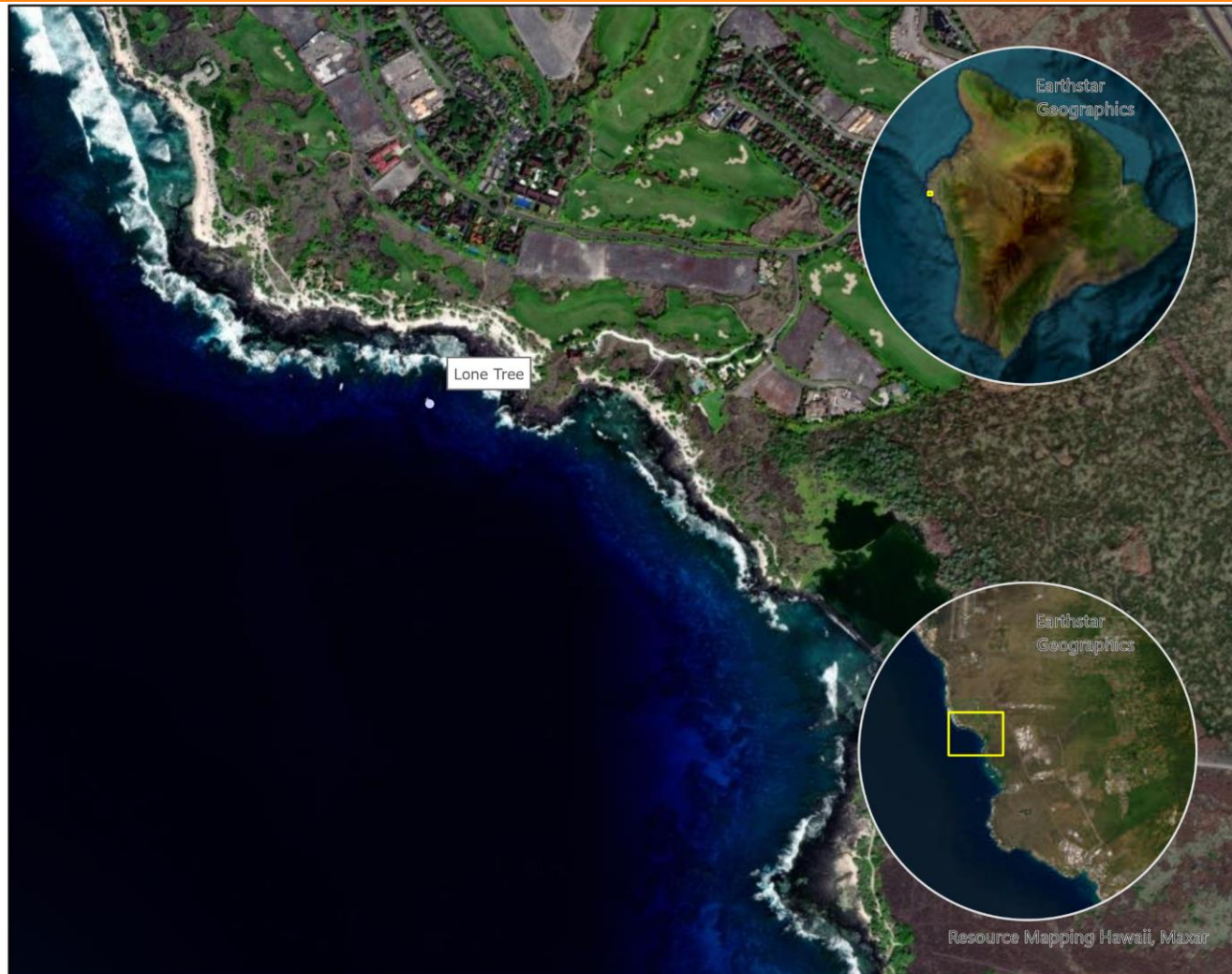
Legend

Bleaching (% of population)*

- 75.01 - 100.00%
- 50.00 - 75.00%
- 25.01 - 50.00%
- 0.01 - 25.00%
- No Bleaching Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



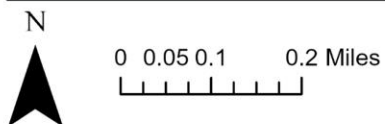


Legend

Black Band

- No Black Band Disease Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.





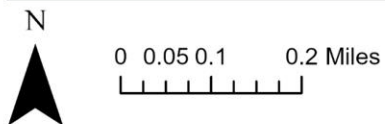
Legend

White Band
Disease

White Band

- No White Band Disease
- Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.





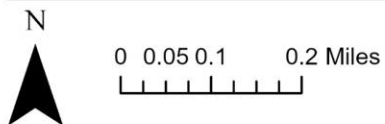
Legend

Coral Damage:
Boat/Anchor

Coral damage: boat/
anchor

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.





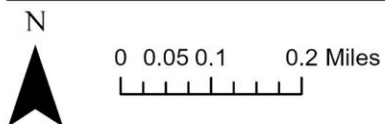
Legend

Coral Damage:
Dynamite

Coral damage:
dynamite

● No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.





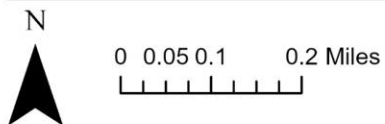
Legend

Coral Damage:
Other

Coral damage: other

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.





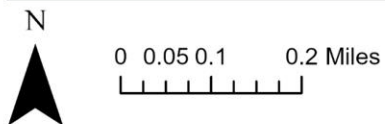
Legend

Trash: Fish Nets

Trash: fish nets

● No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.





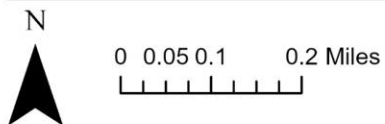
Legend

Trash: General

Trash: general

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Island: Hawai'i



Region: West Hawai'i

Sub Region: Kaloko

Sites:

- Lone Tree

Survey Date: 9/27/2024

Latitude: 19.69113

Longitude: -156.0408

Depth (m): 10

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 11.88% |
| Hard Coral | 11.88% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 59.37% |
| Rock | 59.37% |
| Sand | 6.25% |
| Sand | 6.25% |
| Disturbance Indicators | 20.62% |
| Recently Killed Coral | 0.00% |
| Rubble | 20.62% |
| Silt | 0.00% |
| Pollution Indicators | 1.88% |
| Nutrient Indicator Algae | 0.00% |
| Sponge | 1.88% |

| Fish per 500m ³ | |
|----------------------------|-------------|
| Aquarium Fish | 6.25 |
| Butterfly Fish | 3.50 |
| Orangespine Unicornfish | 0.75 |
| Yellow Tang | 2.00 |
| Food Fish | 1.50 |
| Jacks | 0.25 |
| Yellowfin Goatfish | 0.00 |
| Parrotfish | 0.75 |
| Snapper | 0.00 |
| Moray Eel | 0.50 |
| Invasive | 0.25 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.25 |

| Invertebrates per 100m ² | |
|---|--------------|
| Aquarium Invertebrates | 1.00 |
| Banded Coral Shrimp | 1.00 |
| Curio | 0.25 |
| Cowries | 0.00 |
| Pencil Urchin | 0.25 |
| Triton | 0.00 |
| Food Invertebrates | 1.50 |
| Collector Urchin | 1.50 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 14.50 |
| Long Spined Black Sea Urchin | 14.50 |
| Crown of Thorns Sea Star | 0.00 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.50 |
| Trash: General | 0.00 |

| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.00 |

Island: Hawai'i



Region: West Hawai'i

Sub Region: Pine Trees

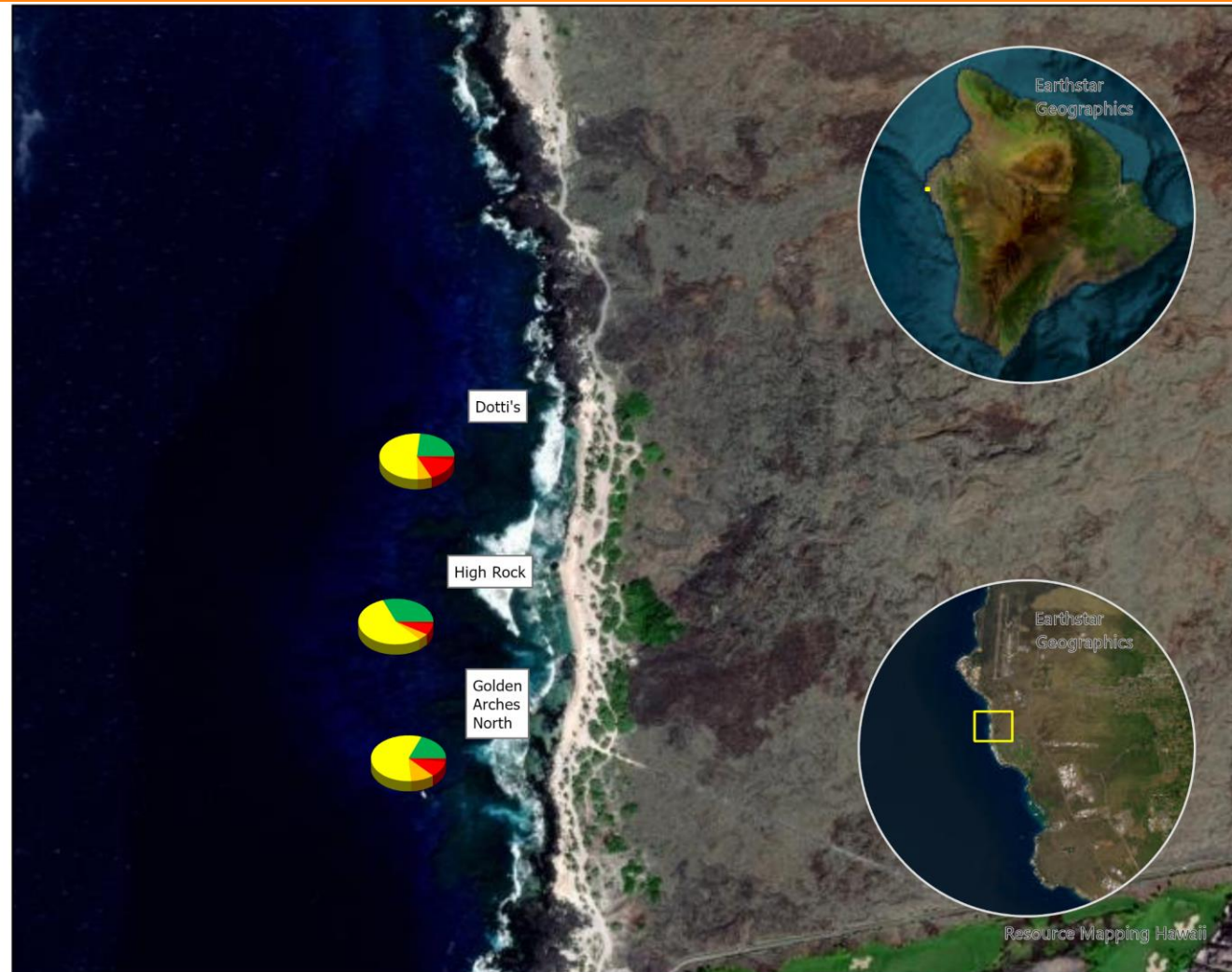
Sites:

- Dotti's
- High Rock
- Golden Arches North



Pine Trees

Year: 2024



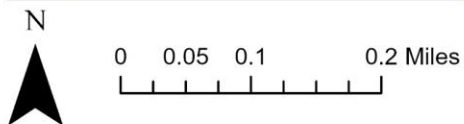
Legend

Substrate



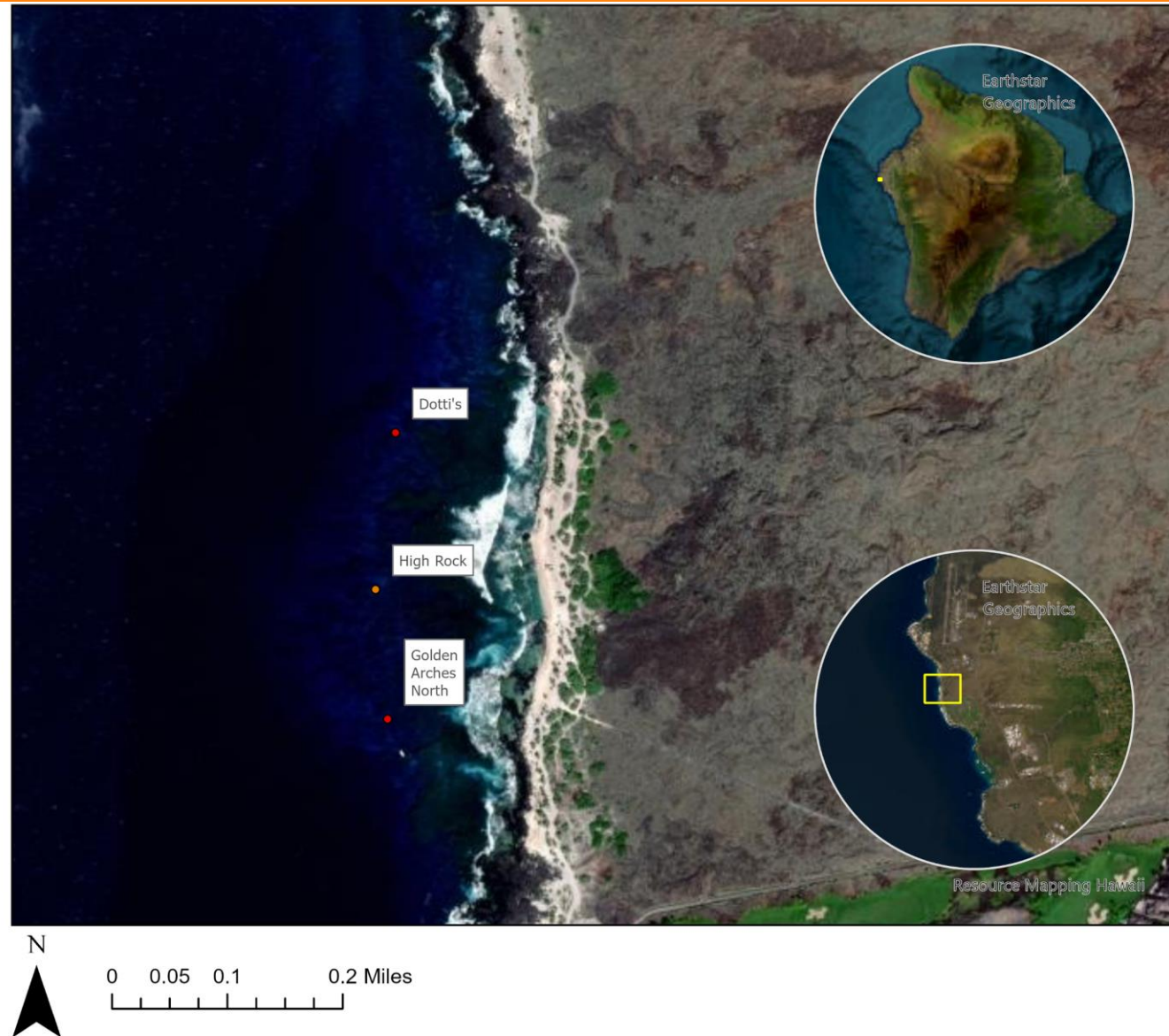
- Live Coral Cover
- Other Cover
- Available Substrate
- Sand
- Disturbance Indicators
- Pollution Indicators

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.



Pine Trees

Year: 2024



Legend

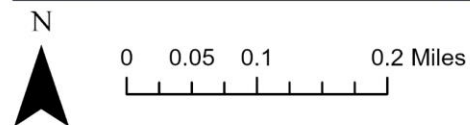
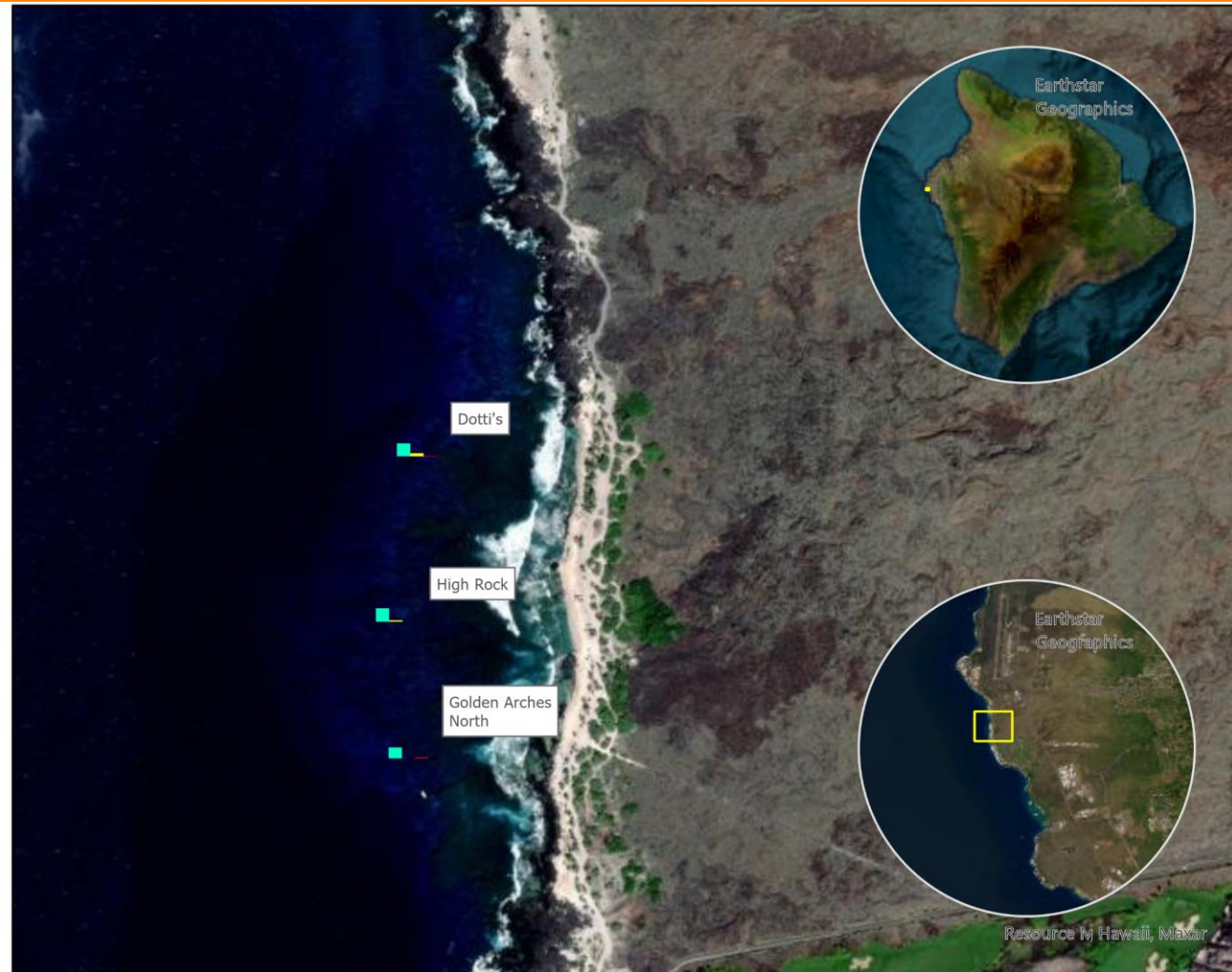
Hard Coral (HC)

- Excellent 75.01 - 100.00%
- Good 50.01% - 75.00%
- Fair 25.01% - 50.00%
- Poor $\leq 25\%$

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.

Pine Trees

Year: 2024

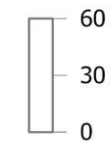


Legend

Fish



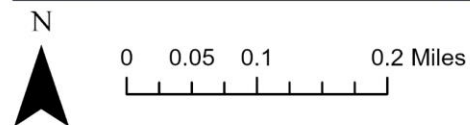
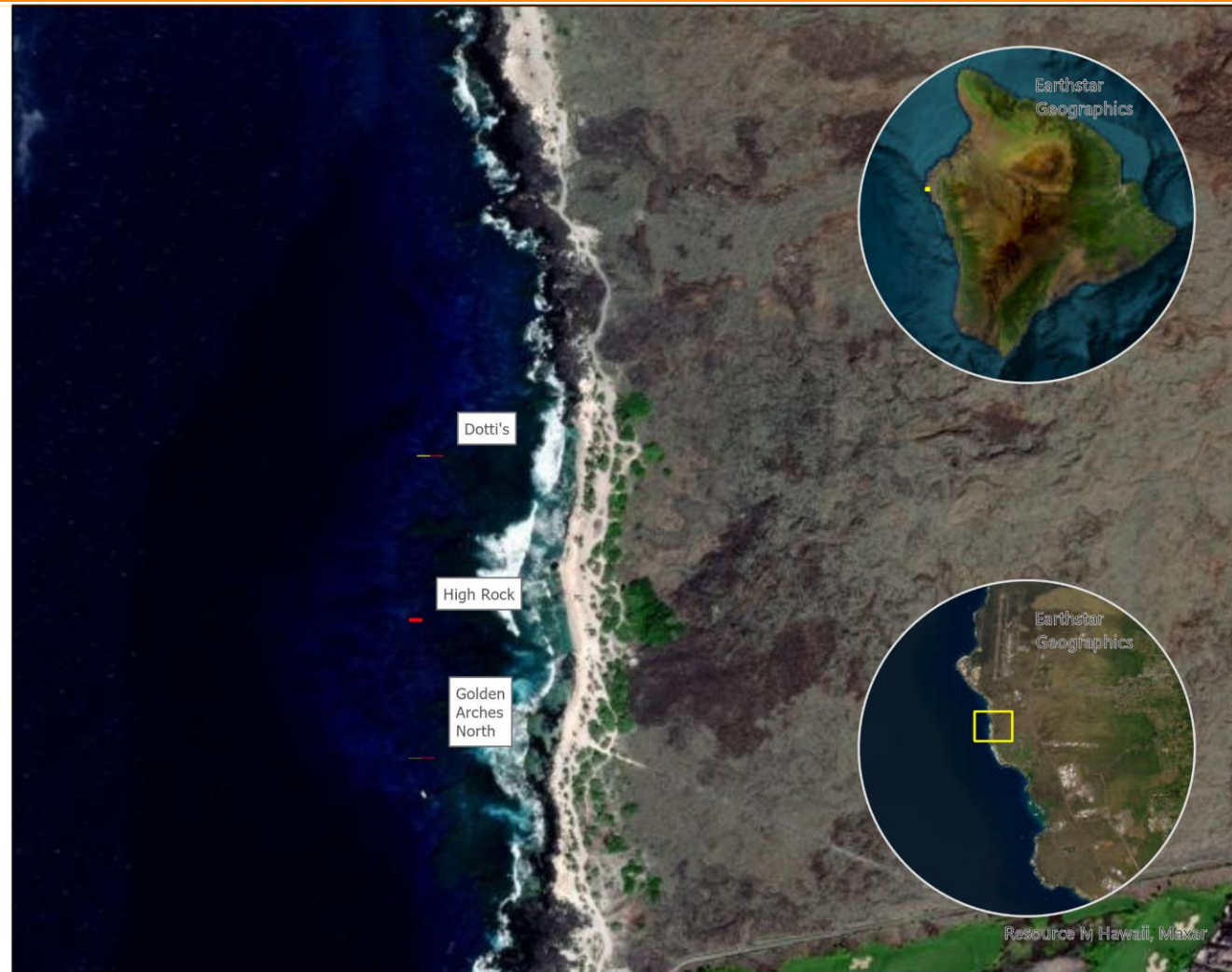
Selected fields



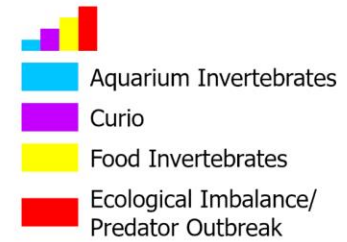
Reef Check fish surveys are conducted along 4 x 20 meter long x 5 meter wide x 5 meter high corridors.

Pine Trees

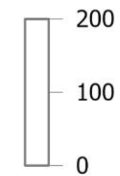
Year: 2024



Legend



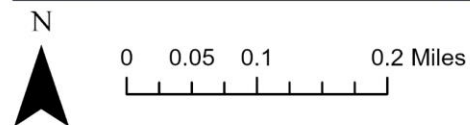
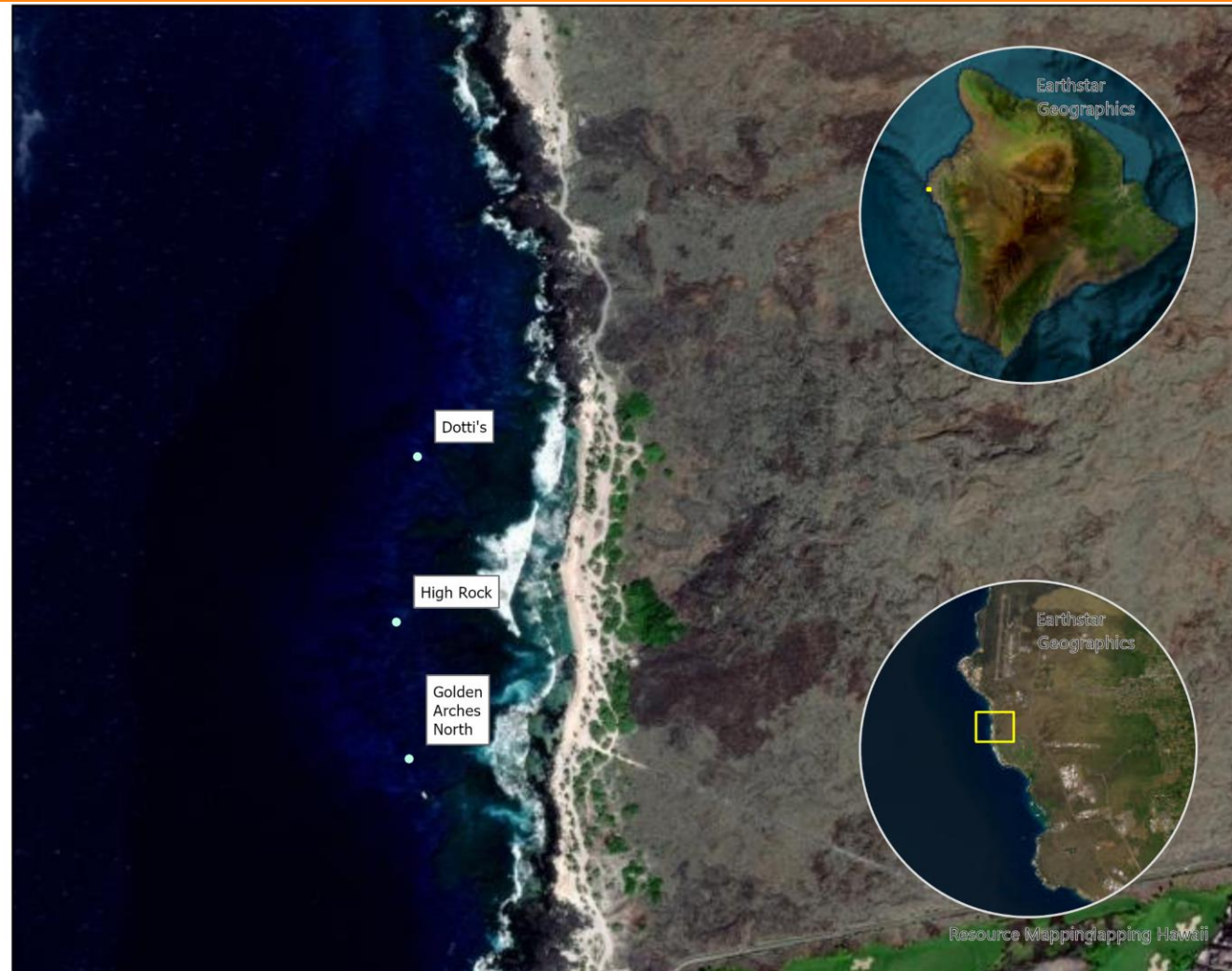
Selected fields



Reef Check invertebrate surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Pine Trees

Year: 2024



Legend

Bleaching (% of population)*

- 75.01 - 100.00%
- 50.00 - 75.00%
- 25.01 - 50.00%
- 0.01 - 25.00%
- No Bleaching Observed

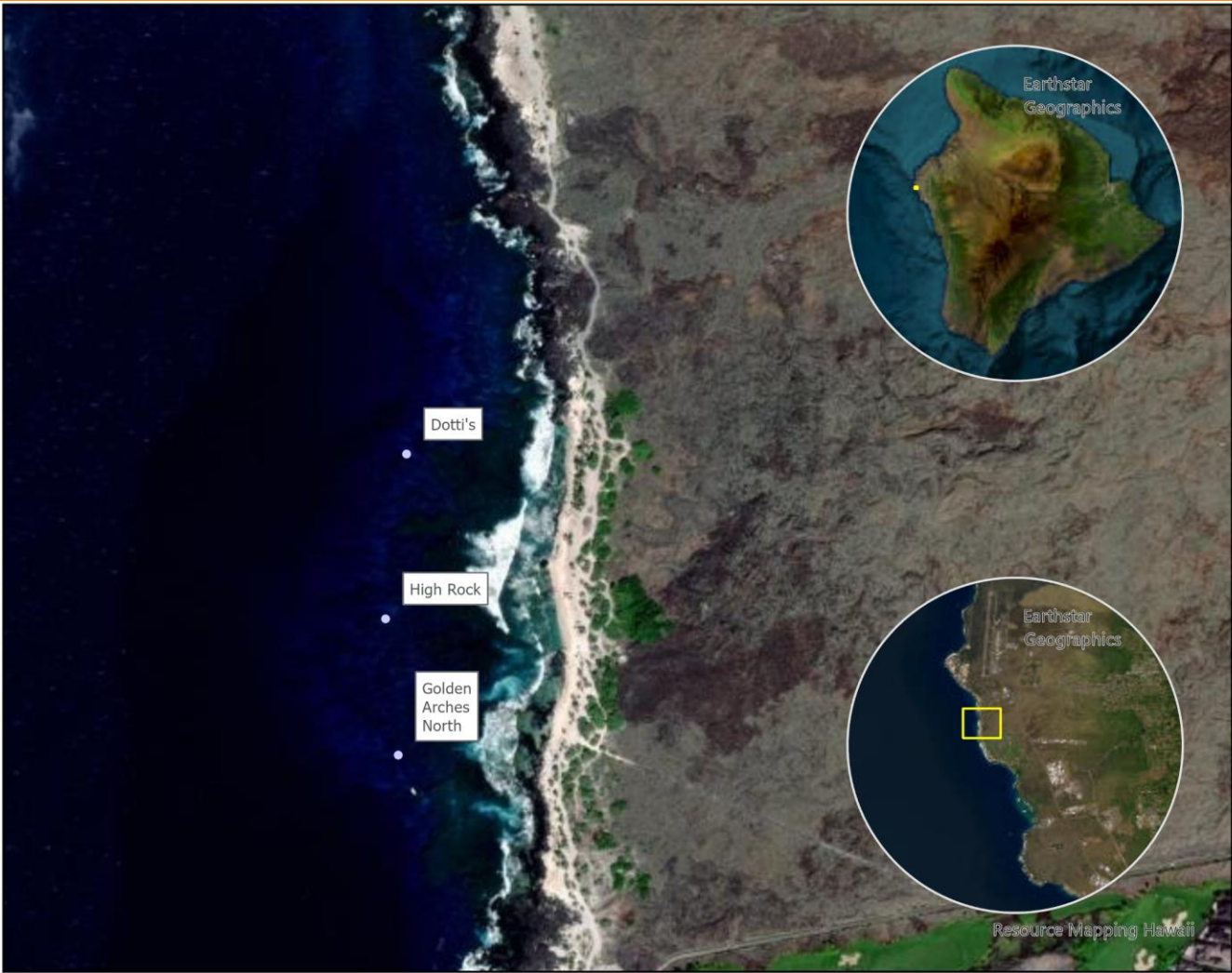
Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Pine Trees

Year: 2024



Reef Check
HAWAII

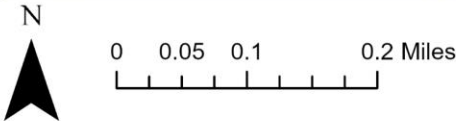


Legend

Black Band

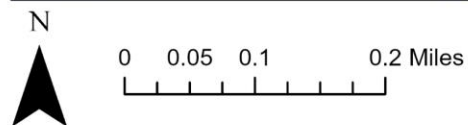
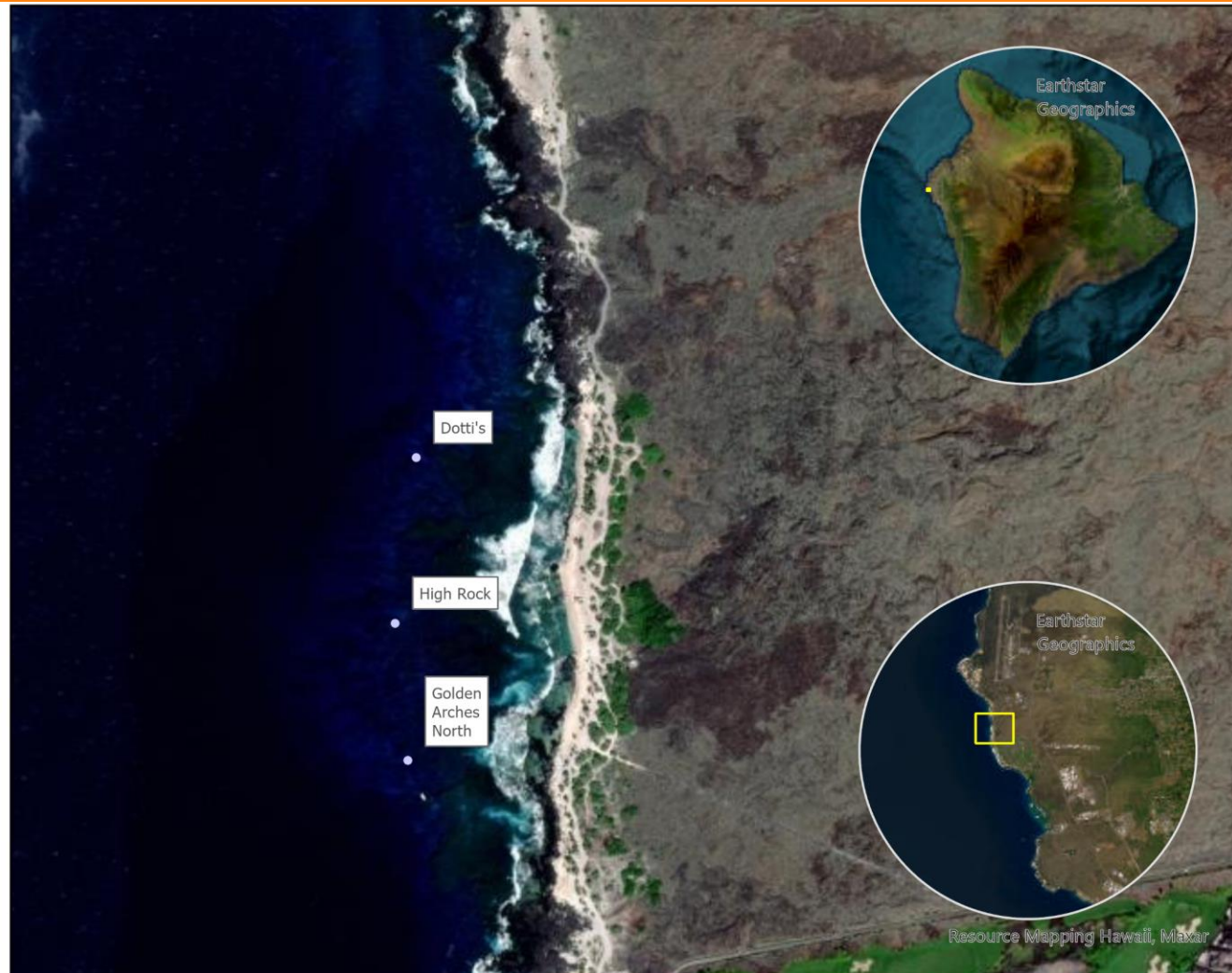
- No Black Band Disease Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Pine Trees

Year: 2024



Legend

White Band
Disease

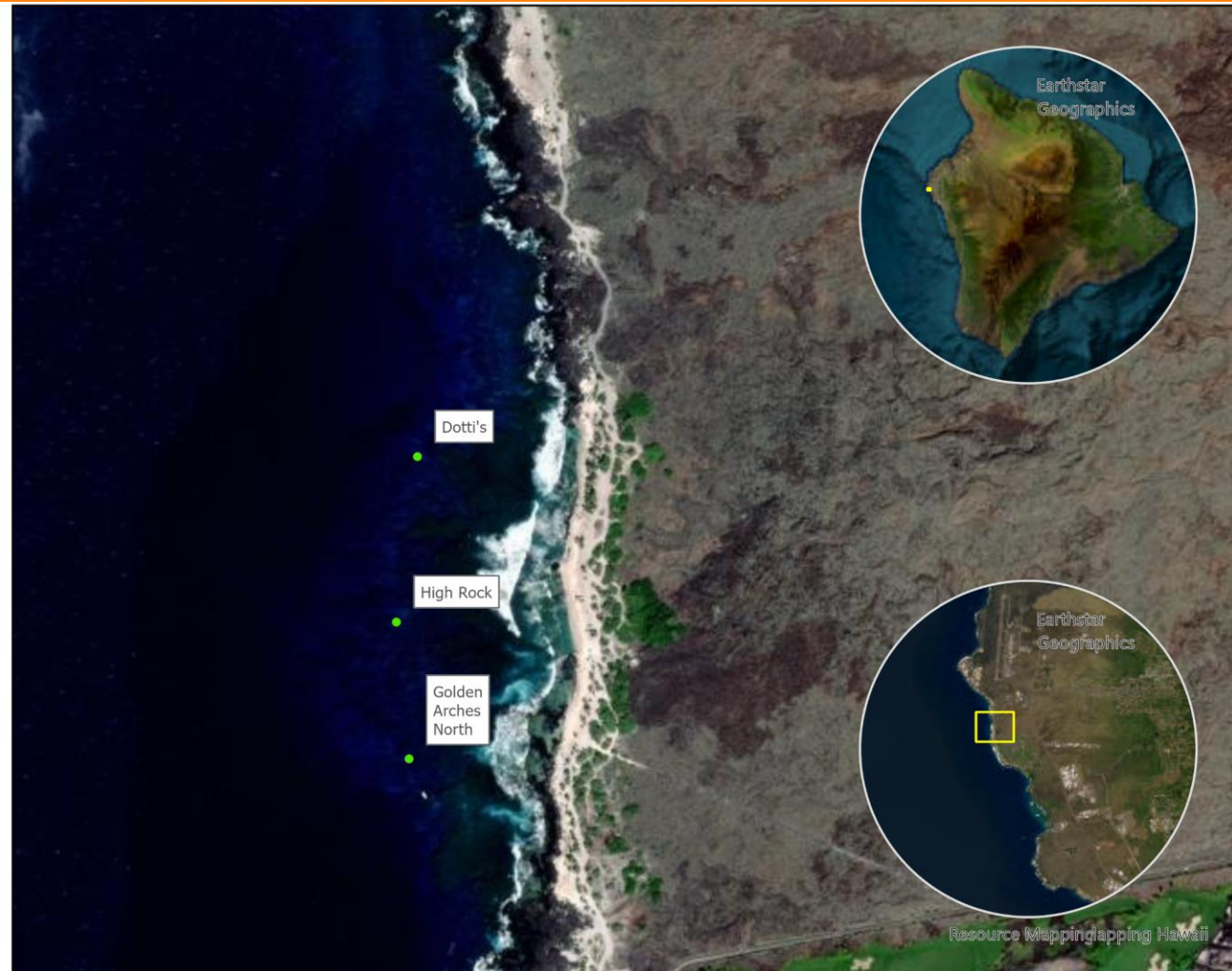
White Band

- No White Band Disease Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Pine Trees

Year: 2024



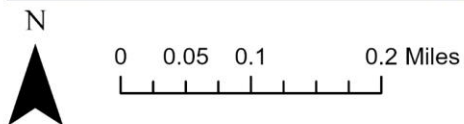
Legend

Coral Damage:
Boat/Anchor

Coral damage: boat/
anchor

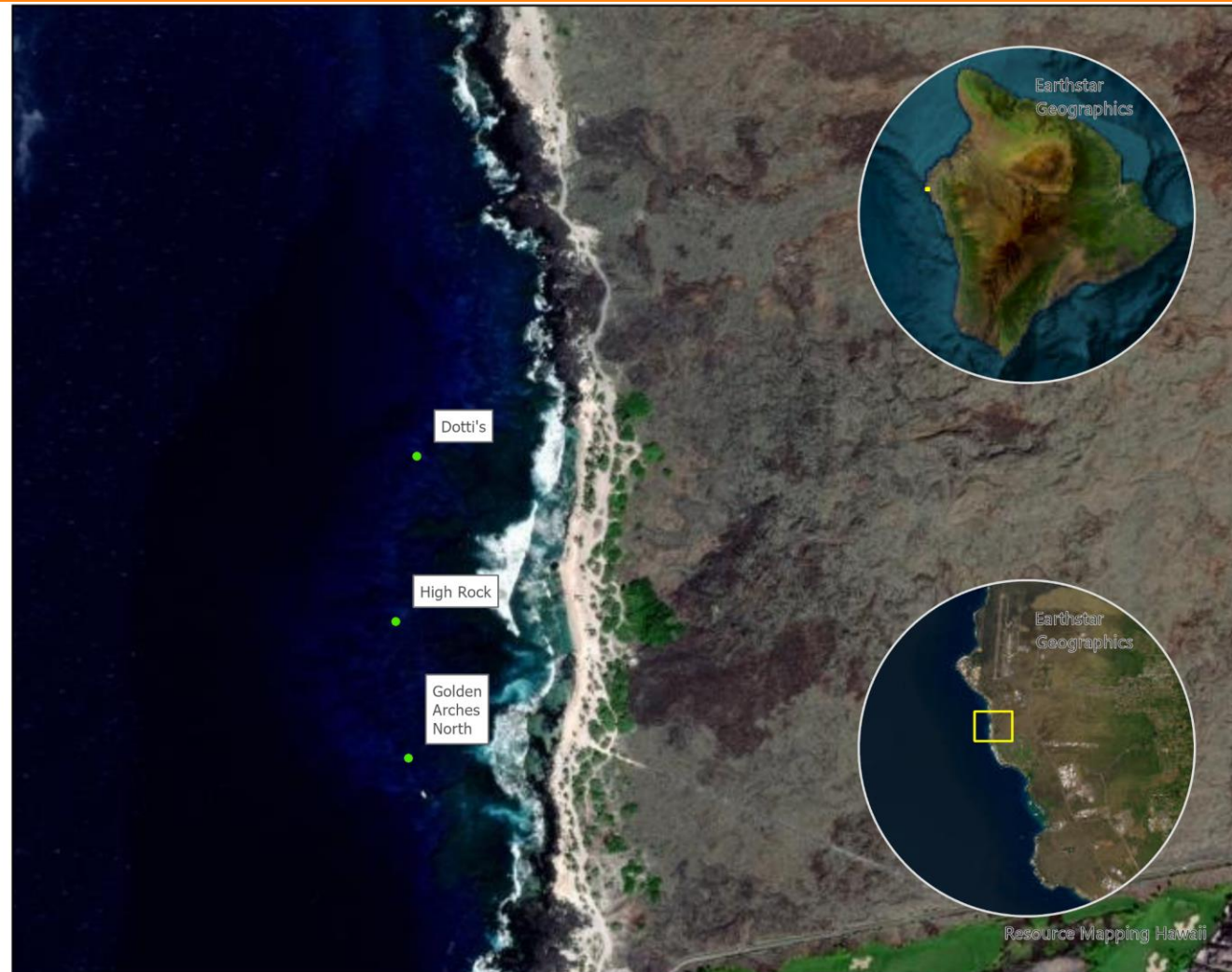
- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Pine Trees

Year: 2024



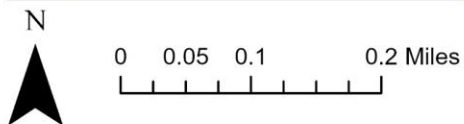
Legend

Coral Damage:
Dynamite

Coral damage:
dynamite

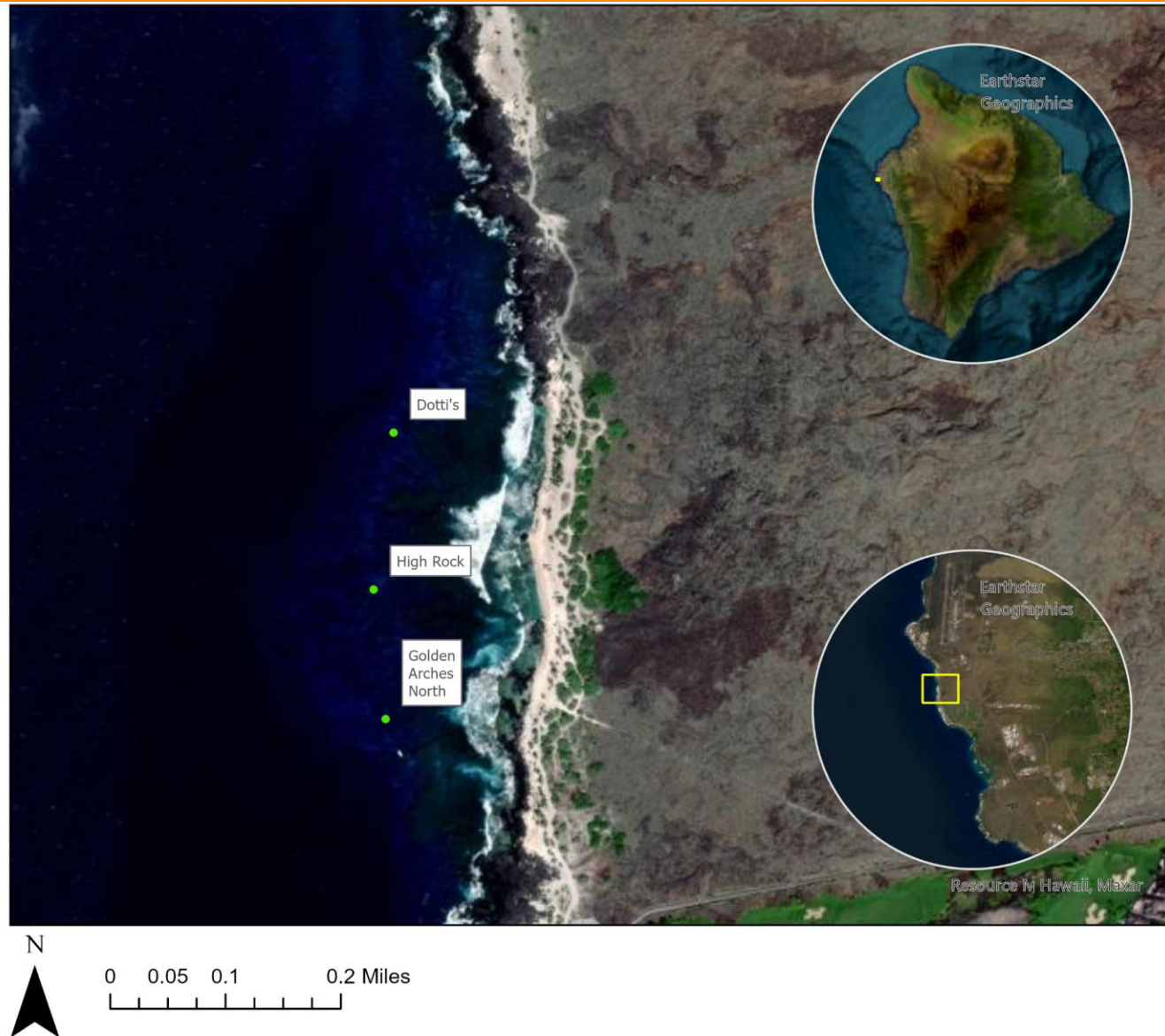
● No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Pine Trees

Year: 2024



Legend

Coral Damage:
Other

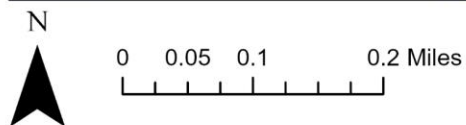
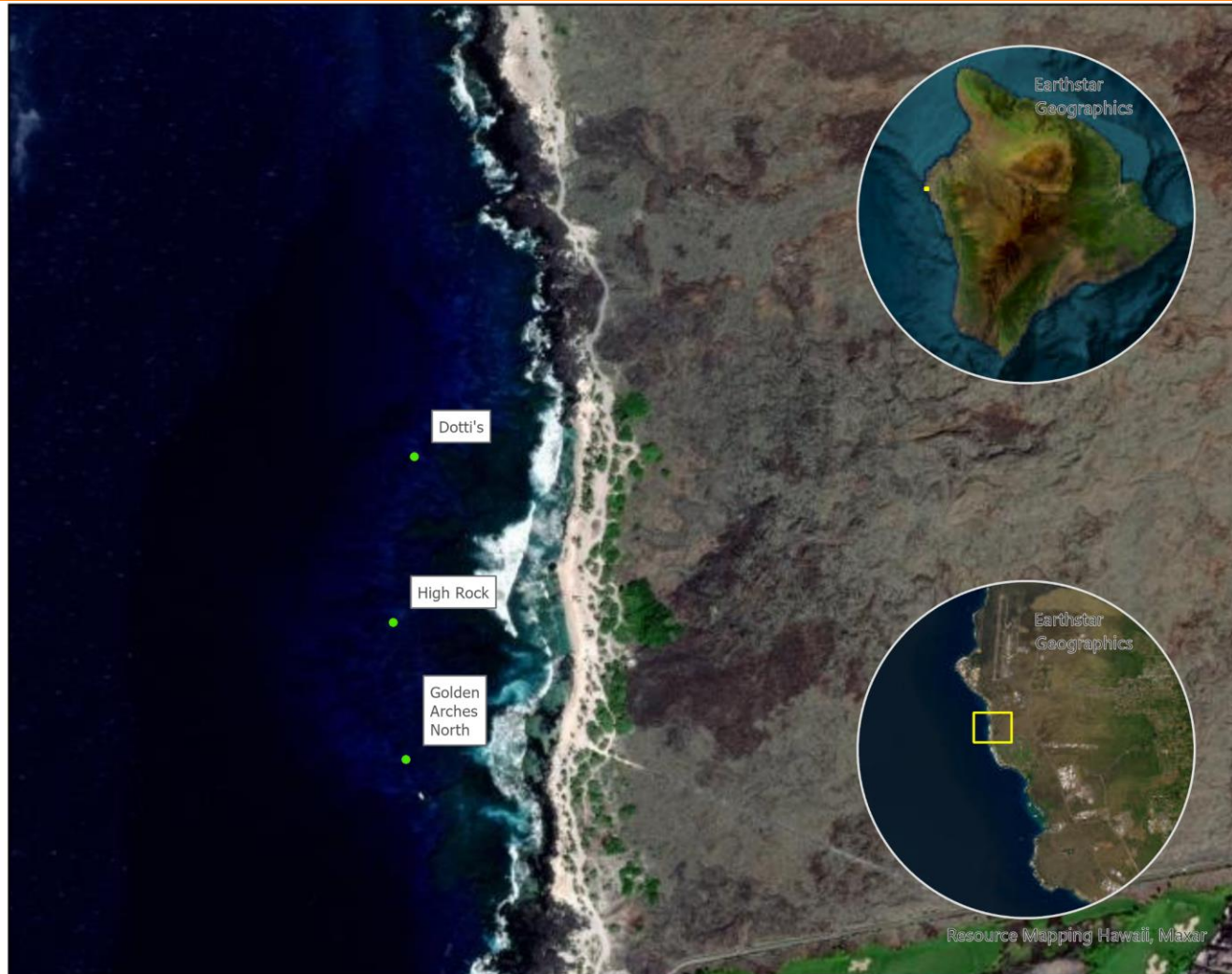
Coral damage: other

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Pine Trees

Year: 2024



Legend

Trash: Fish Nets

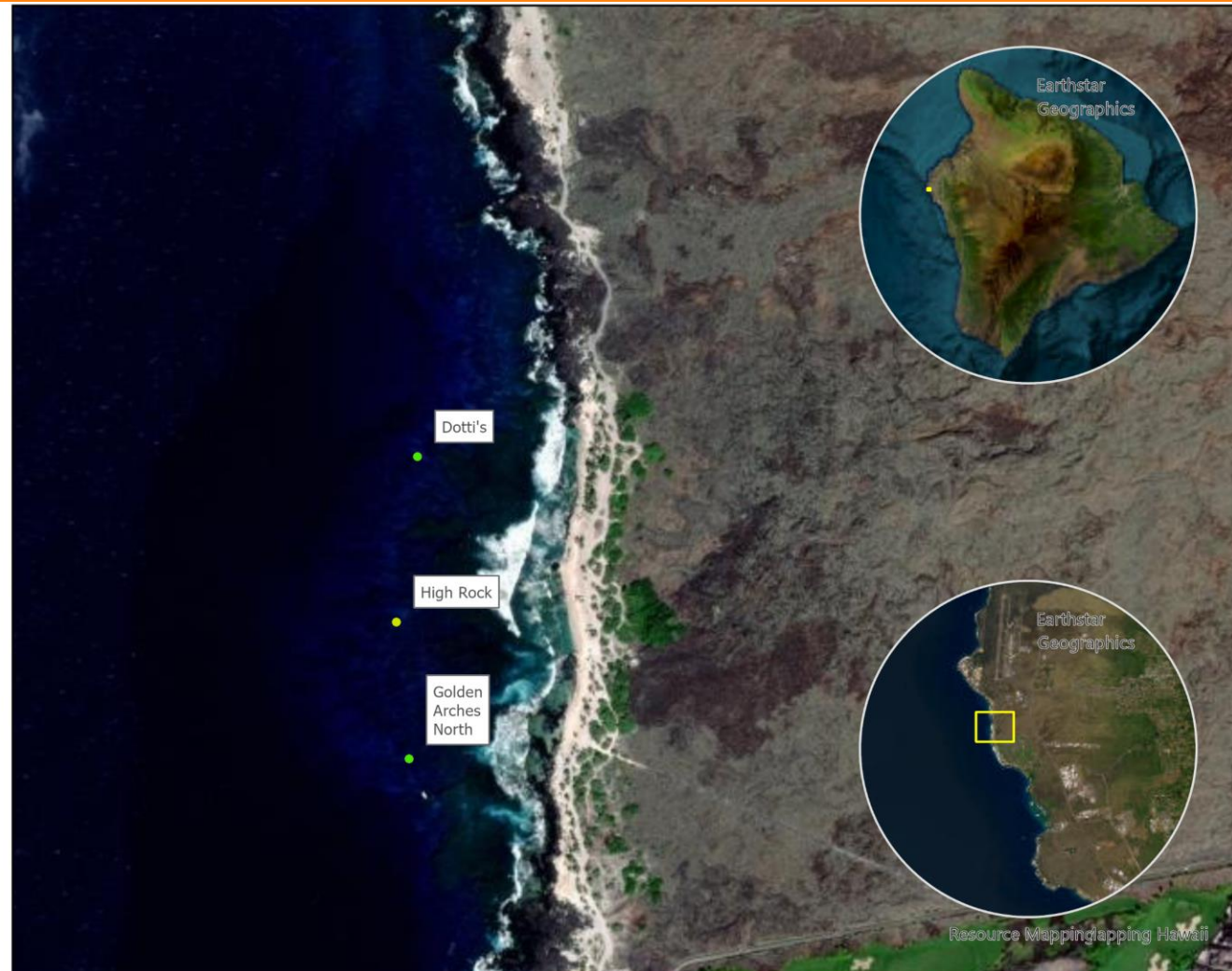
Trash: fish nets

● No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Pine Trees

Year: 2024



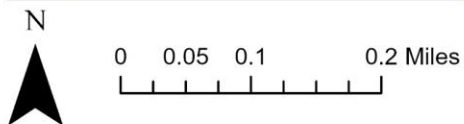
Legend

Trash: General

Trash: general

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Island: Hawai'i



Region: West Hawai'i
Sub Region: Pine Trees
Sites:

- Dotti's
- High Rock
- Golden Arches North

Survey Date: 9/30/2024
Latitude: 19.70676
Longitude: -156.05
Depth (m): 10

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 22.50% |
| Hard Coral | 22.50% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 50.63% |
| Rock | 50.63% |
| Sand | 7.50% |
| Sand | 7.50% |
| Disturbance Indicators | 14.38% |
| Recently Killed Coral | 0.63% |
| Rubble | 13.75% |
| Silt | 0.00% |
| Pollution Indicators | 5.00% |
| Nutrient Indicator Algae | 1.25% |
| Sponge | 3.75% |

| Fish per 500m ³ | |
|----------------------------|-------------|
| Aquarium Fish | 7.25 |
| Butterfly Fish | 1.50 |
| Orangespine Unicornfish | 1.50 |
| Yellow Tang | 4.25 |
| Food Fish | 1.75 |
| Jacks | 1.00 |
| Yellowfin Goatfish | 0.00 |
| Parrotfish | 0.50 |
| Snapper | 0.00 |
| Moray Eel | 0.25 |
| Invasive | 0.25 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.25 |

| Invertebrates per 100m ² | |
|---|-------------|
| Aquarium Invertebrates | 0.00 |
| Banded Coral Shrimp | 0.00 |
| Curio | 0.00 |
| Cowries | 0.00 |
| Pencil Urchin | 0.00 |
| Triton | 0.00 |
| Food Invertebrates | 1.50 |
| Collector Urchin | 1.25 |
| Lobster | 0.25 |
| Ecological Imbalance / Predator Outbreak | 1.25 |
| Long Spined Black Sea Urchin | 0.75 |
| Crown of Thorns Sea Star | 0.50 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.25 |
| Trash: General | 0.00 |

| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.25 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.25 |

Island: Hawai'i



Region: West Hawai'i
Sub Region: Pine Trees
Sites:

- Dotti's
- High Rock
- Golden Arches North

Survey Date: 9/27/2024
Latitude: 19.70491
Longitude: -156.0503
Depth (m): 9

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 32.50% |
| Hard Coral | 32.50% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 56.25% |
| Rock | 56.25% |
| Sand | 4.37% |
| Sand | 4.37% |
| Disturbance Indicators | 6.25% |
| Recently Killed Coral | 1.25% |
| Rubble | 5.00% |
| Silt | 0.00% |
| Pollution Indicators | 0.63% |
| Nutrient Indicator Algae | 0.00% |
| Sponge | 0.63% |

| Fish per 500m ³ | |
|----------------------------|-------------|
| Aquarium Fish | 7.50 |
| Butterfly Fish | 0.50 |
| Orangespine Unicornfish | 0.75 |
| Yellow Tang | 6.25 |
| Food Fish | 0.75 |
| Jacks | 0.00 |
| Yellowfin Goatfish | 0.00 |
| Parrotfish | 0.50 |
| Snapper | 0.00 |
| Moray Eel | 0.25 |
| Invasive | 0.00 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.00 |

| Invertebrates per 100m ² | |
|---|-------------|
| Aquarium Invertebrates | 0.00 |
| Banded Coral Shrimp | 0.00 |
| Curio | 0.00 |
| Cowries | 0.00 |
| Pencil Urchin | 0.00 |
| Triton | 0.00 |
| Food Invertebrates | 0.00 |
| Collector Urchin | 0.00 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 4.75 |
| Long Spined Black Sea Urchin | 4.50 |
| Crown of Thorns Sea Star | 0.25 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.25 |
| Trash: General | 0.25 |

| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.00 |

Island: Hawai'i



Region: West Hawai'i
Sub Region: Pine Trees
Sites:

- Dotti's
- High Rock
- Golden Arches North

Survey Date: 10/2/2024
Latitude: 19.70338
Longitude: -156.0501
Depth (m): 10

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 17.50% |
| Hard Coral | 17.50% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 58.12% |
| Rock | 58.12% |
| Sand | 11.88% |
| Sand | 11.88% |
| Disturbance Indicators | 9.38% |
| Recently Killed Coral | 1.88% |
| Rubble | 7.50% |
| Silt | 0.00% |
| Pollution Indicators | 3.12% |
| Nutrient Indicator Algae | 0.00% |
| Sponge | 3.12% |

| Fish per 500m ³ | |
|----------------------------|-------------|
| Aquarium Fish | 6.11 |
| Butterfly Fish | 5.75 |
| Orangespine Unicornfish | 0.25 |
| Yellow Tang | 0.11 |
| Food Fish | 0.03 |
| Jacks | 0.00 |
| Yellowfin Goatfish | 0.00 |
| Parrotfish | 0.02 |
| Snapper | 0.00 |
| Moray Eel | 0.01 |
| Invasive | 0.50 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.50 |

| Invertebrates per 100m ² | |
|---|-------------|
| Aquarium Invertebrates | 0.00 |
| Banded Coral Shrimp | 0.00 |
| Curio | 0.00 |
| Cowries | 0.00 |
| Pencil Urchin | 0.00 |
| Triton | 0.00 |
| Food Invertebrates | 0.50 |
| Collector Urchin | 0.50 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 1.00 |
| Long Spined Black Sea Urchin | 1.00 |
| Crown of Thorns Sea Star | 0.00 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.01 |
| Trash: General | 0.00 |

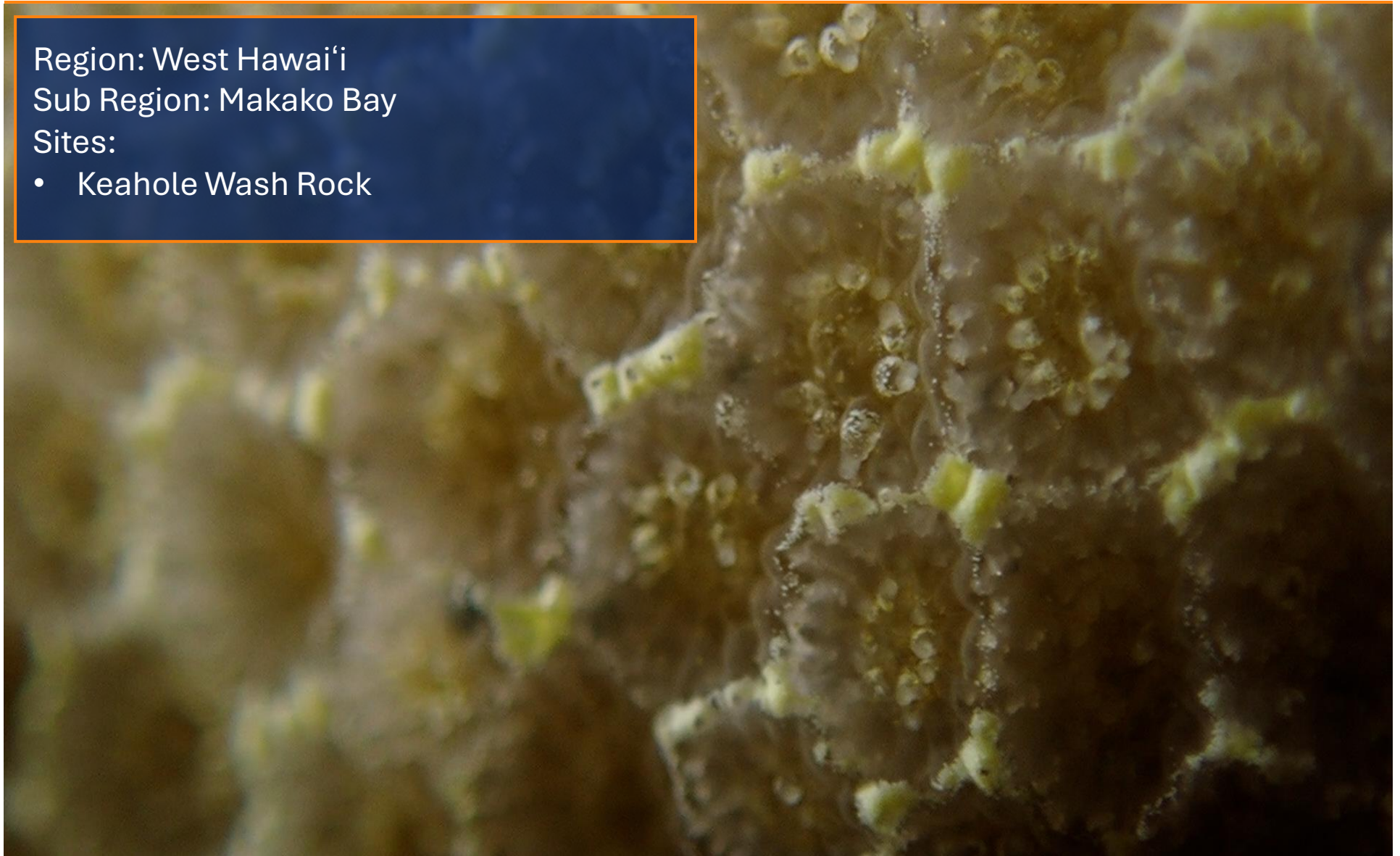
| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.00 |

Island: Hawai'i



Region: West Hawai'i
Sub Region: Makako Bay
Sites:

- Keahole Wash Rock



Makako Bay

Year: 2024



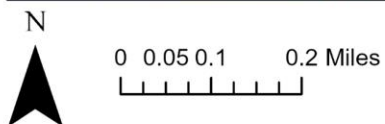
Legend

Substrate



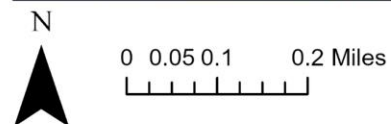
- Live Coral Cover
- Other Cover
- Available Substrate
- Sand
- Disturbance Indicators
- Pollution Indicators

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.



Makako Bay

Year: 2024



Legend

Hard Coral (HC)

- Excellent 75.01 - 100.00%
- Good 50.01% - 75.00%
- Fair 25.01% - 50.00%
- Poor $\leq 25\%$

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.

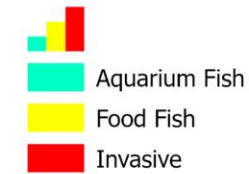
Makako Bay

Year: 2024

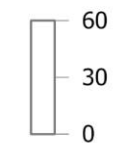


Legend

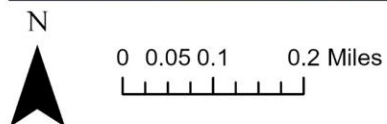
Fish



Selected fields



Reef Check fish surveys are conducted along 4 x 20 meter long x 5 meter wide x 5 meter high corridors.

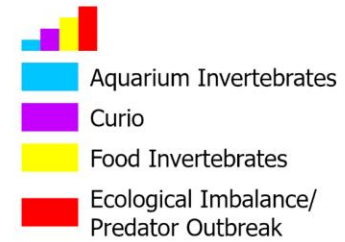


Makako Bay

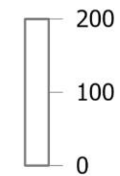
Year: 2024



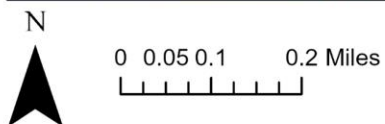
Legend



Selected fields



Reef Check invertebrate surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Makako Bay

Year: 2024

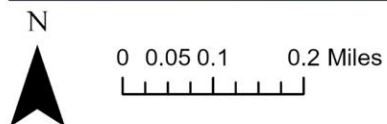


Legend

Bleaching (% of population)*

- 75.01 - 100.00%
- 50.00 - 75.00%
- 25.01 - 50.00%
- 0.01 - 25.00%
- No Bleaching Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Makako Bay

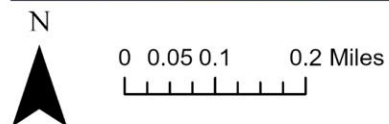
Year: 2024



Legend

Black Band

- No Black Band Disease Observed



Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.

Makako Bay

Year: 2024



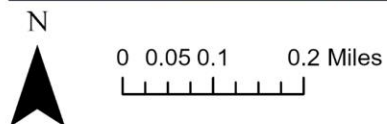
Legend

White Band
Disease

White Band

- No White Band Disease Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Makako Bay

Year: 2024



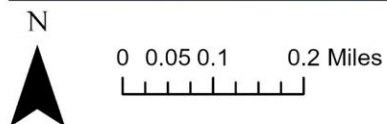
Legend

Coral Damage:
Boat/Anchor

Coral damage: boat/
anchor

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Makako Bay

Year: 2024



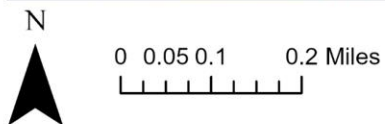
Legend

Coral Damage:
Dynamite

Coral damage:
dynamite

● No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Makako Bay

Year: 2024



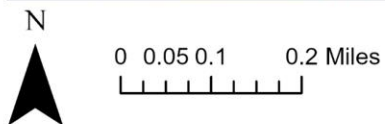
Legend

Coral Damage:
Other

Coral damage: other

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Makako Bay

Year: 2024



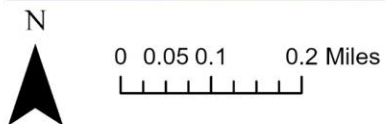
Legend

Trash: Fish Nets

Trash: fish nets

● No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Makako Bay

Year: 2024



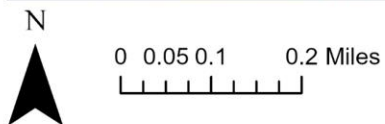
Legend

Trash: General

Trash: general

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Island: Hawai'i



Region: West Hawai'i
 Sub Region: Makako Bay
 Sites:
 • Keahole Wash Rock

Survey Date: 9/26/2024
 Latitude: 19.73223
 Longitude: -156.0596
 Depth (m): 10

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 33.75% |
| Hard Coral | 33.75% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 63.12% |
| Rock | 63.12% |
| Sand | 0.00% |
| Sand | 0.00% |
| Disturbance Indicators | 3.13% |
| Recently Killed Coral | 1.88% |
| Rubble | 1.25% |
| Silt | 0.00% |
| Pollution Indicators | 0.00% |
| Nutrient Indicator Algae | 0.00% |
| Sponge | 0.00% |

| Fish per 500m ³ | |
|----------------------------|--------------|
| Aquarium Fish | 13.75 |
| Butterfly Fish | 4.75 |
| Orangespine Unicornfish | 0.25 |
| Yellow Tang | 8.75 |
| Food Fish | 0.75 |
| Jacks | 0.00 |
| Yellowfin Goatfish | 0.00 |
| Parrotfish | 0.75 |
| Snapper | 0.00 |
| Moray Eel | 0.00 |
| Invasive | 0.00 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.00 |

| Invertebrates per 100m ² | |
|---|-------------|
| Aquarium Invertebrates | 0.00 |
| Banded Coral Shrimp | 0.00 |
| Curio | 0.00 |
| Cowries | 0.00 |
| Pencil Urchin | 0.00 |
| Triton | 0.00 |
| Food Invertebrates | 1.50 |
| Collector Urchin | 1.50 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 8.75 |
| Long Spined Black Sea Urchin | 8.75 |
| Crown of Thorns Sea Star | 0.00 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.00 |
| Trash: General | 0.00 |

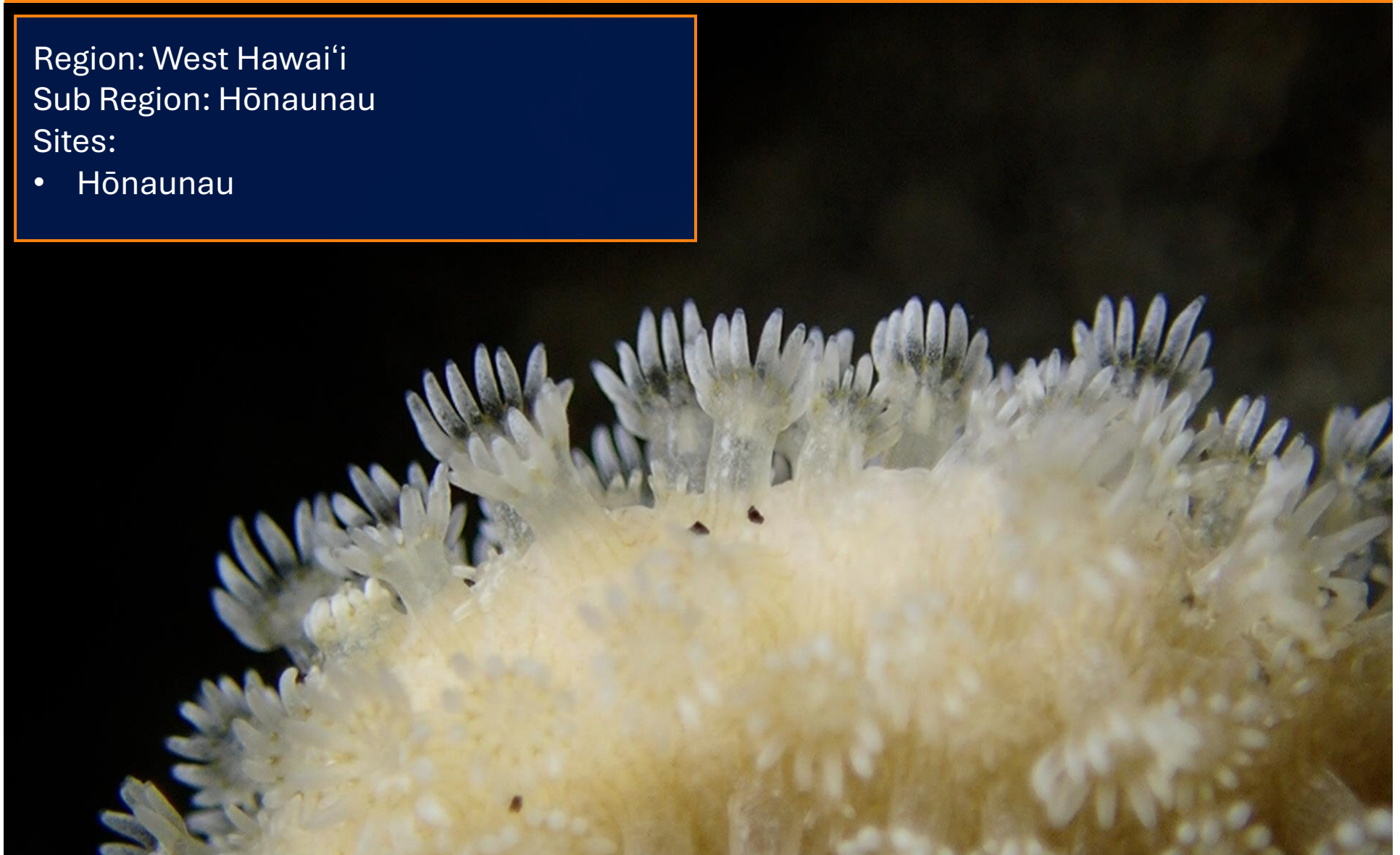
| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.00 |

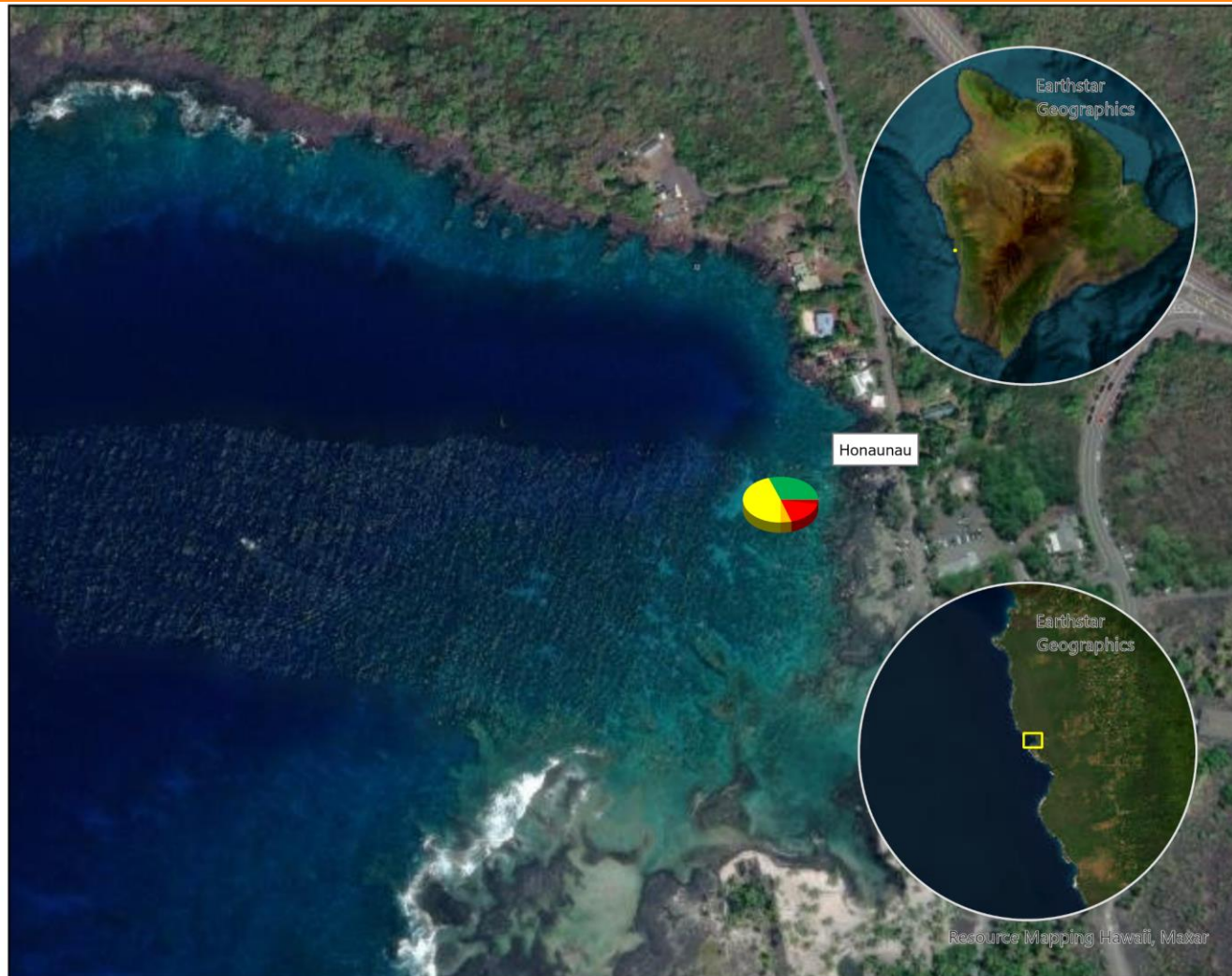
Island: Hawai'i



Region: West Hawai'i
Sub Region: Hōnaunau
Sites:

- Hōnaunau





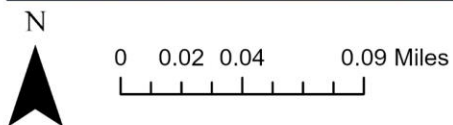
Legend

Substrate



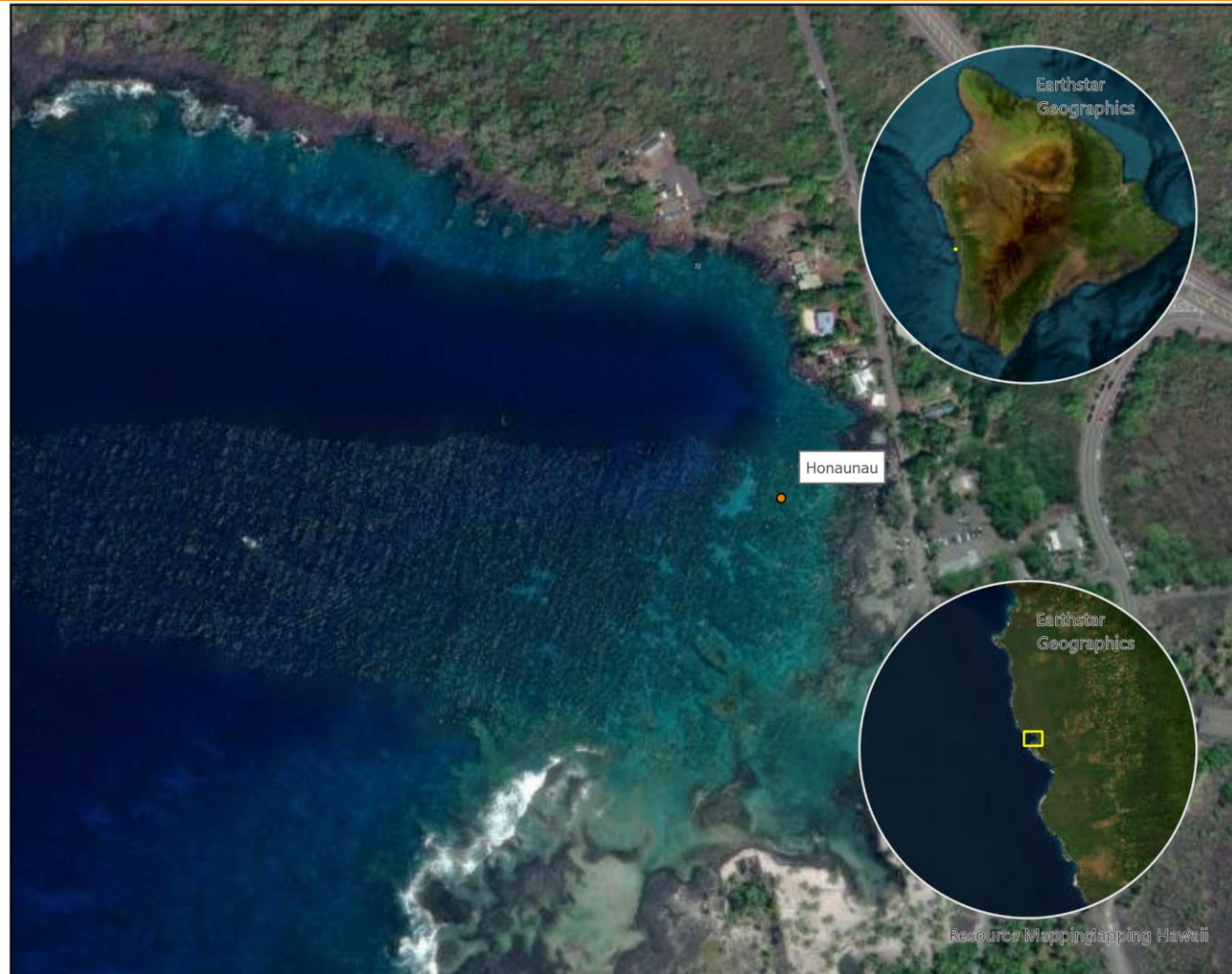
- Live Coral Cover
- Other Cover
- Available Substrate
- Sand
- Disturbance Indicators
- Pollution Indicators

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.



Hōnaunau

Year: 2024

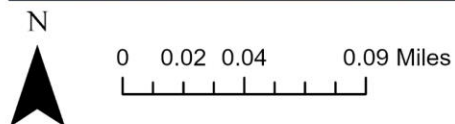


Legend

Hard Coral (HC)

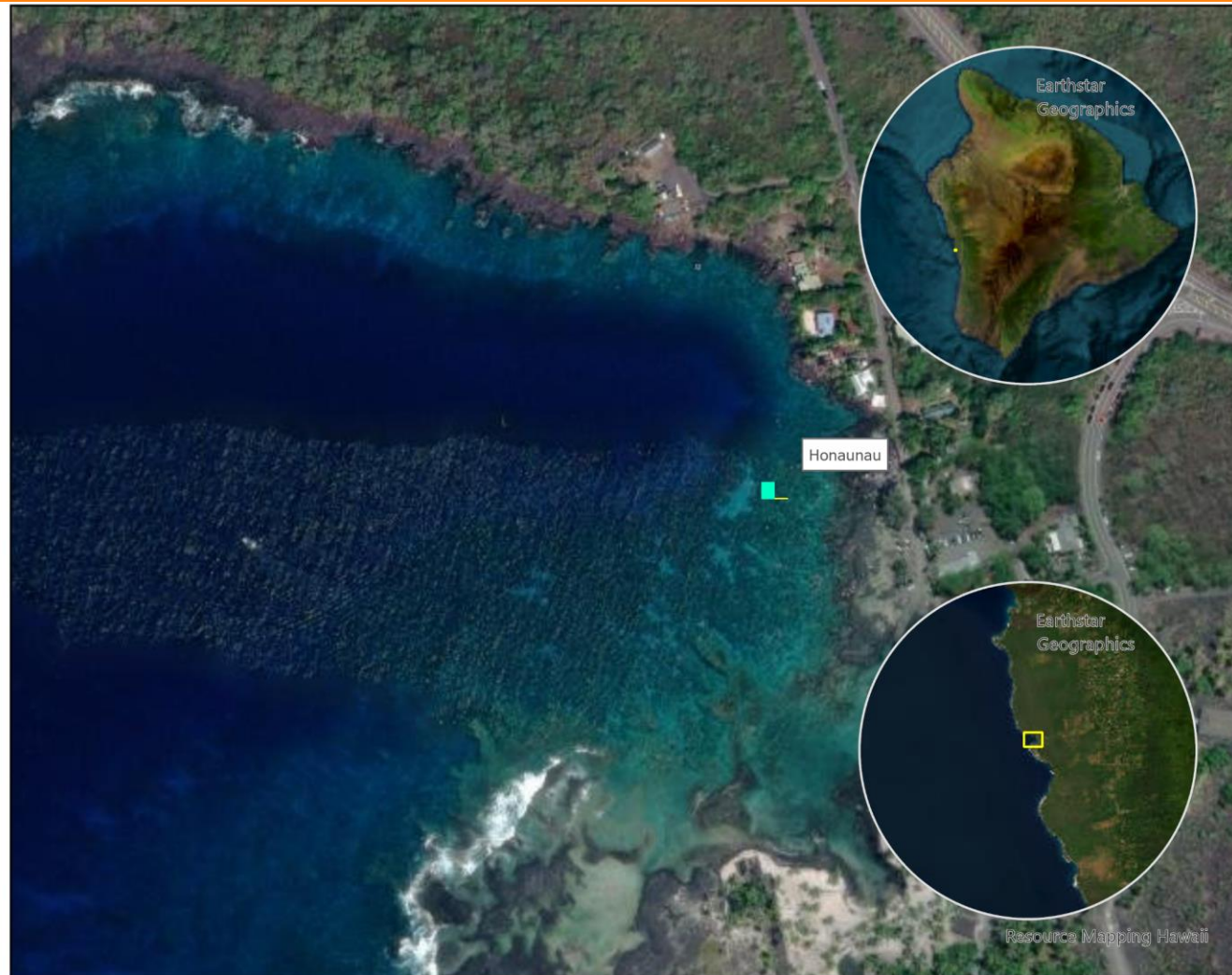
- Excellent 75.01% - 100.00%
- Good 50.01% - 75.00%
- Fair 25.01% - 50.00%
- Poor $\leq 25\%$

Reef Check substrate surveys are conducted using a Point Sampling method every 50 centimeters along 4 x 20 meter transects.



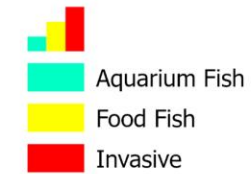
Hōnaunau

Year: 2024

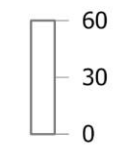


Legend

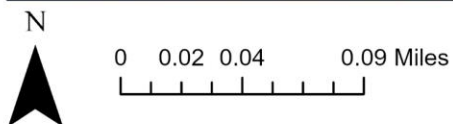
Fish



Selected fields

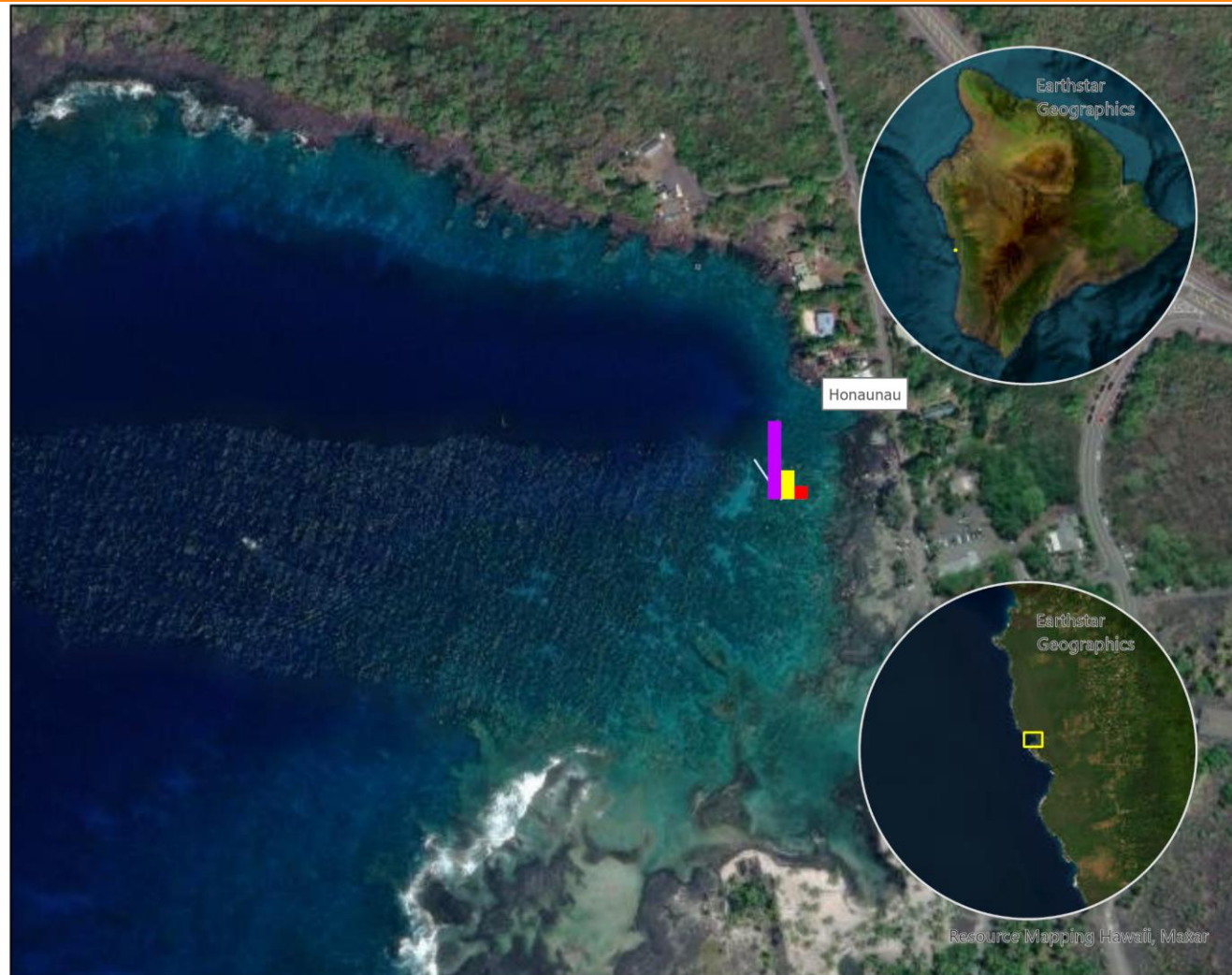


Reef Check fish surveys are conducted along 4 x 20 meter long x 5 meter wide x 5 meter high corridors.

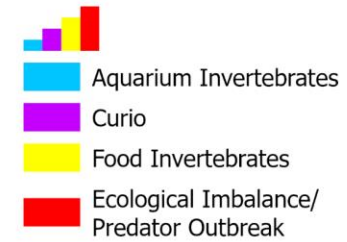


Hōnaunau

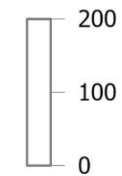
Year: 2024



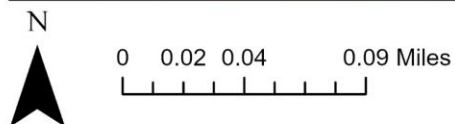
Legend



Selected fields

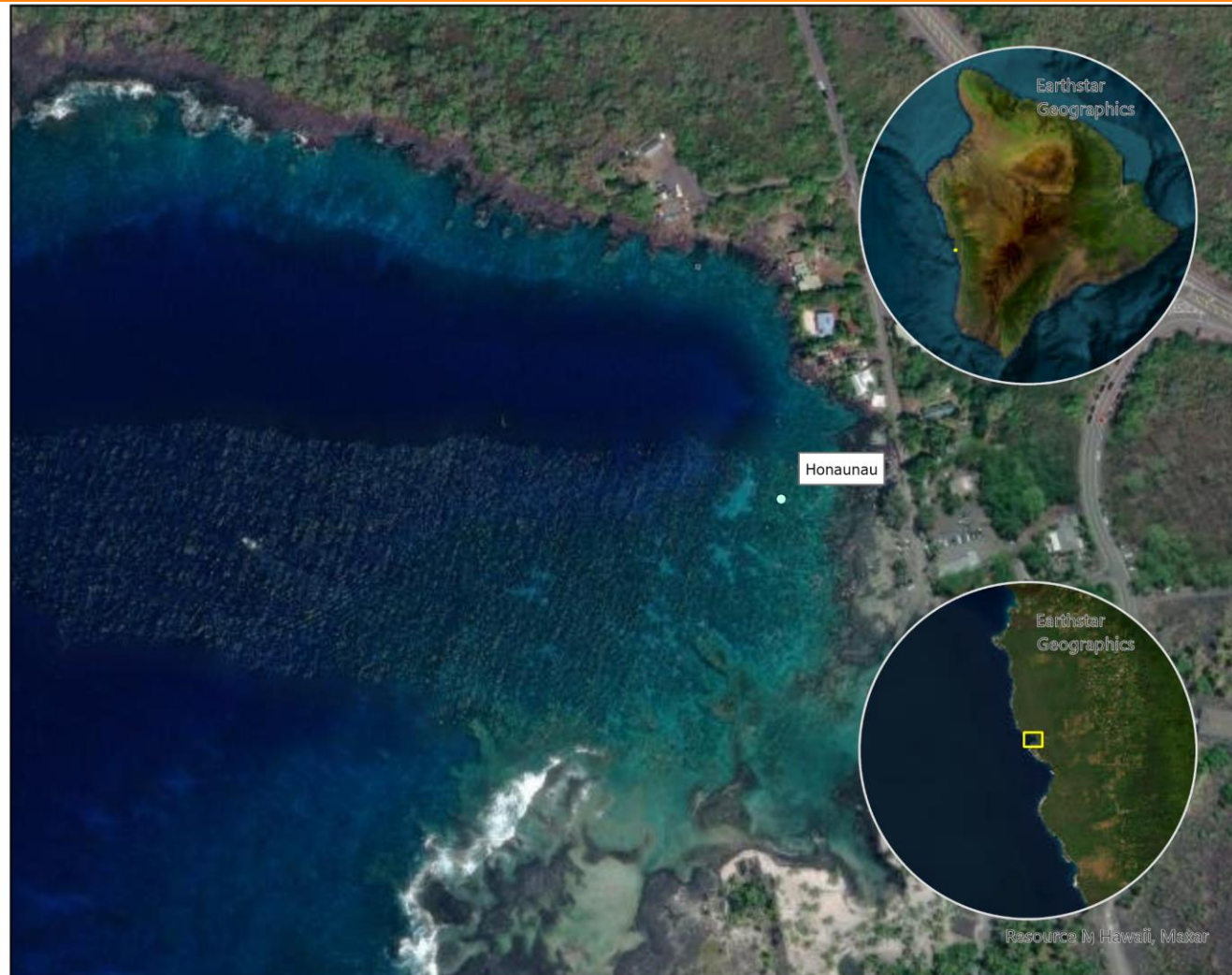


Reef Check invertebrate surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Hōnaunau

Year: 2024

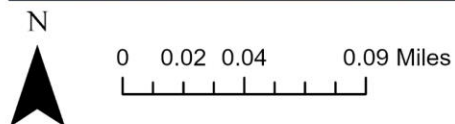


Legend

Bleaching (% of population)*

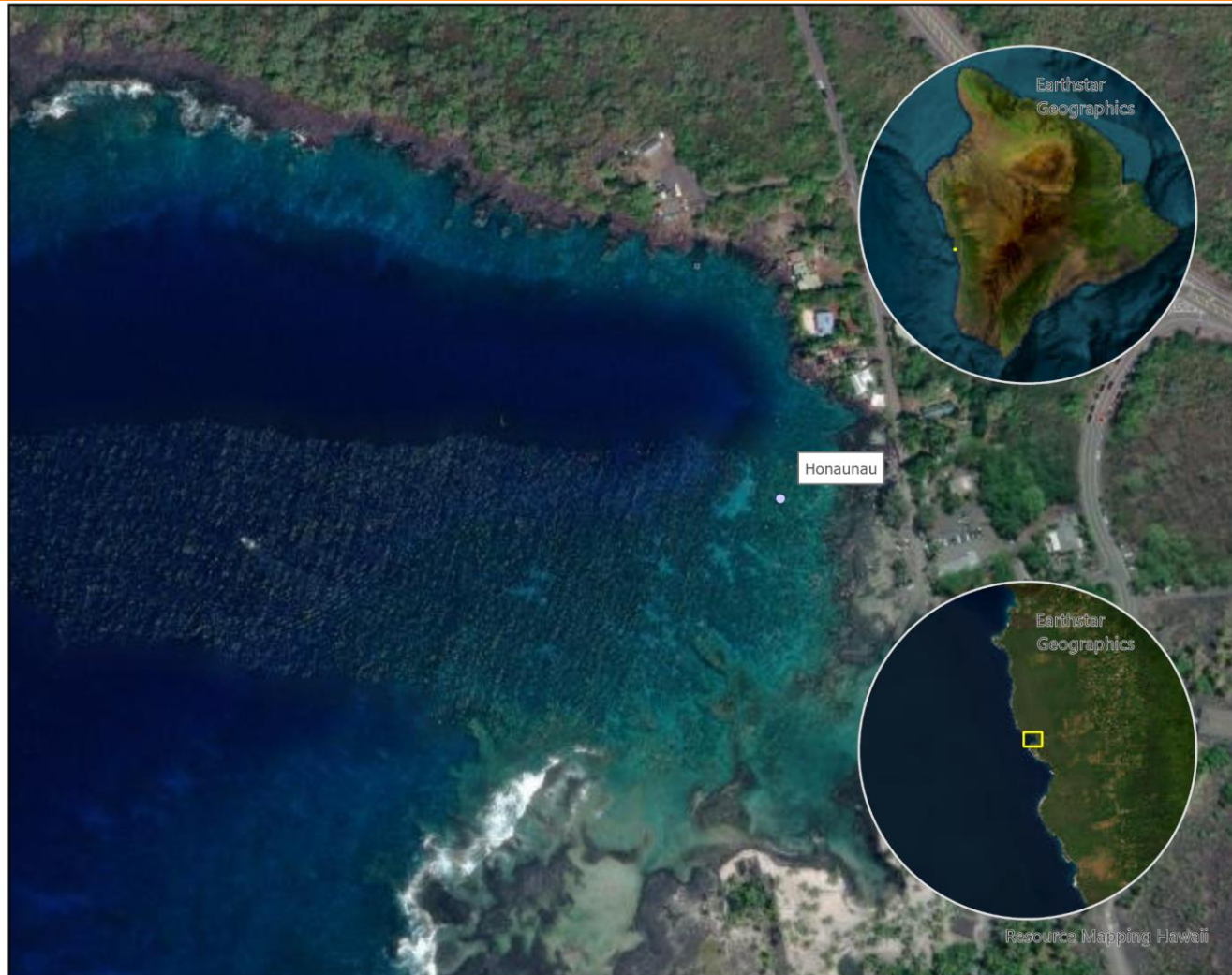
- 75.01 - 100.00%
- 50.00 - 75.00%
- 25.01 - 50.00%
- 0.01 - 25.00%
- No Bleaching Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Hōnaunau

Year: 2024

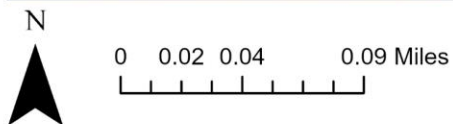


Legend

Black Band

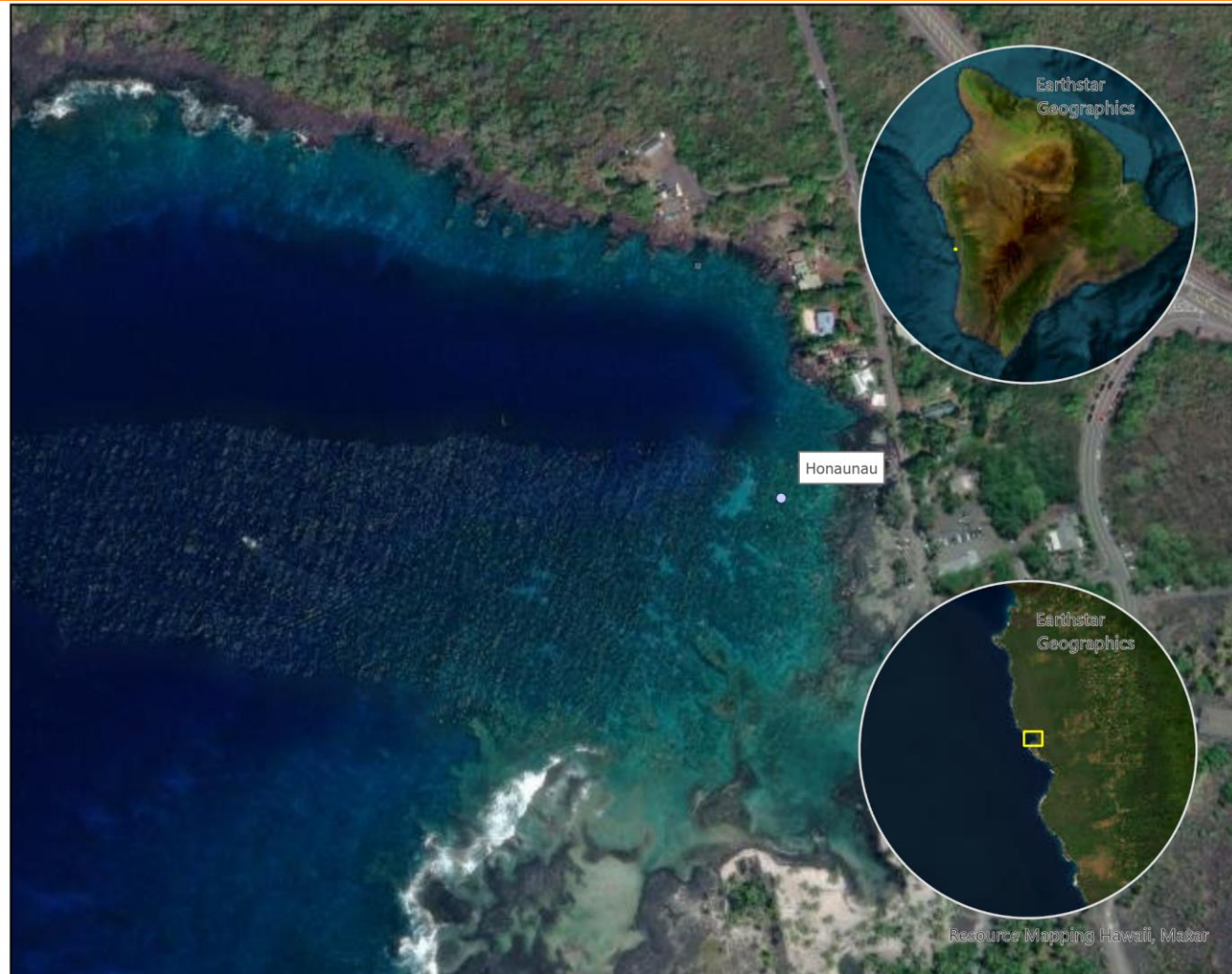
- No Black Band Disease Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Hōnaunau

Year: 2024



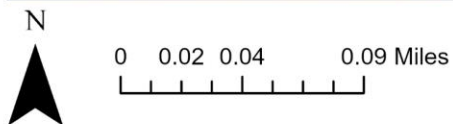
Legend

White Band
Disease

White Band

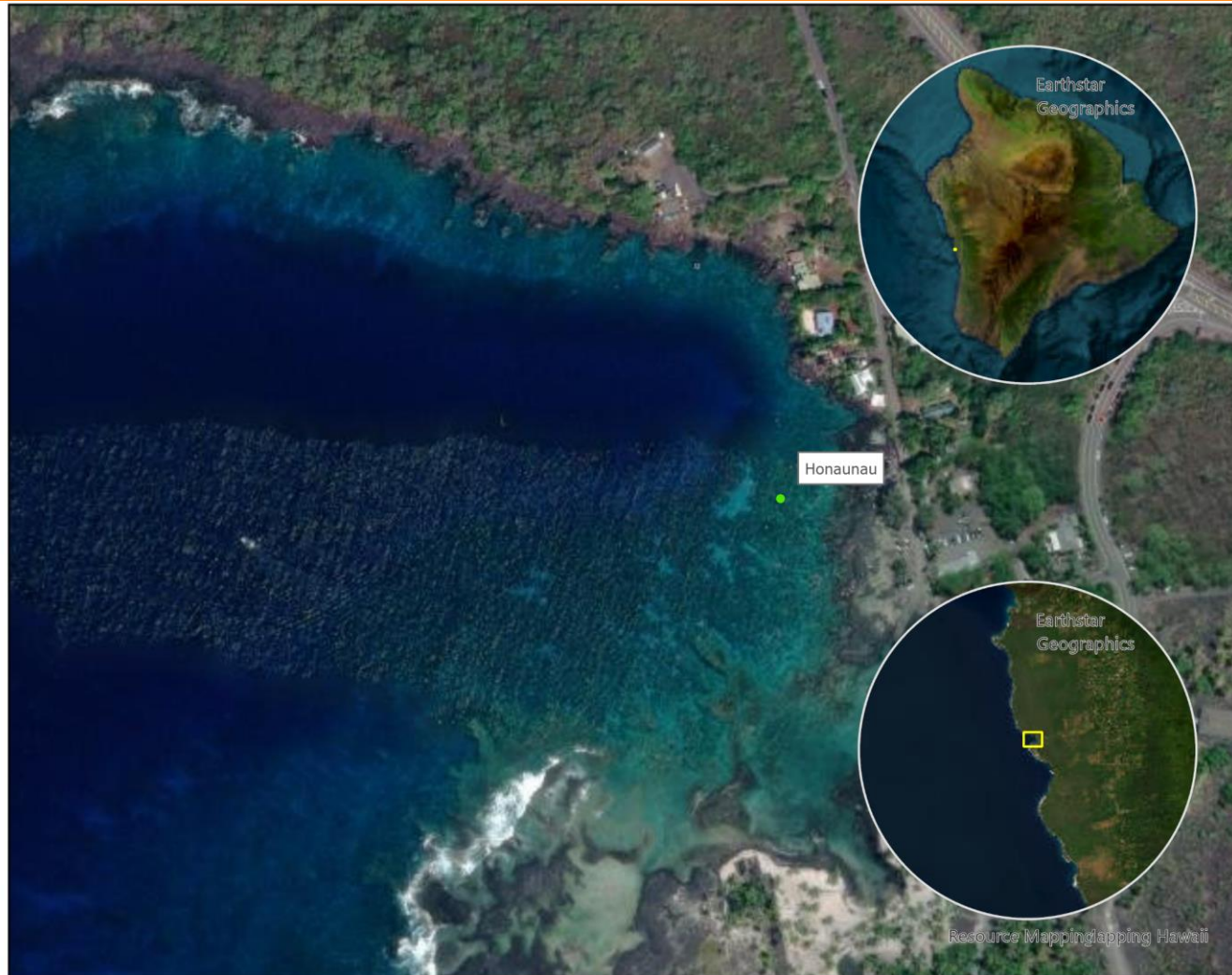
- No White Band Disease Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Hōnaunau

Year: 2024



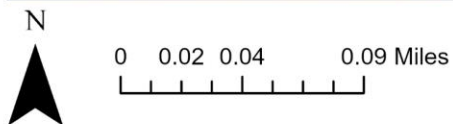
Legend

Coral Damage:
Boat/Anchor

Coral damage: boat/
anchor

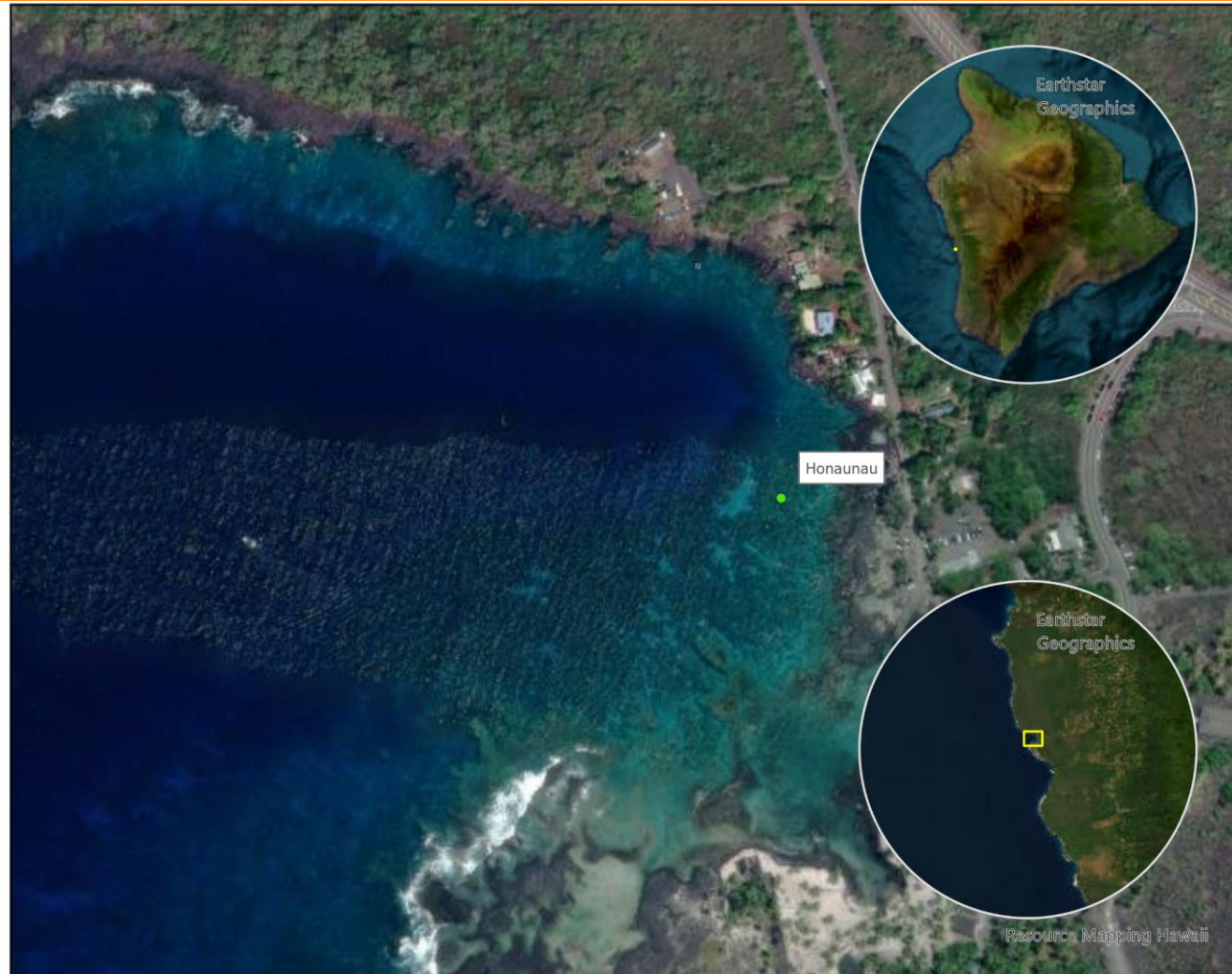
- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Hōnaunau

Year: 2024



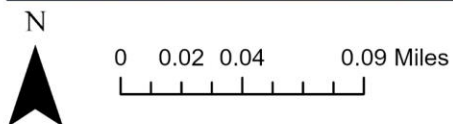
Legend

Coral Damage:
Dynamite

Coral damage:
dynamite

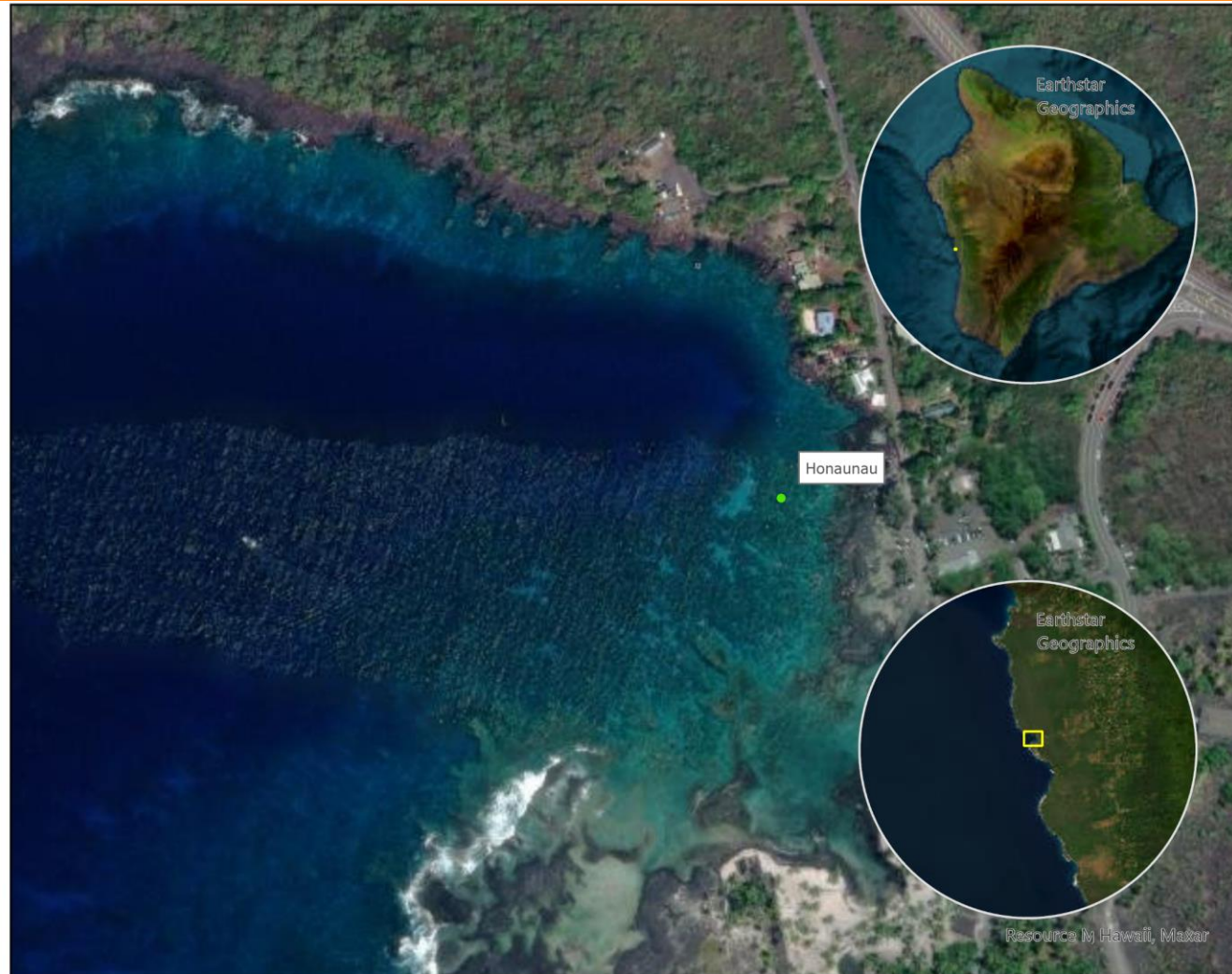
● No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Hōnaunau

Year: 2024



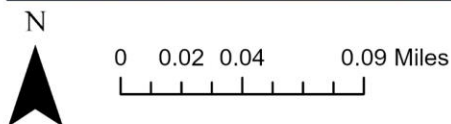
Legend

Coral Damage:
Other

Coral damage: other

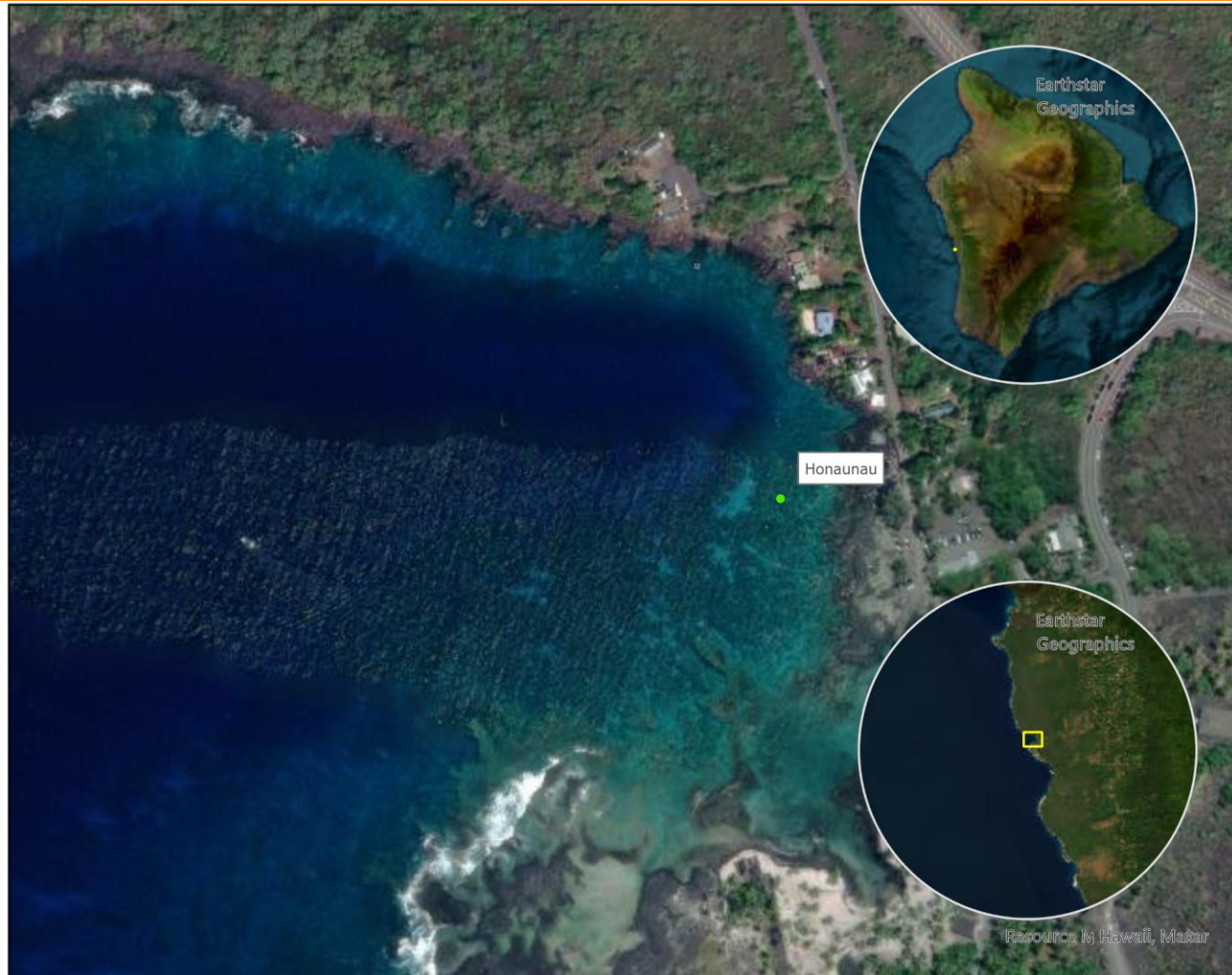
- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Damage Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Hōnaunau

Year: 2024



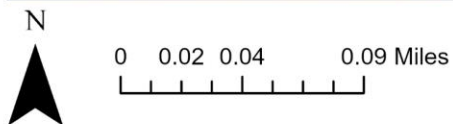
Legend

Trash: Fish Nets

Trash: fish nets

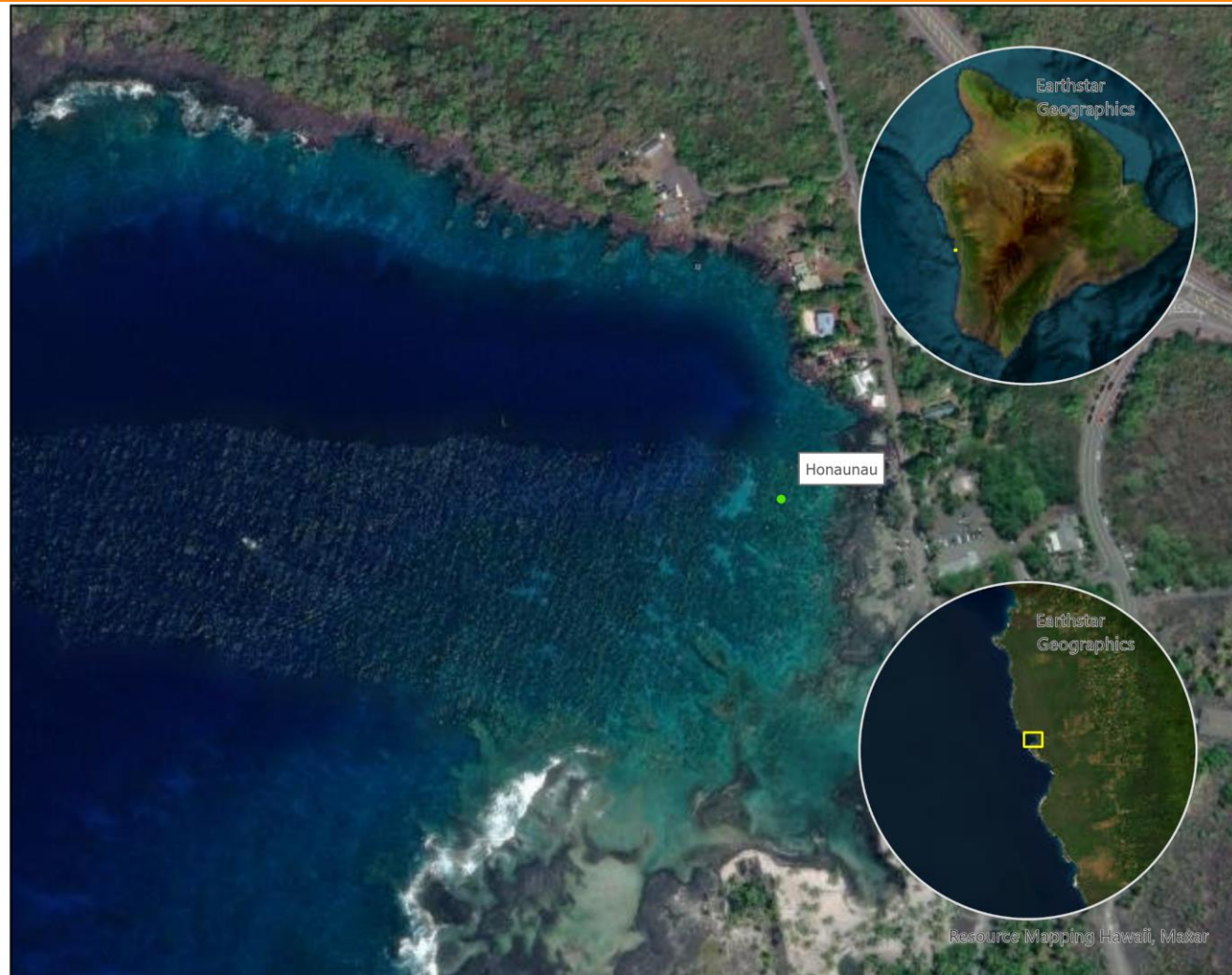
● No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Hōnaunau

Year: 2024



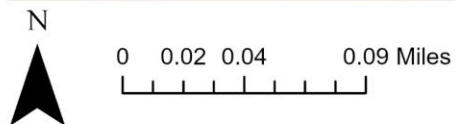
Legend

Trash: General

Trash: general

- High 2.01 - 3.00
- Medium 1.01 - 2.00
- Low 0.01 - 1.00
- No Trash Observed

Reef Check impact surveys are conducted along 4 x 20 meter long x 5 meter wide belts.



Island: Hawai'i



Region: West Hawai'i
 Sub Region: Hōnaunau
 Sites:
 • Hōnaunau

Survey Date: 12/13/2024
 Latitude: 19.42361
 Longitude: -155.9119
 Depth (m): 8

| Substrate | |
|-------------------------------|---------------|
| Live Coral Cover | 32.50% |
| Hard Coral | 32.50% |
| Soft Coral | 0.00% |
| Other | 0.00% |
| Other | 0.00% |
| Available Substrate | 44.37% |
| Rock | 44.37% |
| Sand | 6.25% |
| Sand | 6.25% |
| Disturbance Indicators | 16.88% |
| Recently Killed Coral | 2.50% |
| Rubble | 12.50% |
| Silt | 1.88% |
| Pollution Indicators | 0.00% |
| Nutrient Indicator Algae | 0.00% |
| Sponge | 0.00% |

| Fish per 500m ³ | |
|----------------------------|-------------|
| Aquarium Fish | 9.75 |
| Butterfly Fish | 4.25 |
| Orangespine Unicornfish | 1.00 |
| Yellow Tang | 4.50 |
| Food Fish | 0.75 |
| Jacks | 0.00 |
| Yellowfin Goatfish | 0.00 |
| Parrotfish | 0.00 |
| Snapper | 0.25 |
| Moray Eel | 0.50 |
| Invasive | 0.00 |
| Blueline Snapper | 0.00 |
| Peacock Grouper | 0.00 |

| Invertebrates per 100m ² | |
|---|---------------|
| Aquarium Invertebrates | 0.00 |
| Banded Coral Shrimp | 0.00 |
| Curio | 113.75 |
| Cowries | 0.00 |
| Pencil Urchin | 113.75 |
| Triton | 0.00 |
| Food Invertebrates | 42.00 |
| Collector Urchin | 42.00 |
| Lobster | 0.00 |
| Ecological Imbalance / Predator Outbreak | 19.00 |
| Long Spined Black Sea Urchin | 19.00 |
| Crown of Thorns Sea Star | 0.00 |

| Impacts | |
|--|--------------|
| Coral Bleaching % Population | 0.00% |
| Coral Bleaching % Colony | 0.00% |
| Black Band Disease % Population | 0.00% |
| White Band Disease % Population | 0.00% |
| Coral Damage: Boat / Anchor | 0.00 |
| Coral Damage: Dyanmite | 0.00 |
| Coral Damage: Other | 0.00 |
| Trash: Fish Nets | 0.50 |
| Trash: General | 0.00 |

| Megafauna / Rare Species per 500m ³ | |
|--|-------------|
| Sharks | 0.00 |
| Turtles | 0.00 |
| Manta Rays | 0.00 |
| Other Megafauna | 0.00 |

4. Team

Reef Check Hawai'i Team



EcoDiver Trainer



Adam Florea

Program Coordinator



Brad Giles

EcoDiver Trainer



Rachel Yoder

5. Acknowledgements

Acknowledgements



Thank you to our 2024 Sponsor:



Thank you to Julian Hyde, CEO of Reef Check Malaysia for providing your support and guidance to the reigniting of our program here in Hawai'i. Also, a special thank you to our volunteer dive team who took time to survey with us this year. We are grateful for your efforts in supporting coral reef resiliency here in Hawai'i. Together we make a difference!

2024 Reef Check Hawai'i Volunteer Dive Team:

- Kathryn H.
- James K.
- Carol W.
- Dustin W.