STATE OF HAWAII
DEPARTMENT OF LAND AND NATURAL RESOURCES
Division of Aquatic Resources
Honolulu, Hawaii 96813

December 8, 2022

Board of Land and Natural Resources
State of Hawaii
Honolulu, Hawaii

Subject: Enforcement Action against John Joseph Barry III and Avalanche Adventures Corp. for Alleged Stony Coral and Live Rock Damage Resulting from the May 28, 2021 *Avalanche* Anchoring Incident Within the Waters of the Kaloko-Honokōhau Fish Replenishment Area / Netting Restricted Area, Hawai‘i Island.

Summary: This submittal requests the Board of Land and Natural Resources find that John Joseph Barry III and Avalanche Adventures Corp. violated Hawaii Administrative Rules §§13-95-70 and -71 by breaking and damaging approximately 101 specimens of stony coral and 58 pieces of live rock when the vessel, *Avalanche*, anchored within the waters of the Kaloko-Honokōhau Fish Replenishment Area / Netting Restricted Area, Hawai‘i Island, on May 28, 2021. To compensate the State of Hawai‘i for the damage to natural resources on public lands and the cost of investigation, the Division of Aquatic Resources recommends that the Board of Land and Natural Resources approve the proposed administrative penalty of **$43,417.20.**

Incident Date: May 28, 2021

Against: John Joseph Barry III
129A Phantom Ranch Place
Pagosa Springs, CO 81147

&

Avalanche Adventures Corp.
Quastisky Building
P.O. Box 905
Road Town, Tortola VG1110, Virgin Islands (British)

Incident Location: Within the waters of the Kaloko-Honokōhau Fish Replenishment Area / Netting Restricted Area, Hawai‘i Island.
GPS Coordinates: 19.40323°, -156.01831°

I. INTRODUCTION

On May 28, 2021, at approximately 13:30, the Division of Aquatic Resources' ["DAR"] Kona Office received a report on social media that the *Avalanche*, a 54-foot sailing catamaran,[1] had anchored on top of live coral outside the Honokōhau Small Boat Harbor ["Honokōhau Harbor"], Hawai'i Island. At approximately 14:30 a DAR aquatic biologist, along with officers from the Division of Boating and Ocean Recreation ["DOBOR"] and the Division of Conservation and Resources Enforcement ["DOCARE"], boarded a vessel owned and operated by DOBOR to meet the *Avalanche* at the site of the incident. The DOCARE officers relayed concerns about the vessel's anchorage to the captain, while the DAR biologist conducted a visual survey of the underlying reef. The *Avalanche*'s anchor was deployed in a patch of sand, but the chain connecting the anchor to the vessel lay over 28 meters of coral reef and live rock. After talking with the captain and finishing the survey, the *Avalanche* pulled anchor and left the area at approximately 15:15. On June 1, 2021, DAR biologists conducted a full biological assessment of the damaged site with Self-Contained Underwater Breathing Apparatus ["SCUBA"] diving gear. The DAR biologists documented extensive damage to this area, with 101 coral colonies and 58 pieces of live rock affected. DAR's Final Report is attached as **Exhibit A**[2] and DOCARE's Final Report is attached as **Exhibit B**.[3]

DAR recommends that the Board of Land and Natural Resources ["Board"] approve the proposed administrative penalty of **$43,417.20** to compensate the State of Hawaii for damage to natural resources on public lands and cost of investigation regarding the anchoring incident.

II. FACTUAL BACKGROUND

A. *Avalanche*

The *Avalanche* is a red yacht owned by John Joseph Barry III ["BARRY"] and Avalanche Adventures Corp. The vessel is registered in the British Virgin Islands as Official Number 750113. At the time of the incident, the *Avalanche* was captained by BARRY. DOCARE Officer Destiny Hoopii ["HOOPII"] boarded the *Avalanche* and identified BARRY as the owner and captain of the *Avalanche* and provided DOBOR and DAR with the *Avalanche*'s registration documents and BARRY's passport. The *Avalanche* is approximately 54 feet long, 24 feet wide, and weighs 29.5 tons.

B. The May 28, 2021 Incident

On May 28, 2021 at approximately 12:28, an unidentified male contacted DOCARE to alert them about possible marine resource violations involving the *Avalanche*. The yacht had anchored in State marine waters outside Honokōhau Harbor, in an area within the boundaries of the Kaloko-Honōkohau National Historic Park. The party reported that the *Avalanche*'s anchor chain

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[1] DAR Kona's Final Report states that *Avalanche* was 52-feet long while the U.S. Coast Guard's vessel registration lists the vessel as 54-feet long.

[2] *Incident Report: DAR, DOBOR, DOCARE, NPS response to report of coral damage due to vessel anchoring within the Kaloko-Honokohau National Historic Park*, Chris Teague, DLNR Division of Aquatic Resources.

[3] *Hawaii DLNR DOCARE: Incident Report Form – HA-21-00408*, May 28, 2021.

was dragging along the seafloor and damaging corals. The party further reported that a vessel belonging to Big Island Divers was currently moored near the *Avalanche* and would be able to provide additional information. While on the call, DOCARE received an additional anonymous complaint via DLNR's mobile tip application[4] about the *Avalanche* potentially causing coral damage.

At approximately 13:15, DOCARE Officer HOOPII arrived at Honokōhau Small Boat Harbor and proceeded to Slip #27 in an attempt to make contact with the captain or crew of Big Island Divers' vessel. HOOPII met with Ryan Ta ["TA"], a crewmember onboard Big Island Divers' vessel, and interviewed him. TA stated that Big Island Divers was taking a group of tourists on a snorkeling tour, and they moored just outside the entrance to the Honokōhau Harbor. While the guests were snorkeling, TA noticed that a large yacht, later identified as the *Avalanche*, had anchored near them. While diving near the vessel, TA noticed that the *Avalanche*'s anchor chain was dragging along the seafloor and damaging corals and live rock. TA stated that he believed the anchor was not properly set, as he witnessed the anchor chain moving loosely with the ocean currents. TA told HOOPII that he attempted to alert a male member of the crew of the *Avalanche* that their anchor chain was not set correctly, but the male crewmember dismissed him, believing the anchor to be in the sand. TA then dove underwater to take photographs of the anchor and anchor chain and to document any damage to coral colonies. On this dive, TA noticed a portion of the *Avalanche*'s anchor chain wrapped around a piece of live rock. After returning to his boat, TA reported the incident to Keller Laros ["LAROS"], a dive instructor and videographer from Jack's Diving Locker, a dive shop located near the Honokōhau Harbor.

While interviewing TA, HOOPII received a phone call from DOBOR Harbor Agent Rosaline Rodrigues who told HOOPII that LAROS was at the DOBOR office requesting to speak to an officer regarding the *Avalanche*. HOOPII proceeded to the DOBOR office and spoke to LAROS, who told her that one of his colleagues, identified as TA, had photographs of the *Avalanche*'s anchor chain damaging corals.[5] HOOPII told LAROS that she had already spoken to TA, and LAROS stated he had nothing further to add.

At approximately 13:30, DAR Kona received a report on social media that the *Avalanche* had anchored on top of live coral outside the Honokōhau Harbor. At approximately 13:35, DAR Kona received a phone call from DOBOR agent/officer Tania Taitano ["TAITANO"] who requested assistance from DAR Kona with respect to the response to the *Avalanche*. At approximately 14:30, TAITANO, along with DAR aquatic biologist Chris Teague ["TEAGUE"] and DOCARE officers HOOPII and Kelly Woods ["WOODS"], boarded DOBOR's boat and headed toward the *Avalanche* to talk to the captain and document any damage to the underlying reef. HOOPII boarded the *Avalanche* and relayed concerns about the vessel's anchorage to BARRY. BARRY identified himself as the owner and captain of the *Avalanche* and stated that while he did drop anchor, he was sure his anchor was set in a sandy area. BARRY stated that he did not know his anchor line had gotten loose or that it was damaging coral, and if it was, he

[4] Launched by DOCARE in 2017, DLNRTip is a mobile application that provides citizens a direct way to connect with conservation officers and submit anonymous tips via their smartphones.

[5] DOCARE's incident report erroneously identifies LAROS as the owner of Big Island Divers and TA as one of LAROS' employees. While TA was/is employed by Big Island Divers, LAROS was/is employed by Jack's Diving Locker and was never the owner of Big Island Divers.

would reset his line. BARRY also mentioned that he was waiting for a slip in the Honokōhau Harbor but was denied a slip due to lack of insurance. HOOPII informed BARRY about the 72-hour mooring rule,[6] and BARRY stated he would be relocating to Kailua Bay for the night.

While HOOPII spoke to BARRY, WOODS drove TEAGUE and TAITANO to the bow of the *Avalanche* to begin documenting potential damage. TEAGUE and TAITANO entered the water with snorkels and fins, and TEAGUE dove down to the seafloor and took video footage of the anchor chain lying across a large expanse of live coral reef and live rock. TEAGUE observed extensive damage caused by the anchor chain, evidenced by the visibility of fresh white coral skeletal structure along the chain's path. TEAGUE and TAITANO returned to the DOBOR vessel and picked up officer HOOPII from the *Avalanche*.

At approximately 15:15, DAR was informed that the *Avalanche* had pulled anchor and left the area.

C. Ecological Assessments of Habitat Damage

On June 1, 2021, DAR biologists TEAGUE, Ashley Pugh, Lindsey Kramer, and Nathan Hayes, along with Kaloko-Honokōhau National Historic Park's ecologist Sallie Beavers, conducted a full assessment of the damaged site with SCUBA gear. The team surveyed coral and live rock damage systematically using transect tape, photographs, sketches, and a visual census. TEAGUE conducted the visual census, recording the species, the size of the breakages, and the size of the affected colonies. The affected area was "wedge-shaped" with the damage extending along 28 meters of the reef. This "wedge-shaped" area extended to a width of 8 meters at the widest point and 3 meters at the narrowest. Coral breakage began at the reef immediately adjacent to the sand patch where the anchor was deployed, and the damage extended eastward.[7]

The DAR biologists documented "extensive" damage to this area, with 101 coral colonies and 58 pieces (~13 m^2) of live rock damaged. Two common coral species were affected: *Porites compressa* (finger coral) and *Porites lobata* (lobe coral). The damage to *Porites compressa* ranged from the small breakage of "fingers" under 5cm to the destruction of larger swaths of *Porites compressa* beds, some of which were over 3 meters in length. The team observed *Porites lobata* colonies that were broken, scraped, and in many cases dislodged and lying on their sides.

III. LEGAL AUTHORITY FOR ENFORCEMENT

A. Statutory and regulatory protection of stony coral and live rock

Stony coral and live rock are protected by Hawaii Administrative Rules ("HAR") Title 13, Chapter 95, Sections 70 and 71.

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[6] *See* HAR §13-235-9: Restrictions on Anchoring or Mooring Outside of a Designated Offshore Mooring Area.

[7] For a diagram of the damaged area, *See Incident Report: DAR, DOBOR, DOCARE, NPS response to report of coral damage due to vessel anchoring within the Kaloko-Honokohau National Historic Park*, p.6, Chris Teague, DLNR Division of Aquatic Resources.

In relevant part, HAR § 13-95-70(a)(1) states that "it is unlawful for any person to take, break, or damage any stony coral." The rules further define "stony coral" as "any invertebrate species belonging to the Order Scleractinia, characterized by having a hard, calcareous skeleton, that are native to the Hawaiian Islands." HAR § 13-95-1. "Break" means "to hit with, or to apply sufficient force to reduce to smaller pieces or to crack without actually separating into pieces." *Id*. "Damage" means "to scrape, smother, poison, or otherwise cause any physical or physiological harm to the living portion of a stony coral or live rock." *Id*.

Under HAR § 13-95-71(a)(1), in relevant part, "it is [also] unlawful for any person to take, break, or damage any live rock." "Live rock" is defined as "any natural hard substrate to which marine life is visibly attached or affixed." HAR § 13-95-1.

B. Administrative fines authorized for violations of HAR Title 13, Chapter 95

Section 187A-12.5(c), Hawaii Revised Statutes ["HRS"] provides the administrative penalties for violations relating to aquatic resources,[8] including HAR §§ 13-95-70 and -71 (stony coral and live rock), as follows:

(1) For a first violation, a fine of not more than $1,000;
(2) For a second violation within five years of a previous violation, a fine of not more than $2,000; and
(3) For a third or subsequent violation within five years of the last violation, a fine of not more than $3,000.

Section 187A-12.5(e), HRS, also provides that "[i]n addition to subsection (c), a fine of up to $1,000 may be levied for each specimen of all other aquatic life taken, killed, or injured in violation of subtitle 5 of title 12 or any rule adopted thereunder." The definition of "aquatic life" includes coral as well as all the sessile plant and animal species that are attached to live rock. *See* HRS §187A-1.

Under HAR § 13-95-2(b)(4), for colonial stony corals such as the colonies damaged in the anchoring event, per-specimen fines may be imposed on the basis of each damaged "head" or "colony" that is less than one square meter in surface area, and for a colony greater than one square meter in surface area, each square meter of colony surface area and any fraction remaining constitutes an additional "specimen."

Under HAR §13-95-2(b)(5), for live rocks, per specimen fines may be imposed on the basis of each individual live rock or, if the violation involves greater than one square meter of bottom area, each square meter of live rock.

Additionally, HRS § 187A-12.5(a) authorizes the Board "to recover administrative fees and costs . . . or payment for damages or for the cost to correct damages resulting from a violation of" the statutes and rules pertaining to aquatic resources.

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[8] Section 187A-12.5(b), HRS, specifically addresses violations involving threatened or endangered species. Subsection (c) covers "all other violations."

IV. APPLICATION OF LAW AND RECOMMENDED FINE

A. Maximum authorized fines

HRS §187A-12.5 authorizes an administrative fine of $1,000 for a first-time stony coral damage violation, as well as an additional $1,000 per coral specimen injured.

Given the count of 101 coral colony specimens impacted by the *Avalanche* anchoring incident, the maximum administrative fine authorized for stony coral damage would be $102,000.[9]

HRS §187A-12.5 authorizes an administrative fine of $1,000 for a first-time live rock damage violation, as well as an additional $1,000 per live rock specimen injured.

Given the count of 58 pieces of live rock impacted by the *Avalanche* anchoring, the maximum administrative fine authorized for live rock damage would be $59,000.[10]

HRS §187A-12.5 further authorizes the Board to assess administrative fees and costs, including attorneys' fees relating to a violation of stony coral and live rock protection rules.

B. Factors to be considered in assessing fines

The Board has broad discretion in assessing administrative fines for a natural resource violation. Some of the factors that the Board may take into consideration include the value of the resource damaged, costs for the State to investigate and process the violation, extent of the respondent's cooperation, and voluntary actions taken by the respondent to mitigate or avoid damages.[11]

1. Applicable Violations

John Joseph Barry III and Avalanche Adventures Corp. violated HAR § 13-95-70(a)(1) (damage to stony corals) by causing the anchor chain of the *Avalanche* to break or damage stony corals by deploying it into the reef ecosystem within the Kaloko-Honokōhau Fish Replenishment Area / Netting Restricted Area.

John Joseph Barry III and Avalanche Adventures Corp. violated HAR § 13-95-71(a)(1) (damage to live rock) by causing the anchor chain of the *Avalanche* to break or damage live rock by deploying it into the reef ecosystem within the Kaloko-Honokōhau Fish Replenishment Area / Netting Restricted Area.

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[9] $1,000 for the violation (damaging coral) + $101,000 for 101 damaged specimens = $102,000. *See* HRS §187A-12.5(c) and (e).

[10] $1,000 for the violation (damaging live rock) + $58,000 for 58 damaged specimens = $59,000. *See* HRS §187A-12.5(c) and (e).

[11] *See* HAW. ADMIN. R. §13-1-70

2. Resource Value

The reef that was damaged by the *Avalanche* is located within the Kaloko-Honokōhau Fish Replenishment Area / Netting Restricted Area, the Kaloko-Honokōhau National Historic Park, and the broader West Hawaii Regional Fishery Management Area. DAR utilizes a set of stony coral and live rock penalty matrices to standardize coral reef and live rock damage valuations based on coral morphology, size, rarity, benthic structure, benthic species composition, and location within a managed area. See **Exhibit C**.[12] These matrices provide a comparable, but more detailed, categorization of stony coral values compared to the coral value table included in the Administrative Penalty Guidelines adopted by the Board on July 22, 2009. They also add live rock values, which were not included in the 2009 Penalty Guidelines. Based on these updated matrices, the value of the damaged resources is as follows:

Stony Coral (each colony constitutes a specimen)

Species	Size (cm)	# Colonies		Value/ Colony		Total Value
Porites compressa	0.1 – 5 cm	7	x	$35	=	$245
(common, digiform)	5 – 10 cm	7	x	$75	=	$525
	10 – 20 cm	21	x	$150	=	$3,150
	20 – 40 cm	21	x	$300	=	$6,300
	40 – 80 cm	5	x	$600	=	$3,000
	80 – 160 cm	11	x	$1,000	=	$11,000
	160+	2(4)[13]	x	$1,000	=	$4,000
	Subtotal:					$28,220
Porites lobata	0.1 – 5 cm	1	x	$30	=	$30
(common, massive)	5 – 10 cm	2	x	$60	=	$120
	10 – 20 cm	7	x	$150	=	$1,050
	20 – 40 cm	16	x	$300	=	$4,800
	40 – 80 cm	1	x	$750	=	$750
	Subtotal:					$6,750

Total Stony Coral Value (based on count of 101 colonies): $34,970

[12] Exhibit C, *Coral Penalty Matrices*. These coral and live rock penalty matrices were created by DAR coral reef biologists with expertise in Hawaiian coral and live rock ecosystems, and the matrices have been used by DAR and the BLNR in previous enforcement actions.

[13] Under HAR §13-95-2(b)(4), for a colony greater than one square meter in surface area, each square meter of colony surface area and any fraction remaining constitute an additional specimen. DAR Kona recorded two coral colonies that exceeded one meter in area. Therefore, under HAR §13-95-2(b)(4), these two colonies constitute four specimens and incur an additional $2,000 in penalties.

Live Rock (individual specimens)

Size (cm)	# Individuals	Value / Individual		
0.1 – 5 cm	18	$60	=	$1,080
5 – 10 cm	8	$60	=	$480
10 – 20 cm	9	$60	=	$540
20 – 40 cm	15	$60	=	$900
40 – 80 cm	4	$60	=	$240
160+ cm	4 (+4)[14]	$60	=	$480
Subtotal:	58 (+4)[15] x	$60	=	$3,720

Total Live Rock Value – 58 (+4) individuals x $60 per individual = $3,720

TOTAL STONY CORAL VALUE + LIVE ROCK VALUE: $38,690.00

3. Cost of Investigation

Four DAR Kona staff members spent a total of 75 hours investigating and processing this violation. DAR incurred costs of $1,040 for boat use, $54 for fuel, and $68 for SCUBA tanks. DAR staff in Honolulu spent 3 days preparing the submittal for this incident. The total cost of DAR staff time plus equipment was $4,327.20 as shown in **Table 1**, below.

Table 1. Staff hours and costs for the *Avalanche* assessments.

	Unit	Rate	Total
DAR Investigation	36 Hours	$ 29.61*	$1,065.89
DAR Report	39 Hours	$ 31.52*	$1,229.31
Boat	1 Day	$ 1,040.00	$ 1,040.00
Fuel	12 Gallons	$ 4.50	$ 54.00
SCUBA Tanks	8 Tanks	$ 8.50	$ 68.00
DAR Submittal	3 Days	$ 290	$ 870.00
Total			$ 4,327.20

*average hourly rate (rounded to nearest cent) based on actual costs

Accordingly, the total administrative cost incurred by the Department in investigating and processing this incident was **$4,327.20.**

4. Respondent's Cooperation and Voluntary Mitigative Actions

DAR is unaware of any mitigative actions BARRY may have taken.

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[14] Under HAR §13-95-2(b)(5), for live rock greater than one square meter in surface area, each square meter of surface area and any fraction remaining constitute an additional specimen. DAR Kona recorded four damaged live rocks that exceeded one meter in area. Therefore, under HAR §13-95-2(b)(5), these four pieces of live rock constitute eight specimens and incur an additional $240 in penalties.

[15] *See* note 14, *supra*.

C. Recommended fines and costs

The Board has broad discretion in assessing administrative fines for a natural resource violation. In 2014, the Board adopted an Administrative Sanctions Schedule to facilitate the standardization of enforcement for violations of aquatic resource laws. This schedule recommends a $200 fine for the applicable violation and to follow the schedule for each colony damaged. Based on the foregoing considerations, DAR recommends fines of **$400** for the two violations, fines in the amount of **$38,690.00** for the value of the resource**,** and administrative costs in the amount of **$4,327.20** for a total assessment of **$43,417.20**, as shown in **Table 2**, below. This figure reflects the amount required to compensate the State for the damage to natural resources on public lands and administrative costs.

Table 2. Summary of fines and costs.

Category of Fines and Costs		Amount
Fines for Violations		$400.00
Fines Based on Resource Value		$38,690.00
Administrative Costs		$4,327.20
TOTAL		**$43,417.20**

V. RECOMMENDATIONS

1. That the Board find that John Joseph Barry III and Avalanche Adventures Corp. violated HAR §§13-95-70 and -71 by anchoring the vessel, *Avalanche*, on coral reef and live rock on May 28, 2021 and damaging approximately 101 coral colonies and 58 pieces of live rock within the Kaloko-Honokōhau National Historic Park; and

2. That the Board assess administrative fines of **$39,090.00** and costs in the amount of **$4,327.20** for a total assessment of **$43,417.20** against John Joseph Barry III and Avalanche Adventures Corp. to be paid within 60 days of the date of this submittal.

Respectfully Submitted,

Brian Neilson, Administrator
Division of Aquatic Resources

APPROVED FOR SUBMITTAL:

Suzanne D. Case, Chairperson
Department of Land and Natural Resources

Incident Report: DAR, DOBOR, DOCARE, NPS response to report of coral damage due to vessel anchoring within the Kaloko-Honokōhau National Historic Park

Response Dates: 28 May 2021; 1 June 2021

Report compiled by: Chris Teague (DLNR DAR)

Team: *Initial response:*

- Chris Teague, Tania Taitano (DOBOR), Destiny Hoopii (DOCARE), and Kelly Woods (DOCARE)

Follow-up response (DAR unless noted):

- Chris Teague, Ashley Pugh, Lindsey Kramer, Nathan Hayes, Sallie Beavers (NPS)

Location: In the waters within the Kaloko-Honokōhau National Historic Park, immediately north of the entrance to Honokōhau Small Boat Harbor. GPS coordinates: 19° 40.323', -156° 01.831'.

Vessel info:
Owner/Captain: John Barry III
Vessel name and port of call: Avalanche; Road Harbour, British Virgin Islands
Vessel description: 52 ft sailing catamaran, red and black hull

Description of initial response:
On May 28, 2021 at approximately 1330, DAR Kona was forwarded a report on social media regarding a vessel outside of Honokōhau Harbor anchored on top of live coral (Figure 1). From the images, it was clear that, while the anchor itself was in a patch of sand (Figure 2), much of the anchor chain was draped across live coral (Figure 3). DAR staff recommended to the reporting individual that they submit the incident and photos to the DLNR Tip line or DLNRTip app. Soon after, Nikki Smith (DAR Aquatic Biologist) received a call from Tania Taitano with the Honokōhau Division of Boating and Ocean Recreation (DOBOR) office reporting the anchor damage to DAR and requesting someone from the DAR Kona office assist with response. DAR Aquatic Biologist Chris Teague then contacted Taitano and went into the DOBOR office to discuss further.

Figure 1: Image of vessel posted to social media.

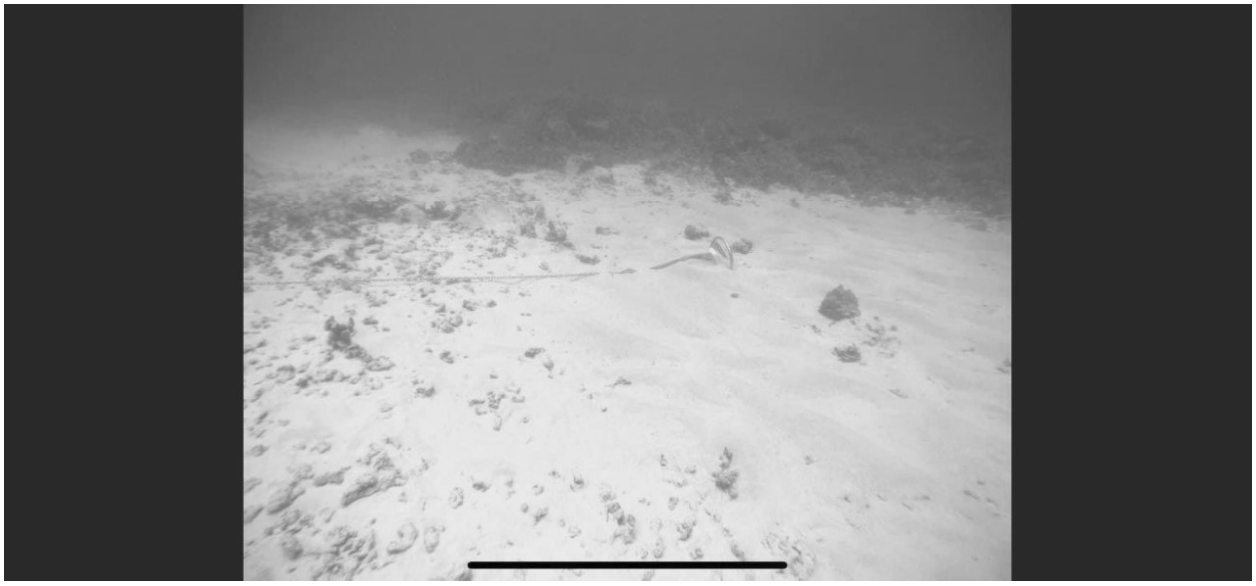


Figure 2: Anchor situated in sand patch. Image posted to social media.

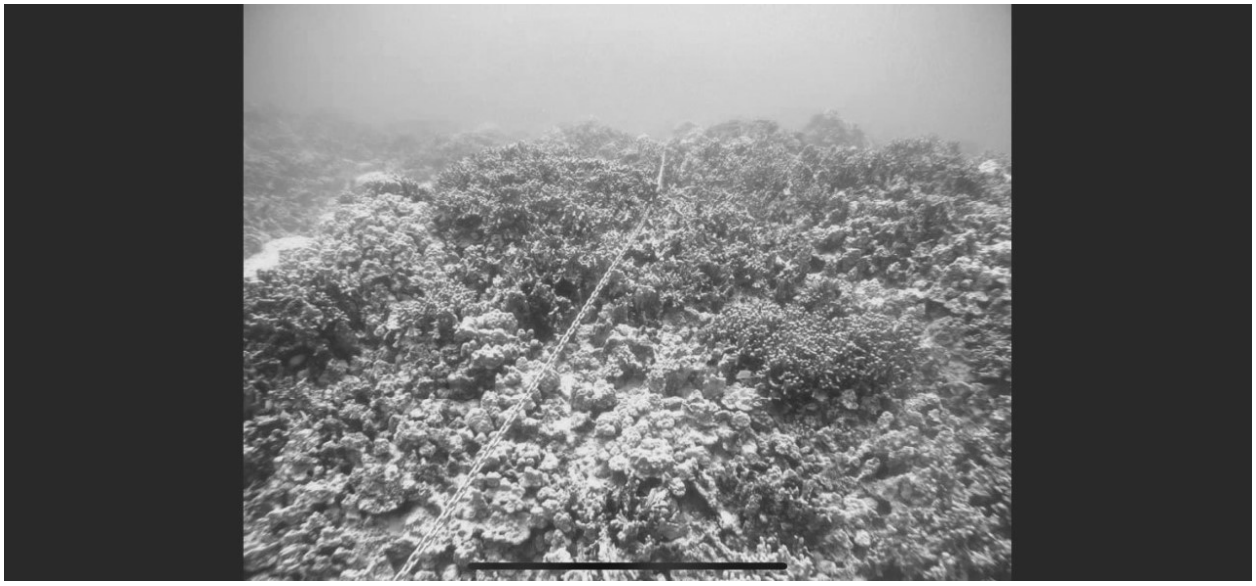


Figure 3: Anchor chain laying on live coral. Image posted to social media.

Taitano and Teague, along with DOBOR Hawai'i District Manager, Jerome Nickerson determined that the best course of action was to visit the anchored vessel using DOBOR's boat, discuss mooring options with the vessel's crew, and document any coral damage. During this time, DAR Kona staff was also in contact with Officer Destiny Hoopii from the Division of Conservation and Resource Enforcement (DOCARE) in Kona. Officer Hoopii was informed that Taitano and Teague were planning to go talk with the vessel crew and she and a fellow DOCARE staff member, Officer Kelly Woods, decided to go as well.

At approximately 1430, Taitano, Teague, Hoopii, and Woods boarded DOBOR's boat and headed towards the vessel. Upon approach, the vessel was still at anchor in the reported location. Teague noted the coordinates. Officer Hoopii boarded the vessel, a 52-foot red and black sailing catamaran named the "Avalanche". While Officer Hoopii discussed the issue with the vessel's captain, John Barry III, Officer Woods drove Teague and Taitano to the bow of the Avalanche. Once there, Teague and Taitano entered the water with snorkels, fins, and masks in order to document any damage.

Teague dove down (breath hold diving only, no SCUBA) to the reef and took video footage of the anchor chain laying across a large expanse of live coral reef and live rock (Figure 4). Most of the damaged reef was at a depth of approximately 10 to 13 meters (30 - 40 ft). Teague noted extensive evidence of fresh damage to live coral (bright white skeletal structure visible; Figure 5). It was also clear that the anchor chain was caught underneath a large basalt boulder (visible in video footage). Once Teague and Taitano were back onboard the DOBOR vessel, they returned to the Avalanche's stern to pick up Officer Hoopii. Taitano gave Mr. Barry some documentation on temporary harbor slips while Teague notified him of the fact that the anchor chain was caught on a boulder and suggested that Mr. Barry use SCUBA to free the chain prior to pulling anchor.

Figure 4: Anchor chain laying across section of reef with high coral cover. Image extracted from video footage taken by C. Teague.

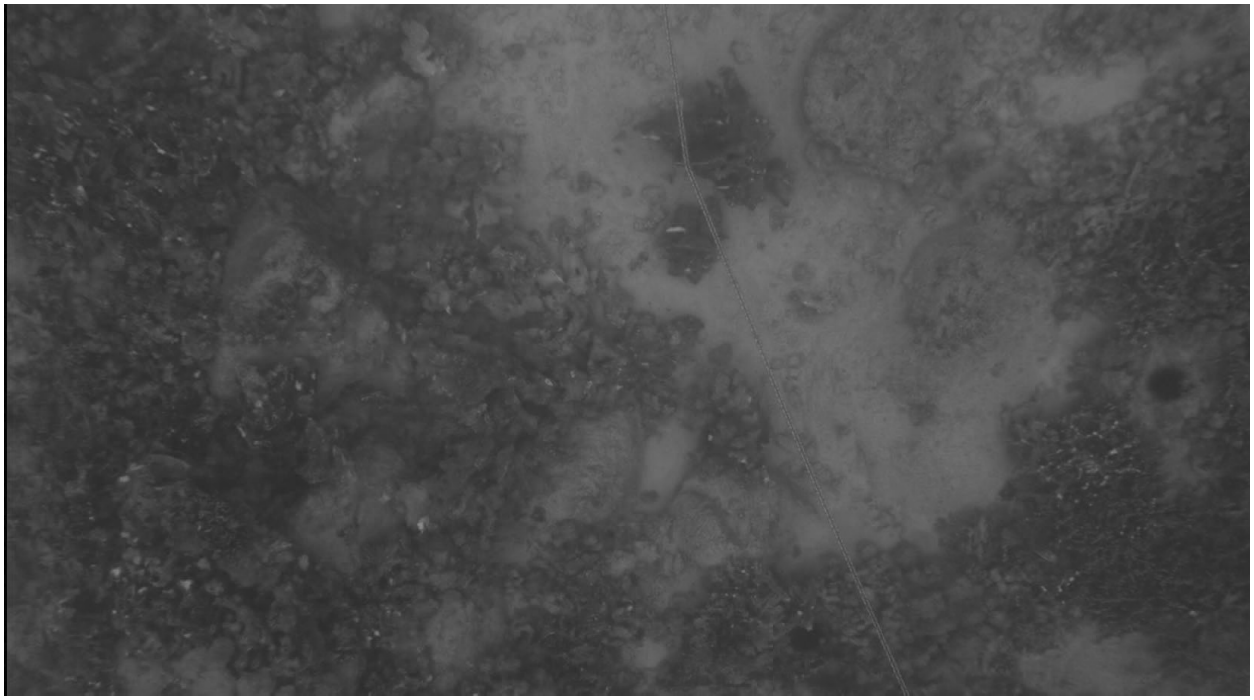


Figure 5: Anchor chain laying over section of reef. Light spots of coral in this image are indicative of recent damage. Additionally, the chain is caught on a colony of *Porites lobata* that has been dislodged. Image extracted from video footage taken by C. Teague.

At approximately 1515, DAR Kona staff received word that the Avalanche had pulled anchor and left the area. It is assumed that they re-anchored in Kailua Bay to spend the night, though this was never confirmed. Over the next several days, DAR Kona staff were notified that the vessel had travelled to Maui and subsequently to Molokai.

Description of follow-up response:
On June 1, 2021, DAR staff Chris Teague, Ashley Pugh, Lindsey Kramer, and Nathan Hayes along with Kaloko-Honokōhau National Historic Park's Ecologist, Sallie Beavers, travelled back to the site of the anchor damage to conduct a full assessment of the damage and attempt to restabilize as much live coral as possible. Re-stabilization efforts such as these do not immediately rebuild coral colonies to their former level of complexity and ecosystem services, however they may improve the opportunity for the coral colonies to re-affix to the substrate and continue growing. In addition, the righting and re-stabilization of live coral fragments and colonies overturned into sand reduces the chance of tissue smothering, which can occur within a few days.

The assessment was conducted via SCUBA by Teague, Pugh, Kramer, and Beavers. Hayes captained the DAR vessel. Coral and live rock damage was surveyed systematically. After a brief circuit of the affected area, a transect tape (30-meter measuring reel) was laid out along the longest axis of the damaged region. Teague began making a sketch of the overall region, while Kramer photographed as many instances of coral and live rock damage as possible with a scale bar (Figs 7-9 and Appendix A). Pugh and Beavers took additional photos for a technique called photogrammetry, which allowed for the creation of a high resolution 3-dimensional digital model. This model was used to depict the severity of the damage and will allow DAR biologists to revisit the site in the future to determine any level of recovery of restabilized corals. After sketching the area, Teague conducted a visual census of all damaged corals (white skeletal material indicating recent damage clearly visible) and live rock. For each instance of damage, Teague recorded the species, the size of the breakage itself, and the size of the affected colony.

The overall amount of damage to this section of reef was extensive. The affected area was wedge shaped, with the damage extending along 28 meters of reef (Figure 6). This "wedge" was 8m at the widest and 3m at the narrowest. Coral breakage began at the reef immediately adjacent to the sand patch where the anchor was located and extended due east towards a line of large basalt boulders. Coral cover was highest in the western portion of the area, however impacted colonies were spread relatively evenly across the affected area.

Two common coral species were affected, *Porites compressa* (finger coral) and *Porites lobata* (lobe coral). Damage instances ranged from individual breakage points of *P. compressa* fingers less than 5cm in diameter (figure 7) to larger swaths of broken *P. compressa* beds some of which were over 3m in length (Figure 8; additional images in Appendix A). Additionally, multiple large, dislodged colonies of *P. lobata* were observed. In many of the areas with heavy *Porites compressa* damage, broken coral colonies were observed lying horizontally on the underlying substrate (Figure 9). These instances result in a severe reduction structural complexity which, in turn, reduces in the functional ability of the corals to provide habitat for fishes and invertebrates.

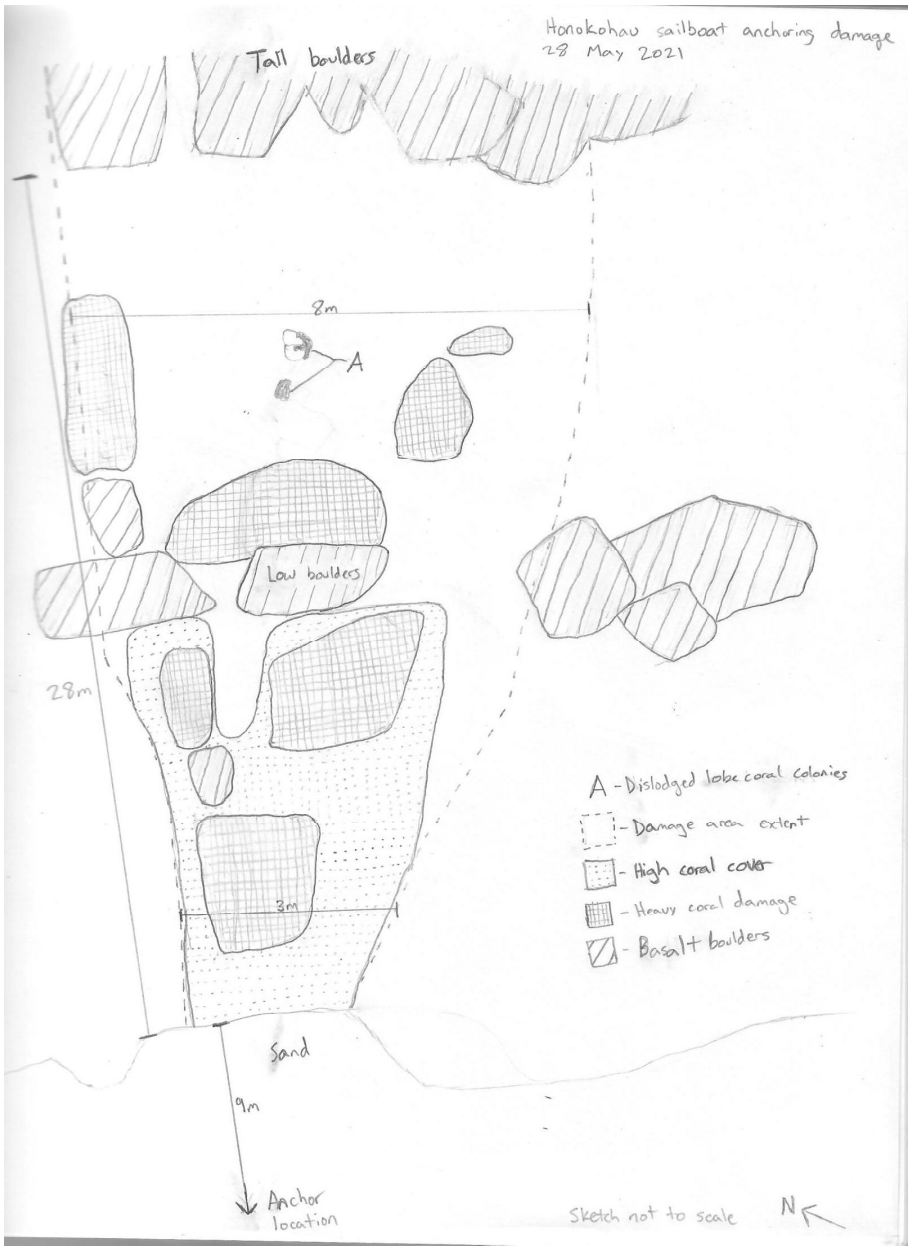


Figure 6: Site overview depicting large boulders, the extent of the damaged area, and areas with particularly heavy coral damage.

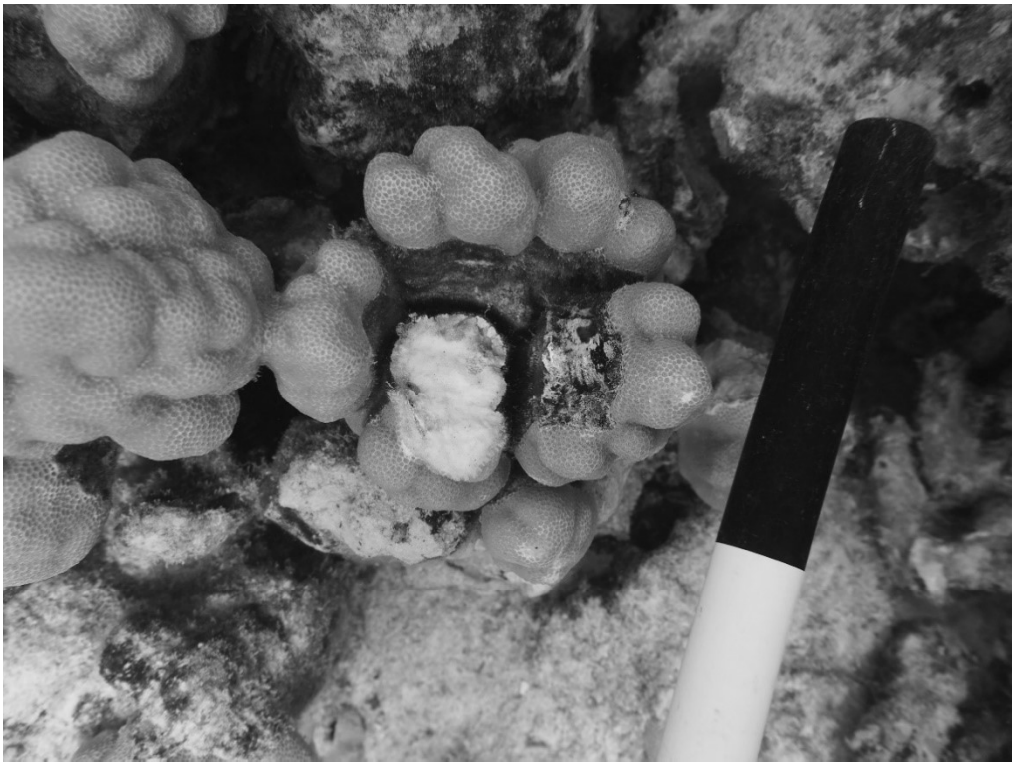


Figure 7: Example of a small (< 5 cm) breakage of a *Porites lobata* colony. Scale bar shown has 10cm increments.

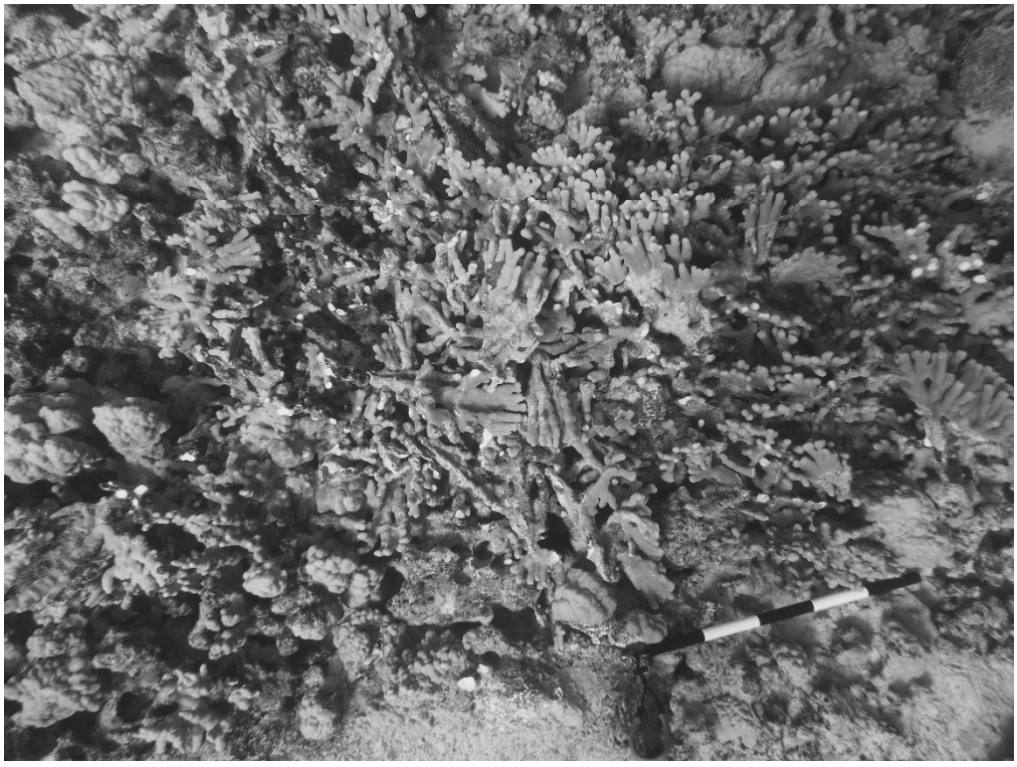


Figure 8: Example of a large swath of damaged *Porites compressa* bed. Scale bar is 50cm long with 10cm increments.

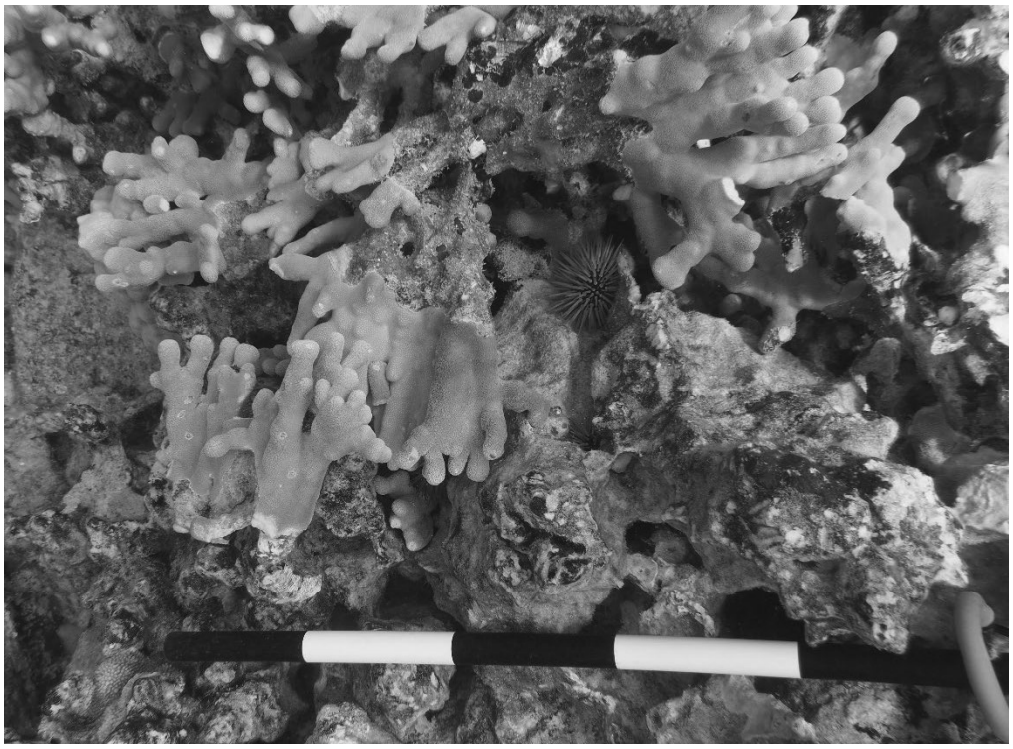


Figure 9: Closeup of damaged *Porites compressa* colonies. Note that the branches are laying on their sides. Undamaged, upright corals provide necessary habitat for fishes and invertebrates.

Table 1: Coral species, count of damaged colonies, and damaged colony size.

Species	**Count of Damaged Colonies**	**Colony size**
Porites compressa	7	0.1 – 5 cm
	7	5.1 – 10 cm
	21	10.1 – 20 cm
	21	20.1 – 40 cm
	5	40.1 – 80 cm
	11	80.1 – 160 cm
	2	> 160 cm
Porites lobata	1	0.1 – 5 cm
	2	5.1 – 10 cm
	7	10.1 – 20 cm
	16	20.1 – 40 cm
	1	40.1 – 80 cm
Total coral colonies damaged	**101**	
Live Rock	18	0.1 – 5 cm
	8	5.1 – 10 cm
	9	10.1 – 20 cm
	15	20.1 – 40 cm
	4	40.1 – 80 cm
	4	> 160 cm
Total live rock damage	**58**	

A total of 101 coral colonies and 58 pieces of live rock were damaged. A full accounting of damaged resources is given in Table 1. Counts are given for each species and size class of damaged coral colony. These counts are further broken down in Appendix B (Table B1) by percent of the colony that was damaged. These percentages were calculated by dividing the size of the breakage by the size of the overall colony. It is important to note that a low percentage of visible damage does not necessarily indicate a proportional reduction in the ecosystem services provided by the colony. Even colonies that show relatively small sizes of visible damage may have deeper structural damage that is not readily apparent. These sorts of breakages could result in reduced long-term stability of the colony.

The photogrammetry survey allowed for an additional depiction of the overall affected area as well as specific instances of damage (Figure 10). 1,517 photos were used to generate an orthomosaic and a digital elevation model (DEM) of the area. An orthomosaic is an accurate, high resolution photo representation created by stitching together many overlapping images. A DEM is a 3-dimensional representation of a surface (the seafloor in this instance) that allows for a range of other habitat characteristics to be derived.

Areas of heavy damage, light damage, and dislodged coral/live rock visible in the orthomosaic were manually annotated to show the distribution of impacted resources (Figure 10D). The heavy damage classification describes instances of severe loss of habitat structure, and light damage describes scarring, abrasion, or small breakage points that did not result in a visible, substantial change of habitat structure. Coral and live rock classified as dislodged describes intact structures that are no longer attached to the substrate and were frequently overturned or on their side.

DAR staff will revisit this site in the future and repeat the photogrammetry survey. The annotated orthomosaic, in addition to the DEM, will serve as a basis of comparison to track the recovery success of damaged colonies.

After the full assessment was complete, the team worked to restabilize as many coral fragments as possible. Divers focused on the largest colonies first. Fragments were first righted to ensure that the highest amount of live coral tissue was left facing upwards for light exposure. Dislodged colonies and fragments were then wedged into bare areas or locations with recent mortality within the surrounding reef to keep them stable. While it was not possible to keep an exact count of all fragments righted and restabilized, hundreds of individual coral fragments were wedged in place and several large *P. lobata* colonies were stabilized. DAR staff plans to revisit this site periodically to document the success of these restoration efforts.

Note: Only a small portion of the images taken on either response (initial and follow-up) are included in this document. Full resolution photos and videos are available upon request.

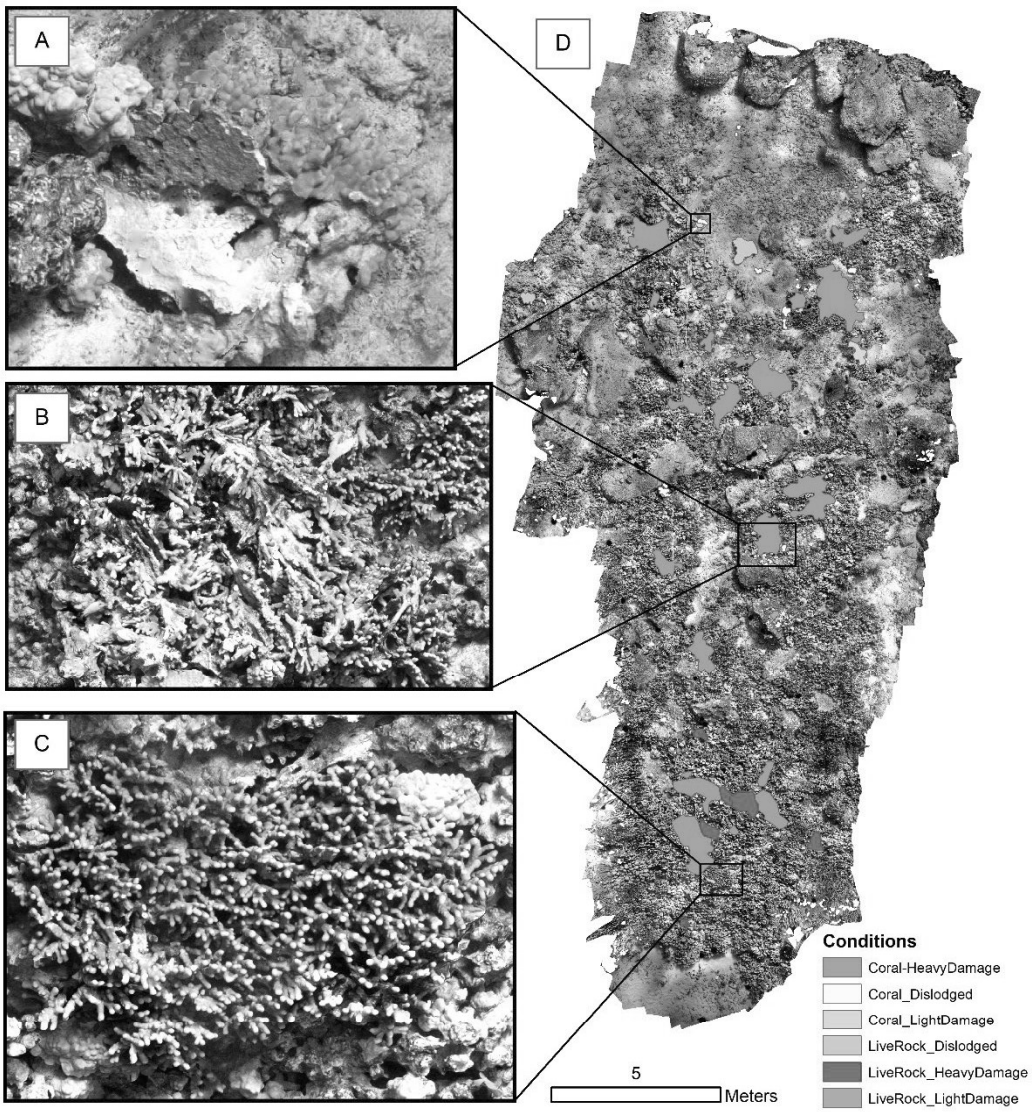


Figure 10: Orthomosaic of anchor damage site on June 1, 2021. A) A mounding *Porites lobata* colony broken and on its side with inner white skeleton exposed. B) A colony of *Porites compressa* with heavy damage and most branches broken and laying on their side. C) A relatively healthy colony of *Porites compressa* intact with upright branches and a small section of light damage on the lower left. D) View of entire anchor damage survey area with impacted areas of live rock and coral highlighted.

Appendix A:

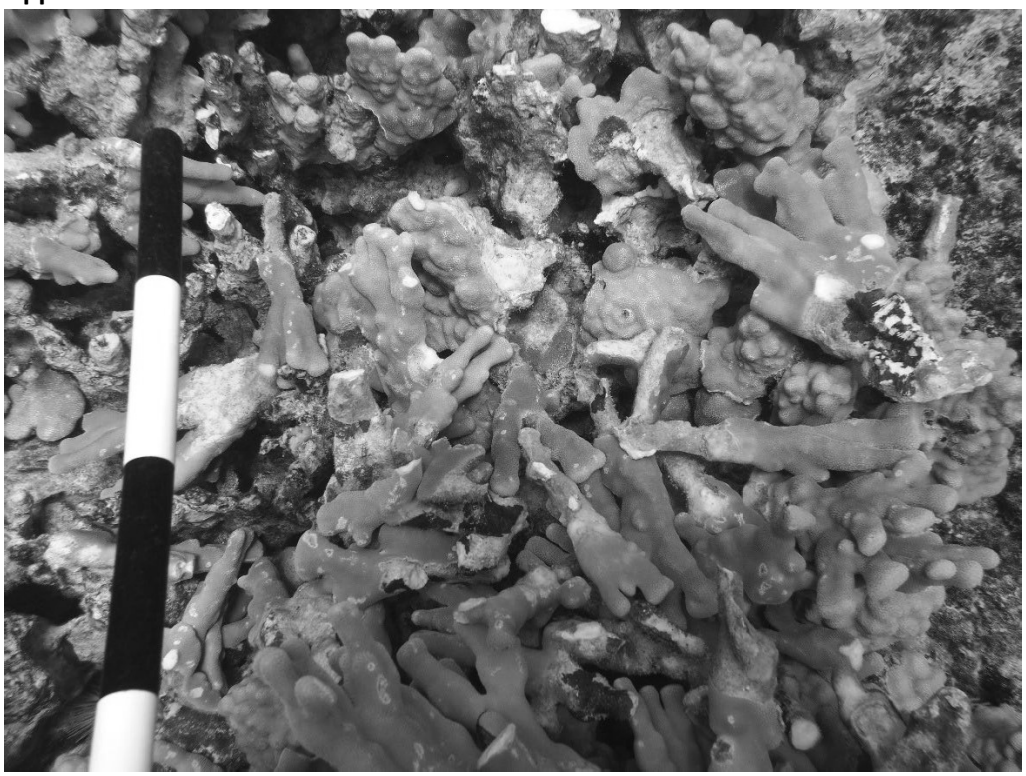


Figure A1: Closeup of a damaged *Porites compressa* colony.

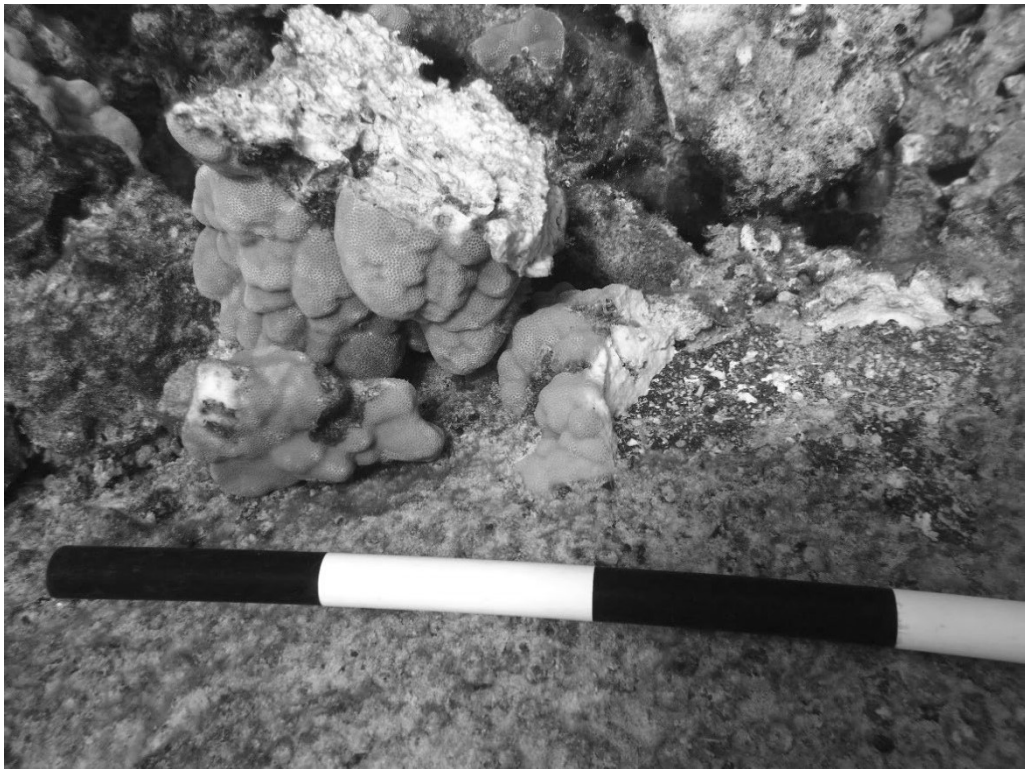


Figure A2: Dislodged section of *Porites lobata*.

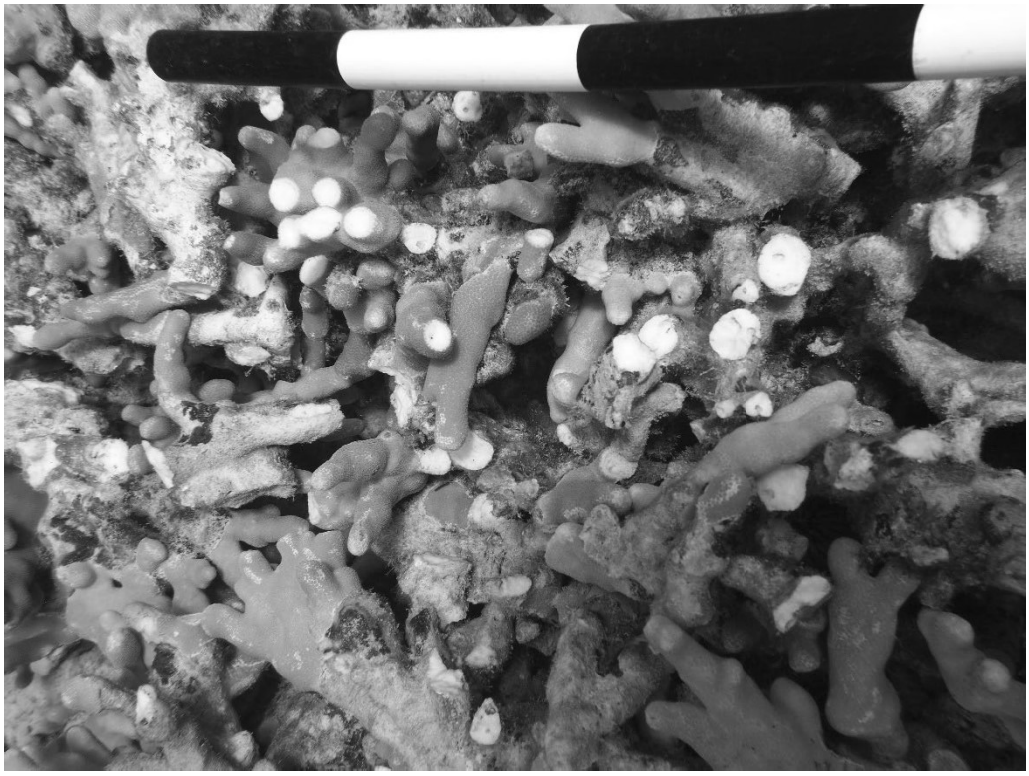


Figure A3: Colony of *Porites compressa* with numerous breakages.

Figure A4: Large swath of *Porites compressa* showing many individual breakages

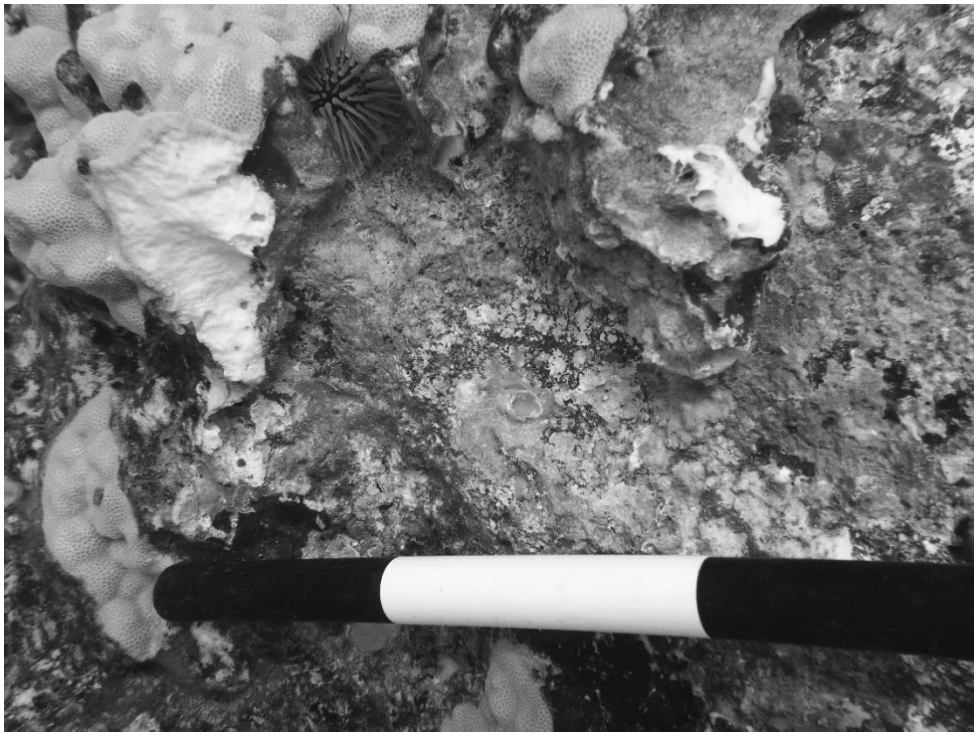


Figure A5: *Porites lobata* that has been sheared off. Visible bright white skeletal material is indicative of recent damage.

Figure A6: Live rock damage. Bright white section shows portion of a dead coral that has been sheared off. Note the scars from parrotfish bites on the undamaged sections. These reefs are important foraging grounds for parrotfishes which contribute to the long-term health of coral reefs.

Appendix B:

Table B1: Coral species, count, breakage size, colony size, and damage percent of broken corals observed within the damage area.

Species	Damaged colony count	Breakage size	Colony size	% damaged
Porites compressa	7	0.1-5cm	0.1-5 cm	100%
	7	0.1-5 cm	5.1-10 cm	50%
	16	0.1-5 cm	10.1-20 cm	25%
	1	5.1-10 cm	10.1-20 cm	50%
	4	10.1-20 cm	10.1-20 cm	100%
	9	0.1-5cm	20.1-40 cm	13%
	2	5.1-10 cm	20.1-40 cm	25%
	1	10.1-20 cm	20.1-40 cm	50%
	9	20.1-40 cm	20.1-40 cm	100%
	1	0.1-5cm	40.1-80 cm	6%
	1	10.1-20 cm	40.1-80 cm	25%
	3	40.1-80 cm	40.1-80 cm	100%
	2	20.1-40 cm	80.1-160 cm	25%
	9	80.1-160 cm	80.1-160 cm	100%
	2	>160 cm	>160 cm	100%
Porites lobata	1	0.1-5cm	0.1-5 cm	100%
	2	0.1-5cm	5.1-10 cm	50%
	3	0.1-5 cm	10.1-20 cm	25%
	1	5.1-10 cm	10.1-20 cm	50%
	3	10.1-20 cm	10.1-20 cm	100%
	4	0.1-5cm	20.1-40 cm	13%
	5	5.1-10 cm	20.1-40 cm	25%
	4	10.1-20 cm	20.1-40 cm	50%
	3	20.1-40 cm	20.1-40 cm	100%
	1	0.1-5cm	40.1-80 cm	6%
Live Rock	18	0.1-5cm	0.1-5 cm	100%
	3	0.1-5cm	5.1-10 cm	50%
	5	5.1-10 cm	5.1-10 cm	100%
	9	10.1-20 cm	10.1-20 cm	100%
	3	0.1-5cm	20.1-40 cm	13%
	2	5.1-10 cm	20.1-40 cm	25%
	4	10.1-20 cm	20.1-40 cm	50%
	6	20.1-40 cm	20.1-40 cm	100%
	4	40.1-80 cm	40.1-80 cm	100%
	4	>160 cm	>160 cm	100%

COPY

State of Hawaii | Department of Land and Natural Resources | Division of Conservation and Resources Enforcement

Log Number	District	Lead Investigator
HA-21-00408	NORTHERN	Hoopii, Destiny - HOOPD

Date/Time Reported	Location	Classification
05/28/2021 1228	HONOKOHAU	TAKE/BREAK/DAMAGE LIVE CORAL W/MARINE LIFE ATTAC

Status	Activity Code
PEND PENDING FURTHER ACTION	Fisheries Resource Mgmt

Incident and Report Control

A. COMPLAINT

Taken By: **Hoopii, Destiny** Reported Date/Time: **5/28/2021 12:28:00 PM**

How Taken: **PHONE**

Incident Summary: **SYNOPSIS:**

On 05-28-2021: At approximately 1228 Hours: Officers received a report of a large red yacht, named "AVALANCHE" that was anchored just outside of Honokohau Small Boat Harbor. Reporting party reported that the anchor line was dragging along the sea floor, damaging coral. Contacted boat owner and captain, John BARRY III. DAR conducted an inspection of the sea floor and confirmed damage to live coral.

INV CONTINUING

Location: **HONOKOHAU**

Occurred From: **5/28/2021 1228**
Occurred To: **5/28/2021 1900**

B. REPORT CONTROL

Branch: **HAWAII**

District: **HWEHAW**

Lead Investigator: **Hoopii, Destiny** DHH #128

C. NOTES/DISPOSITION/OTHER INFO

Disposition: **PENDING FURTHER ACTION**

Item F-1, Exhibit B

State of Hawaii | Department of Land and Natural Resources | Division of Conservation and Resources Enforcement

Log Number	District	Lead Investigator
HA-21-00408	WEST HAWAII (HAWAII)	Hoopii, Destiny - HOOPD

Date/Time Reported	Location	Incident Type
05/28/2021 1228	HONOKOHAU	Anchoring/Mooring Prohibitions

Status	Activity Code
PEND PENDING FURTHER ACTION	Fisheries Resource Mgmt

Investigation Report

☐ Fishing ☐ Hunting ☑ Boating ☐ Drug Rel. ☐ Forestry ☐ NOAA ☐ JEA ☐ Land - OCCL ☐ CWRM ☐ Historic ☐ State Parks ☐ KAIC ☐ Other

BASIC

Classification	Source
13-95-71(a) TAKE/BREAK/DAMAGE LIVE CORAL W/MARINE LIFE ATTACHED W/CR	PHONE PHONE

Location of Incident / Intersecting Street	Island	Branch
NORTH SIDE OF HARBOR MOUTH KAILUA KONA HI 96740 X-Street:	HAWAII	HAWAII

Date / Time Occurred From	Date / Time Occurred to
5/28/2021 1228	5/28/2021 1900

Category	Weather
ORMA OCEAN RECREATION MGMT AREA	CLOUDY CLOUDY

WEAPONS USED:

INVOLVED VEHICLES

Type	Year	Make	Model	Color	License / HA Number	Length	Involvement
Vessel/Boat BOAT	1995	HUDS		RED	750113 VI	54	SUSPV SUSPECT VEHICLE

Person/Vehicle Involvement

OWN/OP
BARRY, JOHN — OWN/OP 750113

INVOLVED VESSELS / BOATS

U.S.C.G. Number	Vessel Name	Use	Length	Beam	Weight	Involvement Code
1037323	AVALANCHE	PL	54		27	SUSPV

Propulsion	Engine Type	Number of Engines	Hull Type	Draft		Registration Number	State
				Forward	Aft		
OT	SA		FI			750113	VI

PERSONS

Name (Last, First, Middle)	Juvenile	Sex	Race	Age	Date of Birth
BARRY, JOHN JOSEPH III	☐	MALE	WHITE	68	[redacted]

Address: [redacted] PAGOSA SPRINGS CO 81147

Category	CODE:	Home Phone	Other Phone
SUSPECT	SUSP	[redacted]	

Name (Last, First, Middle)	Juvenile	Sex	Race	Age	Date of Birth
TA, RYAN	☐	MALE		31	[redacted]

Address: KAILUA KONA HI 96740

Category	CODE:	Home Phone	Other Phone
WITNESS	WIT	[redacted]	

Name: HONOKOHAU

Category	Business Address
BUSN	,

Phone 1	Phone 2	Phone 3

Written By: Hoopii, Destiny 04/29/2022 #128

Approved By:

State of Hawaii | Department of Land and Natural Resources | Division of Conservation and Resources Enforcement

Log Number	District	Lead Investigator
HA-21-00408	WEST HAWAII (HAWAII)	Hoopii, Destiny - HOOPD

Date/Time Reported	Location	Incident Type
05/28/2021 1228	HONOKOHAU	Anchoring/Mooring Prohibitions

Status	Activity Code
PEND PENDING FURTHER ACTION	Fisheries Resource Mgmt

SYNOPSIS

Narrative Created By / Created On	Approved By / On
Hoopii, Destiny 06/24/2021	

SYNOPSIS:

On 05-28-2021: At approximately 1228 Hours: Officers received a report of a large red yacht, named "AVALANCHE" that was anchored just outside of Honokohau Small Boat Harbor. Reporting party reported that the anchor line was dragging along the sea floor, damaging coral. Contacted boat owner and captain, John BARRY III. DAR conducted an inspection of the sea floor and confirmed damage to live coral.

INV CONTINUING

RESPONDING / INVOLVED UNITS, OFFICERS, AND TIMES

Division	Supervisor	
HAWA	HING, JOSEPH K JR	HINGJ

Unit Number	Officer / ID (Ofcr 1 / Ofcr 2)	Officer / ID (Ofcr 3 / Ofcr 4)
6-35	Hoopii, Destiny HOOPD	

Written By: Hoopii, Destiny 04/29/2022 #128

Approved By:

Log Number	District	Lead Investigator
HA-21-00408	WEST HAWAII (HAWAII)	Hoopii, Destiny - HOOPD

Date/Time Reported	Location	Incident Type
05/28/2021 1228	HONOKOHAU	Anchoring/Mooring Prohibitions

Status	Activity Code
PEND PENDING FURTHER ACTION	Fisheries Resource Mgmt

INVESTIGATION

Narrative Created By / Created On	Approved By / On
Hoopii, Destiny 06/24/2021	

ASSIGNMENT

On 05-28-2021: At approximately 1228 Hours: While at the Honokohau DOCARE Office, a male party reported a large yacht, named "AVALANCHE", was anchored just outside of the Honokohau Small Boat Harbor navigational channel. The male party report the vessels anchor line was currently dragging along the sea floor destroying live coral. The reporting male party also reported a Big Island Diver's vessel was currently moored near the AVALANCHE.

While taking the phone call, a Tip411 complaint came in also reporting the vessel's anchor damaging coral. The Tip411 identified the responsible vessel as "AVALANCHE" as well.

WITNESS CONTACTED

While attempting to reach the captain of the Big Island Diver's, we were informed that the vessel was on its way back to its slip. I proceeded to Slip #27 to make contact with the vessel for any witnesses.

On 05-28-2021: At approximately 1315 Hours: While at the Honokohau Small Boat Harbor, at Slip #27, a witness was contacted regarding this incident. He is identified as:

Ryan TA, M-31
DOB: [redacted]
SSN:
Big Island Divers
Cel: [redacted]

TA stated that he was working as a deckhand/team member on board the Big Island Diver's vessel, which had taken a group of customers on a tour. TA stated their vessel had moored just outside the entrance to Honokohau Small Boat Harbor, where they continued their snorkeling tour. As part of their tour, he and some of the customers jumped in the water to snorkel.

Sometime while snorkeling, TA noticed that a large yacht had anchored near them. He also noticed that the anchor line for this vessel had a chain at the end that lead down towards a coral bed. After diving down, TA noticed that the chain was currently dragging along the sea floor, through live corals, damaging them. TA stated that the anchor wasn't properly set, as he could see the anchor line was really loose and that the chain moved with the oceans current. TA stated when he swam up to the yacht, he attempted to get the attention of someone on board. TA stated getting the attention of one of the males on board and tried to inform them that their anchor line was dragging on the sea floor, damaging coral. The male party dismissed him saying that his anchor was in sand.

TA stated when the male party carried on about his way, making no attempts to move his anchor, TA dove down to the anchor to take photographs of the anchor and some of the damages to the coral. During this dive, TA also stated noticing that the anchor line was also wrapped around live rock. After returning to his boat, TA reported the incident to Keller LAROS. After docking at their slip, TA stated he was contacted by DOCARE.

INFORMATION RECEIVED

While speaking to TA, I received a phone call from DOBOR Harbor Agent, Rosaline RODRIGUES, who informed me that a male party was in the office requesting to speak to an officer regarding a vessel that was damaging coral and that the male party had photographs.

Upon arrival at the DOBOR Office, I made contact with Keller LAROS, owner of Big Island Diver's, who stated that one of his employees, identified as Ryan TA, had sent him photographs of a vessel anchored in coral. After informing LAROS that TA was already contacted, LAOS was asked if he had anything to add, which he stated that he did not witness anything that all his information was given to him by TA.

RESPONSE

On 05-28-2021: At approximately 1400 Hours: After coordinating with Chris TEAGUE, of DAR, Tania TAITANO, of DOBOR, and DOCARE, Officer Kelly WOODS operated the DOBOR vessel, transporting all parties to make contact with AVALANCHE. TEAGUE was to conduct a preliminary dive to verify if any coral or live rock had been damaged, using TAITANO as a spotter. Officer WOODS was to continue operation of the DOBOR vessel in the choppy waters. I was to board the AVALANCHE and make contact with the Captain advising of the complaint.

VESSEL INFORMATION

The suspects vessel is described to be 1995 red and black 54 foot Hudson Pleasure Yacht, having a USCG Documented Registration #1037323. The vessel is currently registered to Avalanche Adventures Corporation, which is owned by John Joseph BARRY III, of Colorado. This vessel hails its port in the Virgin Islands (British).

PARTY CONTACTED

On 05-28-2021: At approximately 1420 Hours: While on the vessel "AVALANCHE", I made contact with the Boat Captain, he is identified as:

John Joseph BARRY III, M-67
DOB: [redacted]
[redacted]
Cel: [redacted]

After boarding the AVALANCHE, I made contact with BARRY, who identified himself as the owner and operator of the AVALANCHE. BARRY was informed that DOCARE received a report of his anchor line causing damage to live corals. He was also informed that Chris TEAGUE, of DAR, and Tania TAITANO, of DOBOR, would be conducting a dive to verify if the complaint was viable. BARRY stated that he did drop anchor, but he knows that his anchor was set in a small sandy area. BARRY stated that he didn't know his line had gotten loose or that it was damaging coral and if it was, he would reset his line.

BARRY continued mentioning that he was waiting for a slip in the Honokohau Small Boat Harbor, however, it had a requirement that he didn't have, which was insurance. BARRY mentioned that he was in conversation with Tania from DOBOR regarding mooring options, however, electronically, they have been having issues. While

informing BARRY of the 72-hour mooring rule, he stated that he will be heading to Kailua Bay for the night and then he would be making his way back home.

Prior to leaving the AVALANCHE, BARRY was informed that TEAGUE had confirmed that the anchor line was wrapped around a live rock and damaging coral. No further information was obtained from BARRY.

DAR REPORT

Division of Aquatic Resources-Chris TEAGUE provided a report of his findings. For further information, refer to his report submitted under this report.

DISPOSITION

Due to the above mentioned information, I recommend that this report be referred to the Division of Aquatic Resources for submittal to the Land Board for review and final disposition.

ROUTE REPORT TO DIVISION OF AQUATIC RESOURCES-KONA

INV REFERRED

Log Number	District	Lead Investigator
HA-21-00408	WEST HAWAII (HAWAII)	Hoopii, Destiny - HOOPD

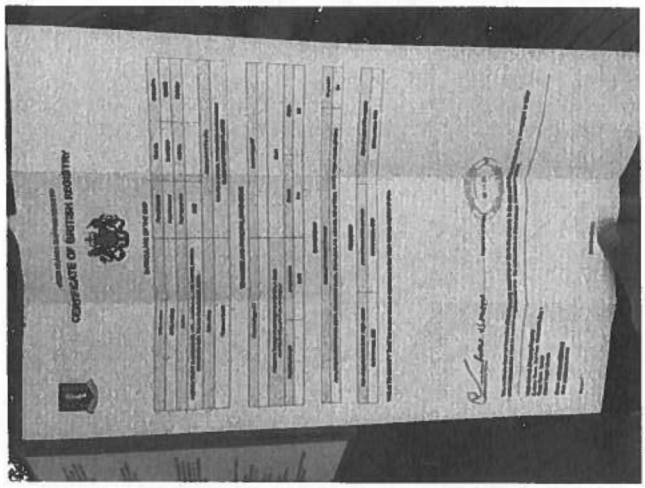
Date/Time Reported	Location	Incident Type
05/28/2021 1228	HONOKOHAU	Anchoring/Mooring Prohibitions

Status	Activity Code
PEND PENDING FURTHER ACTION	Fisheries Resource Mgmt

IMAGES

#1) Photo of "AVALANCHE" vessel anchored just outside of Honokohau Small Boat Harbor.

#2) Photo of Passport [redacted] belonging to John Joseph BARRY III, DOB: [redacted]



#3) Photo of a Certificate of British Registry from the Virgin Islands (British) for "AVALANCHE", having a documented Official No. 750113.

State of Hawaii | Department of Land and Natural Resources | Division of Conservation and Resources Enforcement

Log Number	District	Lead Investigator
HA-21-00408	WEST HAWAII (HAWAII)	Hoopii, Destiny - HOOPD

Date/Time Reported	Location	Incident Type
05/28/2021 1228	HONOKOHAU	Anchoring/Mooring Prohibitions

Status	Activity Code
PEND PENDING FURTHER ACTION	Fisheries Resource Mgmt

BASIC

Classification	Source
Anchoring/Moor Anchoring/Mooring Prohibitions	PHONE ASSIGNMENT

Location of Incident / Intersecting Street	Island	Branch
NORTH SIDE OF HARBOR MOUTH KAILUA KONA HI 96740 X-Street:	HAWAII	HAWAII

Date / Time Occurred From	Date / Time Occurred to
5/28/2021 1228	5/28/2021 1900

Category	Weather
ORMA OCEAN RECREATION MGMT AREA	CLOUDY RAIN

PROPERTY / EVIDENCE

Item Number	Tag Number	Owner	Taken From
1	HA-000463	DOCARE HAWAII	RYAN TA

Brand / Make	Model	Description	Serial / ID Number	Estimated Value
TDK CD-R80		A TDK CD-R80 Disk containing 12 Photographs recovered from Ryan TA.		$0.00

Chain of Custody

Item No	From	To	Date	Time
1-1.	CRED III D. HOOPII DH #128			

Written By: Hoopii, Destiny
04/29/2022 DH #128

Approved By:

Item F-1, Exhibit C

CORAL PENALTY MATRIX

	Encrusting	Solitary	Branching	Digiform	Plate-Like	Massive
0 – 5 cm	$10	$20	$25	$25	$25	$20
5 – 10 cm	$20	$40	$50	$50	$50	$40
10 – 20 cm	$50	$100	$100	$100	$100	$100
20 – 40 cm	$100	$200	$200	$200	$200	$200
40 – 80 cm	$200	n/a	$400	$400	$500	$500
80 – 160 cm	$500	n/a	$800	$800	$1000	$1000
+ 160 cm	$750	n/a	$1000	$1000	$1000	$1000

RARE CORAL PENALTY MATRIX

	Encrusting	Solitary	Branching	Digiform	Plate-Like	Massive
0 – 5 cm	$20	$40	$50	$50	$50	$40
5 – 10 cm	$40	$80	$100	$100	$100	$80
10 – 20 cm	$100	$200	$200	$200	$200	$200
20 – 40 cm	$200	$400	$400	$400	$400	$400
40 – 80 cm	$400	n/a	$800	$800	$1000	$1000
80 – 160 cm	$1000	n/a	$1000	$1000	$1000	$1000
+ 160 cm	$1000	n/a	$1000	$1000	$1000	$1000

FMA CORAL PENALTY MATRIX

	Encrusting	Solitary	Branching	Digiform	Plate-Like	Massive
0 – 5 cm	$15	$30	$35	$35	$35	$30
5 – 10 cm	$30	$60	$75	$75	$75	$60
10 – 20 cm	$75	$150	$150	$150	$150	$150
20 – 40 cm	$150	$300	$300	$300	$300	$300
40 – 80 cm	$300	n/a	$600	$600	$750	$750
80 – 160 cm	$750	n/a	$1000	$1000	$1000	$1000
+ 160 cm	$1000	n/a	$1000	$1000	$1000	$1000

MLCD CORAL PENALTY MATRIX

	Encrusting	Solitary	Branching	Digiform	Plate-Like	Massive
0 – 5 cm	$20	$40	$50	$50	$50	$40
5 – 10 cm	$40	$80	$100	$100	$100	$80
10 – 20 cm	$100	$200	$200	$200	$200	$200
20 – 40 cm	$200	$400	$400	$400	$400	$400
40 – 80 cm	$400	n/a	$800	$800	$1000	$1000
80 – 160 cm	$1000	n/a	$1000	$1000	$1000	$1000
+ 160 cm	$1000	n/a	$1000	$1000	$1000	$1000

RARE CORAL FMA PENALTY MATRIX

	Encrusting	Solitary	Branching	Digiform	Plate-Like	Massive
0 – 5 cm	$30	$60	$75	$75	$75	$60
5 – 10 cm	$60	$120	$150	$150	$150	$120
10 – 20 cm	$150	$300	$300	$300	$300	$300
20 – 40 cm	$300	$600	$600	$600	$600	$600
40 – 80 cm	$600	n/a	$1000	$1000	$1000	$1000
80 – 160 cm	$1000	n/a	$1000	$1000	$1000	$1000
+ 160 cm	$1000	n/a	$1000	$1000	$1000	$1000

RARE CORAL MLCD PENALTY MATRIX

	Encrusting	Solitary	Branching	Digiform	Plate-Like	Massive
0 – 5 cm	$40	$80	$100	$100	$100	$80
5 – 10 cm	$208	$160	$200	$200	$200	$160
10 – 20 cm	$200	$400	$300	$400	$400	$400
20 – 40 cm	$400	$800	$800	$800	$800	$800
40 – 80 cm	$800	n/a	$1000	$1000	$1000	$1000
80 – 160 cm	$1000	n/a	$1000	$1000	$1000	$1000
+ 160 cm	$1000	n/a	$1000	$1000	$1000	$1000

LIVE ROCK PENALTY MATRIX (m^2)

	Rubble	Pavement	Reef	Basalt	High Rugosity
Turf / Cyanobacteria	$10	$20	$40	$20	$40
Macroalgae	$20	$100	$200	$100	$200
CCA - Encrusting	$200	$400	$600	$400	$600
CCA - Rugose	$400	$800	$1000	$800	$1000
Sponge, Bryozoan, Other Sessile	$100	$150	$300	$150	$300
Soft Coral / Zoanthid	$80	$200	$400	$200	$400
High Biodiversity	$200	$400	$600	$400	$600

FMA LIVE ROCK PENALTY MATRIX (m^2)

	Rubble	Pavement	Reef	Basalt	High Rugosity
Turf / Cyanobacteria	$15	$30	$60	$30	$60
Macroalgae	$30	$150	$300	$150	$300
CCA - Encrusting	$300	$600	$800	$600	$900
CCA - Rugose	$600	$1000	$1000	$1000	$1000
Sponge, Bryozoan, Other Sessile	$150	$225	$450	$225	$450
Soft Coral / Zoanthid	$120	$300	$600	$300	$600
High Biodiversity	$300	$600	$800	$600	$900

MLCD LIVE ROCK PENALTY MATRIX (m^2)

	Rubble	Pavement	Reef	Basalt	High Rugosity
Turf / Cyanobacteria	$20	$40	$80	$40	$80
Macroalgae	$40	$200	$400	$200	$400
CCA - Encrusting	$400	$800	$1000	$800	$1000
CCA - Rugose	$800	$1000	$1000	$1000	$1000
Sponge, Bryozoan, Other Sessile	$200	$300	$600	$300	$600
Soft Coral / Zoanthid	$160	$400	$800	$400	$800
High Biodiversity	$400	$800	$1000	$800	$1000