Volume №1

Summer 2026
THE REPOSITORY
PREMIER ISSUE

THE BLUE HOLE

LIGHTHOUSE REEF ATOLL BELIZE



THE HUMAN FACTOR

The social scape on Lighthouse Reef Atoll

Sea Grass Sampling

Wake Forest University Undergrads study under Dr. Silman for the 15th year

Conditioning

Reflecting on a Shark Encounter

A LOOK AT THE PREHISTORY OF THE ATOLL THROUGH THE EYES OF A GEOLOGIST

Dr. Brian Kelley of Penn State University Revisits Prior Studies with Modern Technology



№1.

Welcome to the inaugural issue of The Repository, the annual journal of Lighthouse Reef Research Repository (Lr^3="Lr-Cubed"). This first edition captures the story so far: the work, discoveries, and daily life at Lighthouse Reef and begins our tradition of documenting and sharing what happens here each year.

Mission: To Protect Lighthouse Reef

Vision: Invest in reef security by hosting researchers that collect and make available data as the baseline for evidence of change.

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Lr3

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Belize

Lighthouse Reef Research Repository

THE REPOSITORY

A colletion of the year's hapopenings



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OSPREY

Pandion haliaetus. A piscivorous raptor commonly observed in isolated nesting pairs across the atoll, many of which are actively breeding and maintaining stable reproductive success.

Photo by Joseph Ho

LETTER FROM THE DIRECTOR

To sustain a place as rare and vital as Lighthouse Reef Atoll, we need partners who understand that marine conservation is ultimately about people. Like in architecture or sport, the design and the rules shape how people move, behave, and impact their surroundings.

That's what fascinates me about this place. Lighthouse Reef Atoll is rare in that it remains just uninhabited enough to see these relationships clearly. Here, the interplay between humans and reef ecosystems is visible, measurable, and, most importantly, still ever changing. Whether it's a fisherman chasing a stroke of fortune, a researcher tracking a species, or a ranger patrolling a marine reserve, humanity is woven right into the fabric of the reef itself.

You know, when most people picture a remote Caribbean atoll, they think of pristine white sand and postcard views. But every stakeholder on this atoll looks at the coast through a different lens. A local fisherman walking the beach may be keeping an eye out for 'Polvo Blanco'—bricks of cocaine washed up in the surf overnight. It's a wild, hidden routine born of offshore transit routes that completely changes how they interact with the coast every single day. Where a visiting marine biologist sees a critical nesting site, a local sees an unexpected economic windfall, and a conservation officer sees an enforcement challenge.





When a plane flies overhead, locals joke, 'Drop it!'

But it gets you thinking... Protecting a coral reef means looking beyond the vibrant fish, coral gardens, and fragile marine fauna people usually picture. That view is incomplete.

The truth is, reefs are shaped just as much by people as they are by nature. Local fishermen, tour guides, visiting researchers, regulatory agencies, even the structure of tourism itself—each exerts influence on the health of the reef. To preserve Lighthouse Reef, we must understand and engage the full spectrum of human presence that defines it.

That is precisely why the Lighthouse Reef Research Repository (Lr^3) exists: to provide the scientific foundation, logistical spine, and collaborative hub that this isolated ecosystem demands. As human pressures grow and environmental regulations inevitably tighten, conservation cannot survive on restriction alone. It must create diverse, viable revenue streams and tangible economic opportunities for the people who live and work here. Whether you join us in the field as a researcher, support our work as a benefactor, or partner with us in developing sustainable island enterprise, your involvement helps fund the pathways that ensure both the reef and its community endure.

Francisco Andre Martinez

Director / Executive Board
Lighthouse Reef Research Repository
(Lr^3 "L-R Cubed")


CALM DOWN
IT'S CORAL
NOT COCAINE



CORAL



LIGHTHOUSE REEF ATOLL IS A VITAL CORAL REEF ECOSYSTEM, OFFERING A LIVING LABORATORY FOR MARINE OBSERVATION AND MULTI-DISCIPLINARY CONSERVATION.

ESTD



11,700 BCE

Staghorn coral, *Acropora cervicornis*, grows up to 8 inches per year.
Sometimes the tips are white because the symbiotic algae hasn't established itself yet.

THE CORALS OF LIGHTHOUSE REEF ATOLL, BELIZE



Mustard coral, *Porites astreoides*, helps build the reef's living framework, providing habitat for diverse marine life.

Elkhorn coral, *Acropora palmata*, forms branching reef structures that provide shelter and support for many marine species. Each animal can produce an exact clone of itself.



Gorgonia ventalina, Purple fan coral, are colonies of filter feeding polyps that have 8 tentacles to grab food as it floats by. They angle themselves at right angles to the current.



The family Mussidae includes stony coral like this Brain coral, *Pseudodiploria strigosa.* This animal can grow to over 6 feet and glows under UV light!

A HEALTHY REEF FOR NOW





Often mistaken for coral, these are Christmas tree worms; reef-dwelling tube worms that anchor to coral and filter plankton from the water. *Spirobranchus giganteus*

Coral reefs support a quarter of all marine life!
















2026 TRASH OF THE MONTH

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↙ OBSERVATION



Observation is a core part of the scientific process, and there is an overwhelming consensus from the field that local fish populations are in decline. We know that discussing these changes can be deeply sensitive, especially when livelihoods and family income are tied directly to the water. But that reality is precisely why the need for action is so urgent. As human populations grow and pressure on our marine ecosystems increases, we have a shared responsibility to employ more rigorous scientific studies and put thoughtful, sustainable systems in place today to protect these resources for the future of our children.

To move that conversation forward, the following framework illustrates one concrete example of what modernized, science-based regulations could look like for both reef and pelagic finfish extraction:



Black Grouper: Closed season January 1 to April 30 (protects winter/spring aggregations); Minimum size 24 inches; Proposed daily bag limit of 1 per person (maximum 2 per vessel).

Yellowfin Grouper: Closed season January 1 to April 30 (aligns with primary winter reproductive windows); Minimum size 20 inches; Proposed daily bag limit of 1 per person (maximum 2 per vessel).

Tiger Grouper: Closed season February 1 to April 30 (targets peak spring spawning periods); Minimum size 20 inches; Proposed daily bag limit of 1 per person (maximum 2 per vessel).

Red Hind: Closed season December 1 to March 31 (guards early winter through spring breeding cycles); Minimum size 12 inches; Proposed daily bag limit of 3 per person.

Mutton Snapper: Closed season March 1 to June 30 (covers spring-to-summer multi-month spawning runs); Minimum size 18 inches; Proposed daily bag limit of 5 per person.

Mangrove Snapper: Open year-round with localized monitoring; Minimum size 10 inches; Proposed daily bag limit of 5 per person.

Schoolmaster: Open year-round with localized monitoring; Minimum size 12 inches; Proposed daily bag limit of 5 per person.

Dog Snapper: Open year-round with localized monitoring; Minimum size 12 inches; Proposed daily bag limit of 2 per person.

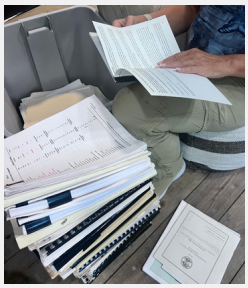
Hogfish: Closed season May 1 to July 31 (protects summer reproductive phases); Minimum size 14 inches; Proposed daily bag limit of 1 per person.

Pelagic Species (such as Wahoo, Mahi-Mahi, and Tuna): Managed via regional international frameworks and vessel-based bag limits, focusing on sustainable surface trolling and effort caps to protect highly migratory open-ocean stocks.



This framework is offered as one potential pathway forward, recognizing that these concepts and specific management strategies require thorough vetting and collaborative discussion among all resource users, scientists, and authorities. Ultimately, true stewardship transcends regulatory compliance; it relies on the intrinsic desire of individuals to do what is right for our natural world. By embracing these principles of your own free will, you become an active catalyst for lasting change.

Organizations like the Belize Game Fish Association (BGFA), international marine groups, and local stakeholders are open to these meaningful conversations and are fully willing to put in the work required to meet global standards for marine protection.



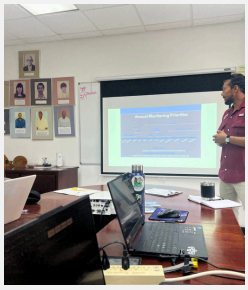
Eco Works

Lr^3 received a valuable archive of maps and field notes from Ms. Colette Grimshaw, created by her late husband Thomas at Eco Works. His historical Lighthouse Reef research will support future conservation, research, and education at Lr^3.



Belize Fly

Belizefly.com offers guided fly-fishing charters to remote offshore waters like Lighthouse Reef Atoll. Anglers target bonefish, permit, and tarpon across pristine flats, backed by top-tier gear and deep local expertise.



LHRC

The Lighthouse Reef Committee meets quarterly to review proposed legislation and provide local stakeholder input. This ensures community voices and regional insights directly inform policies impacting the atoll's ongoing protection and management.



Coconut Pie

Famous for their offshore dive excursions to the Blue Hole, Belize's Amigos Del Mar is equally celebrated for its legendary homemade coconut pie-a sweet, comforting treat served onboard that has become a highlight for visiting divers.



University of Colorado Boulder

Dr. Pieter Johnson is coming to investigate trematode parasites causing black spot syndrome in reef fish. The parasite's abundance on Lighthouse Reef could reveal critical insights into its lifecycle, which relies on transmission through fish to hosts like the osprey.

SCIENCE



CONTRIBUTING TIME TO MAKE A DIFFERENCE

WAKE FOREST UNIVERSITY

DR MILES SILMAN, 15 YEARS ON THE ATOLL







This summer, three Wake Forest University students arrived at Lighthouse Reef Atoll for weeks of intensive field research, with logistical support from Lr³. From pre-dawn snorkel surveys to late-night data uploads, the trio brought sharp methodology to every site. Their objectives: map seagrass cover near Long Caye via point-intercept methods, extract sediment cores for grain-size analysis, and re-photograph transect lines using stereoscopic cameras to track soft-coral change.

The stereoscopic survey built on coordinates from earlier Wake Forest studies, enabling year-over-year comparison of benthic community structure. Seagrass mapping generated cover estimates for a broader spatial model of nearshore habitats. Core samples from subtidal sediments will undergo organic-content analysis–data that may reveal historical sedimentation shifts linked to reef health. Fifteen years of continuous research presence has produced a rare longitudinal dataset each new cohort extends.

From early morning transects to improvised equipment repairs, the field season demonstrated that rigorous science and adaptive problem-solving remain inseparable at Lighthouse Reef.







Not all things were copasetic. The work asked students to sit with uncertainty, adapt when carefully planned methods no longer fit, and keep moving when progress felt slower than expected. In this setting, they learn that meaningful work is rarely easy, but that difficulty is part of what makes it rewarding. Every obstacle becomes an opportunity to ask better questions, reconsider assumptions, and find a more responsive path forward. This is their proving ground: a place where ideas are tested against real conditions, where patience and persistence matter as much as technical knowledge, and where students begin to understand the responsibility that comes with doing work that affects people, places, and living systems. Through observation, collaboration, and repeated problem-solving, they build confidence in their ability to respond thoughtfully rather than give up. The challenges are real, but so are the discoveries. Here, students learn not only how to complete a project, but how to become resilient, curious, and capable practitioners.

The next generation of ocean scientists is already at work on these reefs—driven by the same questions that first drew researchers here, and equipped with tools their predecessors could not have imagined.

One student's original protocol called for monitoring sea cucumber biomass at fixed stations–a sound plan complicated by the animals' high mobility. Within days, marked individuals dispersed beyond their plots. The team pivoted: deploying underwater video along randomized swim paths and developing frame-by-frame counting that converted footage into quantifiable density estimates. It was fieldwork at its most instructive –hypothesis meeting reality, resourcefulness filling the gap.



Madison DiGirolamo
Graduate Student

Olivia Delgado
Undergrad



The Lr³ team assisted throughout: locating study sites across rubble zones, navigating shallow reef passages, and troubleshooting equipment in true field fashion–including a makeshift lap table rigged to hold a sonar unit while kayaking. Their findings will contribute directly to peer-reviewed research based in Belize, and their adaptive methods offer a model for future investigators in dynamic marine environments.

RUSH FORQUER

Wake Forest University
Class of 2026 B.S. | Chem
Environmental Science
Mortor Board Honors Society



Wendy doing scientific observation









Visiting universities bring funding to the atoll, and Lr^3 helps channel those resources to programs, local guides, local scientists, and fisherfolk.





Until next visit, this reef offers a quiet farewell, its living story continues below the surface.



WENDY'S LAB



WENDY

LR³ RESIDENT
BIOLOGIST |BS, MTM


These small rocks might be a big piece of the puzzle



GEOMORPHOLOGY

A Look at the Prehistory of the Atoll Through the Eyes of a Geologist

Dr. Brian Kelley, Penn State University



Beneath the calm waters of modern coral atolls lies a deep geological timeline that scientists are still actively working to untangle. Dr. Brian Kelley of Penn State University is leading an ongoing investigation into the origin of these structures, revisiting field data and foundational studies gathered by prior researchers to reexamine baseline concepts of how these marine environments formed.

Early geological surveys established a crucial framework for studying localized platform development, mapping underlying limestone formations and initial core samples. Rather than treating early findings as definitive, Dr. Kelley is applying modern technology to re-evaluate legacy datasets with far greater precision.

This ongoing work leaves many questions open. Researchers are currently exploring how fluctuating sea levels during past glacial cycles may have impacted limestone weathering and carbonate accretion. Initial comparisons suggest that regional growth patterns might be more variable than early models assumed.

With no final conclusions reached yet, Dr. Kelley's work highlights the evolving nature of geological research. Re-analyzing historical data alongside modern research tools offers a fresh vantage point, raising new hypotheses about the natural forces that shaped these atolls long before human arrival.

Working with Lr³ is collaborative unlike traditional field stations. Andre & Wendy are actively participating in the research at a much deeper level.







FEATURED DONORS

ARTHUR & MARGARET DAVIS

Arthur and Margaret Davis first came to Lighthouse Reef Atoll the way many visitors do: by water. As lifelong divers, they had spent years exploring reefs throughout the Caribbean. At Lighthouse Reef, they found more than remarkable underwater beauty. They also discovered a dedicated effort to better understand and protect the atoll.

They wanted to know how they could help in a meaningful way. So they took the time to listen—to understand what was most needed, where resources were limited, and where sustained support could have the greatest impact. That process led them to become Lr³ Legacy Donors, making a long-term commitment to the future of Lighthouse Reef.

Their support has continued to grow. Most recently, Arthur and Margaret funded plastic cleanups and mangrove replanting across the atoll—practical work that protects the reef, strengthens coastal habitats, and makes a tangible difference on the ground.

Just as important, they have remained engaged. They continue to ask questions, stay connected to the work, and give with a clear understanding of what their support makes possible.

Lighthouse Reef is fortunate to have partners like Arthur and Margaret Davis: people who care deeply about the place, take the time to understand what it needs, and remain committed to its future. Their generosity is helping ensure that the work of protecting this remarkable atoll can continue for years to come.

ASSETS FOR THE SCIENCE COMMUNITY

Lr³



EAST LONG CAYE PIER AND WEATHER STATION

HERPETOLOGY



VENETIA S. BRIGGS-GONZALEZ, PH.D.

At Lighthouse Reef Atoll, the study focuses on an isolated population of American saltwater crocodiles, *Crocodylus acutus*, occupying the brackish lagoons inside the reef. The site offers a rare opportunity to document a population at the boundary of marine and terrestrial habitat, within a closed and highly vulnerable ecosystem.

Fieldwork on the expedition is led by Professor Dr. Venetia Briggs-Gonzalez, with Dr. Sergio Balaguera-Reina and Dr. Mellisa Miller. The work includes tracking, tagging, and monitoring individuals in order to establish baseline data on movement, distribution, and habitat use. The objective is to build a scientific record that can support conservation management and long-term protection of the atoll.

The crocodile population functions as an indicator species within the broader mangrove-lagoon system. Because the animals occupy the brackish interior lagoons, changes in their distribution or behaviour may reflect shifts in the condition of surrounding habitats, tidal exchange, or shoreline stability. For that reason, the study has significance beyond the species itself.

The atoll's mangroves are part of the infrastructure of the ecosystem. They stabilize shorelines, support the lagoon margins, and form the habitat matrix in which the crocodiles are observed. Documenting this relationship creates a permanent reference point for future research and conservation planning.



Night-time crocodile tracking is no small feat.



ancient city

In a restricted marine protected area, reliable field data are not supplementary; they are foundational. The value of the expedition lies in its record: a measured account of a population, a habitat, and the ecological conditions that connect them.

Overall, travel is a valuable and rewarding experience that can broaden our perspectives, challenge us, and help us grow as individuals.

The value of the expedition lies in its record: a measured account of a population, a habitat, and the ecological conditions that connect them.



Tricolored herons, *Egretta tricolor*, aren't as patient as other herons. They will wade into shallow water and then dance and turn quickly to find fish to eat.



Photo by Joseph Ho

FEATURED BOARD MEMBER

JOSEPH HO



Joseph Ho does not simply serve on a board – he shows up. From Lr³'s earliest days, he has been present at every turning point: on-site during exploration, engaged in development, donating directly, seeking other donors, networking, advising, and cheering the team forward at every milestone.

He returns two to three times a year, drawn by a deep love for the reef, joining research, exploring with his camera, diving, or simply finding stillness on the water.

Professionally, Joseph is a renowned engineer at BAE Systems Space & Mission Systems (formerly Ball Aerospace), where he leads innovative development and holds two patents. That same inventive rigor serves Lr³ whenever he weighs in on strategy or planning.

To Joseph: thank you. Your generosity, presence, and belief in this work have been foundational. Lr³ is stronger and more joyful because you are with us , every step of the way.



Adjacent page, carousel photos: Allison's Anole, *Anolis allisoni,* Bermuda Chub, *Kyphosus sectatrix,* Red footed booby, *Sula sula,* Queen butterfly, *Nymphalidae*

Large photo: A frigatebird, *Fregata magnificens,* chases an osprey hoping to steal his catch. Young frigatebirds will practice by chasing each other with sticks in their mouths.






JO HO

PHOTOGRAPHY

2026



Feature

THE HUMAN FACTOR

At 6:15 AM on a Wednesday, the pier at Long Caye sounds like a workshop set over open water.

Under the salt-crusted tin roof of the dive shed, a heavy diesel compressor coughs, catches, and settles into a rhythmic, deafening thrum, pumping air into aluminum 80s. ELVIS SOLIS–resort manager, dive instructor, and fisherman–stands at the staging area dictating adjustments to a crew member fixing the diesel line. Elvis is everywhere at once: starting the two-stroke outboards, directing which tanks and gear go into which boat, and organizing the deck before the morning tide runs out.

Across the dock, scuba tanks clink like iron bells as deckhands haul them past weathered pine pilings, their boots heavy on planks that have been replaced five times in thirty years. The morning chatter cuts through the machinery–a fluid, rapid exchange of Belizean Creole and Spanish, punctuated by low laughter and hands pointing east toward the reef crest. Nobody uses radios. Out here, news travels by side-talk, dockside gestures, and the shared knowledge of who slept where and whose engine sputtered on the run back from the Blue Hole yesterday.





Elvis Solis

Then comes the horn. Deep, reverberating across the lagoon.

The supply boat comes on Wednesdays and Saturdays. That is the first thing you learn at Lighthouse Reef, because it governs everything else. Miss the boat and you are short on ice, diesel, fresh water, patience. The schedule is not a convenience. It is the metabolism of a place that has no margin.

On any given morning the cast assembles without rehearsal: resort owners checking bookings on phones held high for a sliver of signal, half of them mid-negotiation over a property that changed hands and still has no working generator. Managers dispatching staff with tools borrowed from the next island. Guides rigging boats – if the boats are running; two are in repair this week, so three guides share one skiff. Audubon rangers heading out to patrol with replaced gear delayed until next month's budget. Coast Guard at the dock, enforcement limited to days when there is fuel in the tank. Fishermen – several of them underpaid rangers who fish to cover what the stipend does not. Private landowners checking on properties they visit twice a year. Instructors testing regulators. Everyone depending on systems so fragile a single late boat unravels the morning.

And along the windward beaches, where the trade winds drive deep-water flotsam onto the reef flat, a parallel routine unfolds. The same ocean currents that bring marine life to the atoll occasionally carry waterproof packages jettisoned from offshore transit boats. To a local fisherman, a washed-up brick of Polvo Blanco isn't an abstract news story—it is the "Lighthouse Lottery." A single walk along the shore can yield a sudden, life-changing gamble resting on the sand. It is a subtle, unspoken reality that shapes how the coast is watched and traversed, proving that even the most remote reef is tied to global human currents.

Wednesday and Saturday the supply boat comes. Between those days you make do or you go without.

The reef does not care about your business plan. It cares about whether you showed up, did the work, and left things no worse than you found them.

CISCO PACHECO, 55, stands on the edge of the dock, replacing a loose board on the outer walkway. He has spent thirty years on Lighthouse Reef. That is long enough to watch three owners come and go, two docks rot and get rebuilt, and one generation of guides replace another. He is a skilled laborer, the person people call when the pier falls down, a sea wall gives way, or garbage starts piling up. He repairs decks, sprays for bugs, handles plumbing even though he is not a plumber, serves as a backup guest guide, and clears property markers for prospective buyers. He does not romanticize the place. He maintains it.

"You build it strong, but the sea don't care," Cisco says, tapping a fresh bolt into the frame. "Salt eats the iron. Wood swells, then it rots. I replace these same pilings five times now. People come from outside, they think the island just stays here by itself. It don't. You turn your back for two months, the bush and the sea take it all back."

He looks up as the supply boat approaches the dock. "If you don't have the timber or the hardware on the boat today, you wait till Saturday. And the reef don't wait for Saturday."

Elvis stands near the supply boat as it maneuvers alongside, considering the island's fragile reality: as human populations grow and pressure on the coast builds, stricter regulation of the atoll is inevitable. But regulation without alternatives leaves people stranded.

If an NGO like Lr³ is going to work out here, it cannot just be about enforcement and closures. It has to generate real capital and direct those funds into programs that provide tangible opportunities for everyone tied to this water. Conservation only works when it builds diverse revenue streams—giving fishermen, guides, and island workers new pathways to thrive as the rules shift. Money leads the way.



Cisco Pacheco

The operation runs on people like Cisco and Elvis – people whose names rarely appear in the story, whose labor is invisible until it stops. Their work is a form of continuity: noticing what is failing, finding what is needed, and keeping a remote enterprise moving between visits, deliveries, and changing demands. When that labor is neglected, the consequences are immediate and cumulative. The whole operation can stall over a broken prop, a missed shipment, or the small failures that gather when no skilled hand is there to fix them.

What holds it together is not policy or investment alone. It is choreography. Elvis managing the tank fills and boat runs. Cisco securing the dock underfoot. Local workers weighing the changing tides of regulation and livelihood. The resort manager who knows which fisherman will sell lobster on credit. The guide who fires off a quick WhatsApp text when hitting that single, well-known patch of signal mid-crossing on the 50-mile, two-hour run from the mainland. The ranger who logs the same data point for the fourteenth year running because continuity is the only currency science accepts. The Coast Guard officer who looks the other way on a minor infraction because enforcing it would strand someone overnight. The landowner who pays for a new dock because the old one is a liability and nobody else will. These are not transactions. They are the social architecture of a place that has no backup system.

That is where Lr³ steps in—gathering the funding and building the bridge toward those needed revenue streams, ensuring that as regulation comes, opportunity follows.



The reef offers no editorial comment. Neither do we.

A shift in ownership changes who talks to whom. A late supply run changes the rhythm of the day. A full house changes the pressure on the kitchen, the boats, the reef itself. Sail-boat fishermen and motor-boat fishermen divide the water by unwritten agreement. Foreign owners and local owners divide the clientele by price point. Instructors and guides divide the narrative – one sells adventure, the other sells knowledge. Everyone shares the same weather, the same single spot of cell signal out on the water, the same Wednesday boat.

Everyone shares the same weather, the same single spot of cell signal out on the water, the same Wednesday boat.

That is what conservation looks like when you strip the brochure away. Not protected water and correct signage alone, but memory, labor, and the uncelebrated competence of people who know where the screws are loose, where the current turns, which habits make a place last – and what happens when someone finally stops showing up.



Aggressor Live Aboard ships are a familiar night time sight. Call for bookings: +1-720-260-8858



Cattle egrets are frequent visitors and aren't skittish around conscientious humans. *Bubulcus ibis* follows us around to eat the bugs we stir up as we walk through grasses.



Half Moon Caye









Coral, sea turtles and mangrove forests....Its a privilage to have this in our front yard

UNESCO WORLD HERRITIGE **NATIONAL PARK** **MARINE PROTECTED AREA**

BELIZE AUDUBON SOCIETY

Belize Audubon Society has cared for Lighthouse Reef Atoll with devotion, science, and stewardship for generations, helping protect its beauty, wildlife, and future. Their long-standing dedication is truly inspiring, and their work deserves deep gratitude and celebration for the extraordinary difference they continue to make every single day for Belize and for this remarkable place across these precious waters and coral ecosystems everywhere possible.








BEST Day EVER
ALORA & DREW COZZI LIGHTHOUSE REEF JUNE 2024

FAMILY ONLY



Photo Credit: JB Young

An intimate wedding on Lighthouse Reef, where ten loved ones gathered in the quiet of sea and sky.

With no crowd and no ceremony beyond the essentials, the day unfolded in a calm, unhurried rhythm. The reef held the moment gently, the sound of water, the open horizon, and the closeness of family made the celebration feel both small and complete. In that solitude, every glance, every laugh, and every blessing carried more weight. It was a wedding shaped not by spectacle, but by presence.



At Ābri Sauvage, hospitality felt effortless, thoughtful in every gesture, yet never intruding on the quiet beauty of the day. The care of the hosts gave the celebration a gentle ease, making the gathering feel both intimate and deeply welcomed.

"What made it beautiful was how little it needed, only family, the reef, and the hush between them."

Ābri sauvage











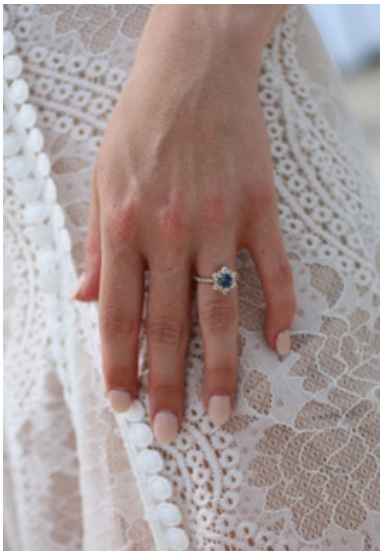


Photo Credit: JB Young



Photo Credit: Angie Wilder

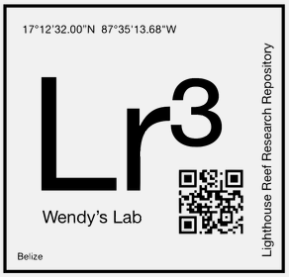
Lawrence Covell

SALVO

US NAVY WING P 5.8 COMBAT RUBBER RAIDING CRAFT (CRRC)



Made for the United States Oceanography Mine Warfare Center (NOMWC) in the Stennis Space Center, Mississippi. Today in service at Long Caye on Lighthouse Reef Atoll Belize used by Lr³ for science exploration.



Tel: +1-720-260-8858



Ābri
sauvage



The Carlson Family donation

More than fifty pieces of Coors laboratory porcelain and specialty equipment were donated to the Lighthouse Reef Research Repository, preserving a family legacy of craftsmanship and scientific innovation. The collection has been repurposed to support ongoing marine and climate research at Wendy’s Lab.

Locals



The Brown Pelican :

Pelecanus occidentalis

Local resident for 30,000,000 years

Hummm...



Amazilia rutila, the Cinnimon Hummingbird is a year-round resident.

A shy reef-dweller living in a borrowed shell



(01) **/travel mode**



(02) **/self defence mode**



(03) **/Attack mode**

HERMIT CRAB (PAGUROIDEA)



A beautiful silver garden spider set up her distinctive ZigZag web on the exterior of Wendy's Lab.
Argiope arentata



FROZEN IN TIME...

A land crab molt shell left behind.
Half Moon Caye

Ābri
sauvage

American Museum of Natural History

Cornell University

THE VANGUARD EXPERIENCE: RECORD HISTORY

A Private Expedition for Legacy Donors

Your role as a Vanguard is crucial. You will directly enable and participate in the fieldwork to achieve these landmark objectives:

- Discover New Species: Join the hunt for insects entirely new to science. Be present when a new life form is documented using cutting-edge genomic and morphological methods.
- Establish a Permanent Record: Help systematically survey and document species, creating foundational data that will be accessioned into the AMNH collections forever.
- Build a Lighthouse Legacy: Foster collaborations with the local research station, ensuring your support translates into lasting conservation impact at Lighthouse Reef.

The Ābri Sanctuary: Luxury with Purpose

The adventure of the field is balanced by the unmatched quiet luxury of Ābri, where your stay directly funds the Lighthouse Reef Research Repository. This is scientific immersion matched with unparalleled comfort.

- Unrivaled Scientific Access: Work side-by-side with Drs. Ware and Moreau; enjoy private evening sessions on genomics and evolutionary biology.
- Bespoke Accommodation: Retreat to your private, premium sanctuary at Ābri, blending seclusion and comfort on Long Caye.
- Gourmet Provisioning: Enjoy customized, gourmet meal service tailored to your preference—luxury provisioning in the wild.
- Historical Documentation: Receive a bespoke Vanguard Expedition Journal and secure a permanent place in the official AMNH expedition log.
- Legacy Recognition: Includes the possibility for new species to be named in recognition of your profound contribution.

Secure Your Place in History

This is a rare opportunity to move beyond passive philanthropy and become an active scientific pioneer. Your support ensures this critical chapter of natural history is written.

Step into The Vanguard Experience and secure your legacy.

More Information:

- Minimum Age: 8 years
- Custom trips always
- Available Year-round

RESERVATION BY PHONE
+1-720-260-8858

Contact Us



Despite hosting an incredible variety of ant species, the local population remains almost entirely unstudied. We have the researchers; we need additional funding.

Call for Researchers

Each morning, juvenile lemon sharks slip through the shallows of Lighthouse Reef Atoll, Belize—unmonitored and unstudied. A hidden nursery lies somewhere in these waters, its exact location unknown, its role in the wider Caribbean ecosystem unmeasured. We are looking for bold researchers ready to help us find it.















Visitors

SAVANNAH BIKINI
PRIVATE

FEADSHIP
ROYAL DUTCH SHIPYARDS

The Emerald Shadow Over Belize: Inside the Savannah's High-Seas Flex

Anchored at Belize's Lighthouse Reef, the 84-meter superyacht Savannah looks less like a boat and more like a liquid-silver mirage bleeding into the Caribbean blue. With its metallic sea-foam hull and boundary-pushing hybrid pulse, it's the ultimate flex in floating architecture.





But the Savannah isn't just lounging in paradise; it's currently riding a wave of cinematic notoriety. The vessel just wrapped its star turn as the primary location for Netflix's psychological thriller The Woman in Cabin 10, starring Keira Knightley. From its submerged Nemo Lounge to the glass-walled decks, it's gone from a billionaire's playground to Hollywood's ultimate, claustrophobic set piece.

CANTIERE
DELLE MARCHE
explorer yachting starts here



NASIBA BY HYDRO TEC & WINCH DESIGN

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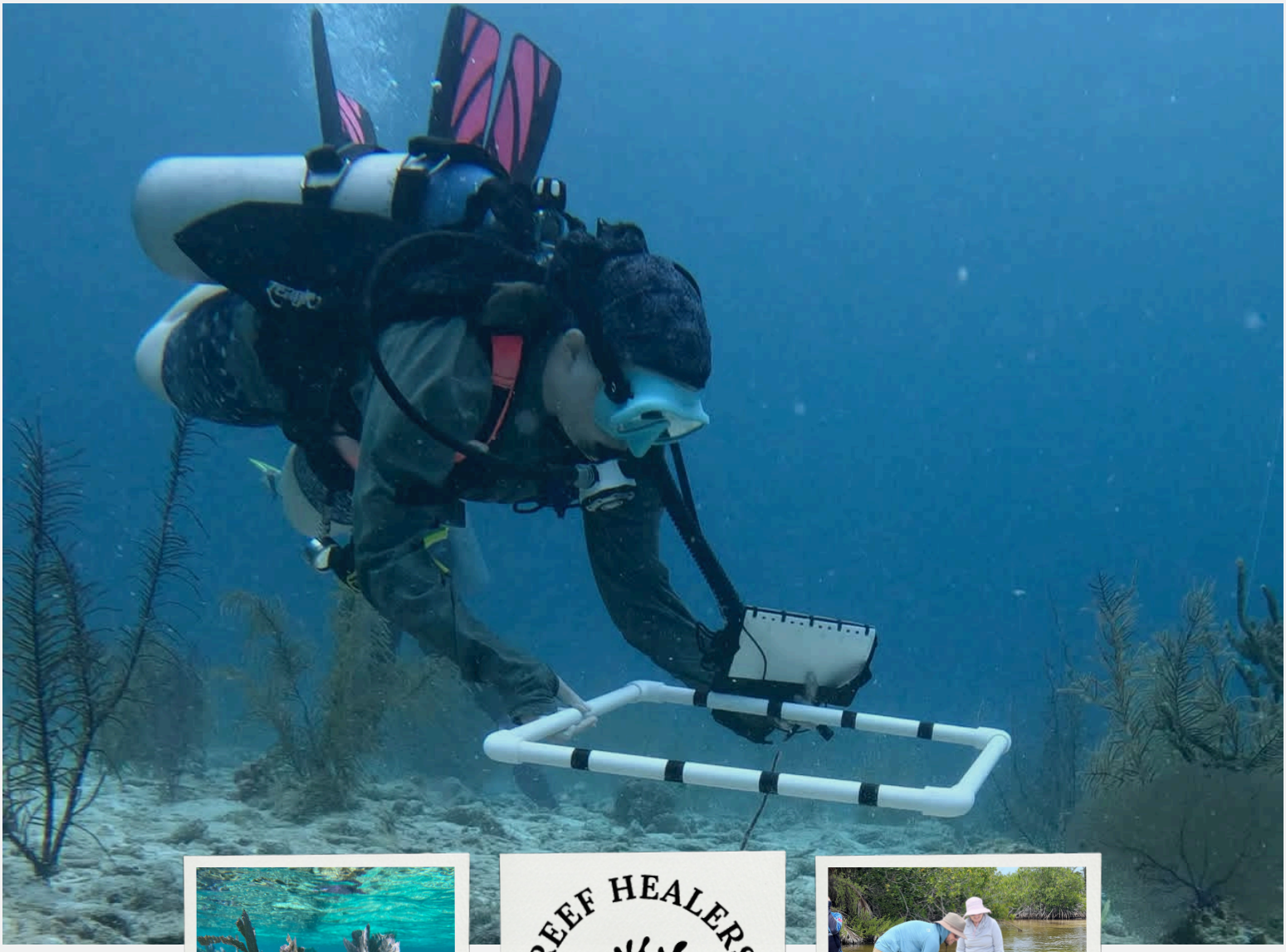
NOT A SINGLE FISHERMAN LIVES ON LIGHTHOUSE REEF ATOLL BUT MANY CALL IT HOME

The reef lies far out where the water turns dark. No man lives there. The wind blows hard across the low keys, and the atoll is lonely and remote. Yet the fishermen of Belize call it home.

They come in small skiffs, tracking the white water, their hands calloused from the lines. Like the old man Santiago, they know the isolation of the deep gulf. They do not own the reef, but they belong to it, sleeping under the stars, bound to a wild sea that gives and takes away.









REEF HEALERS™
EST. 2023
RIVERS HEALING REEFS



Mainland Connection

May 30th –June 3rd, 2026
Lighthouse Reef Atoll

The Reef Healers Belize trip took place over 5 days and 4 nights at Lr^{3}'s off-grid eco-research station on Long Caye, more than 55 miles offshore. Participants dived and snorkeled coral gardens and reef walls, shared meals and sunset moments, and experienced island life at a remote field station.

Participants cleaned up trash from the beach. The trip highlighted the connection between rivers and reefs, showing how upstream conditions can affect reef health. The trip supported baseline reef research and future coral-restoration efforts at Lighthouse Reef.

RH 001 BELIZE TRIP REPORT

Travelers

LIGHTHOUSE REEF ATOLL IS HARD TO GET TO, UNPOPULATED & PRIVATE

NOT A SINGLE RESTARAUNT OR BAR

30,000 SCUBA Divers visit Lighthouse Reef Atoll per year on average.





Escape
Explore
Chalenge yourself







TRAINED TO STRIKE: HOW LIONFISH CULLING IS CONDITIONING SHARKS ON LIGHTHOUSE REEF

On marine reefs where invasive lionfish are actively managed, divers using pole spears to cull fish can inadvertently alter local shark behavior. Over time, sharks exposed to culling activities begin pairing specific sights and sounds—such as the profile of a speargun, the motion of a camera on an extension pole, or the splash of a entering diver—with the presence of wounded fish. Rather than learning to independently hunt lionfish, apex predators develop a conditioned response, learning to associate human presence and specialized diving gear directly with an available food source. Standard marine conservation guidelines generally recommend against practices that feed or habituate wildlife to prevent modifying natural foraging habits.

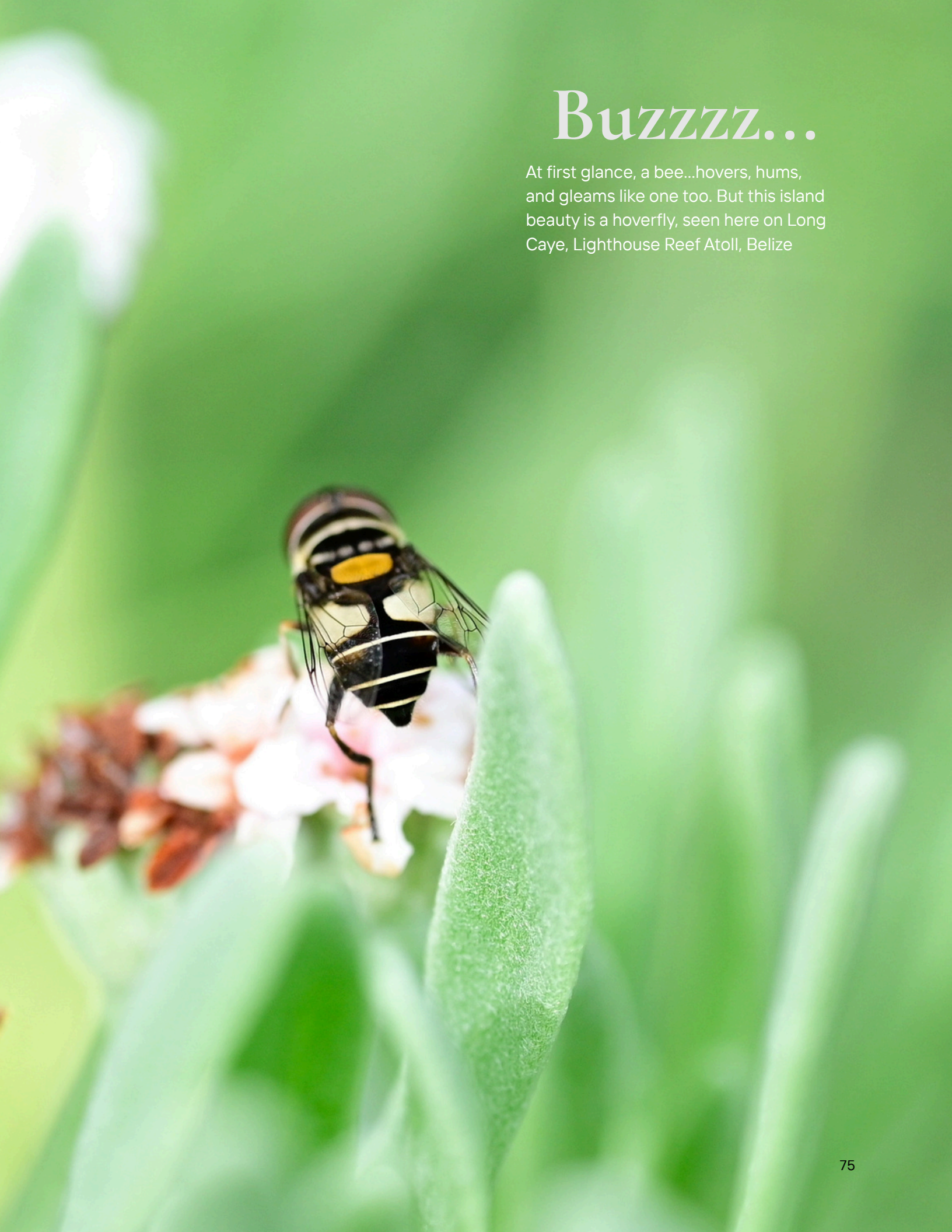


FOOD CONDITIONING & PUBLIC SAFETY

When marine wildlife routinely receives food during human interactions, subtle environmental cues transition into conditioned stimuli that elicit feeding responses. Each rewarded interaction reinforces this connection, lowering the animal's natural avoidance of people and increasing approach behavior toward boats, divers, and equipment. The safety implications of this behavioral shift gained attention in August 2024, when a 15-year-old diver was bitten by a shark at Lighthouse Reef Atoll—an area where lionfish culling and cleaning activities regularly occur. Wildlife management research indicates that once conditioning takes place, these altered behavioral patterns can persist, creating ongoing interactions between habituated predators and recreational ocean users.



...even the flies are beautiful here



Buzzzz...

At first glance, a bee...hovers, hums, and gleams like one too. But this island beauty is a hoverfly, seen here on Long Caye, Lighthouse Reef Atoll, Belize



A PRIVATE STAY ON LIGHTHOUSE REEF ATOLL, BELIZE