



Paul Greenberg (right) helps flush a lionfish from a reef. BELOW: Lionfish spines are venomous.

## An Invasivore's Guide to Hunting & Fishing

Invasive fish are a serious threat to our oceans—and eating them is one way to fight back. A writer grabs scuba gear and a spear gun in pursuit of the beautiful, venomous and surprisingly tasty lionfish.

OVER THE COURSE of the last half-century, American aquarium enthusiasts began importing Indonesian lionfish. Attracted by the fish's zebra stripes and exotic appearance, they had no idea that a series of storms and accidents in the 1980s and '90s would release handfuls of these fish into the open ocean. Once free, the escapees bred like bunny rabbits (actually hundreds, if not thousands of times faster than bunny rabbits) and proceeded to eat all the colorful reef fish they could get their jaws around. Radiating out from Florida, these predators were joined by subsequent aquarium escapees, and soon, lionfish population growth achieved enough momentum for them to stage a full-scale invasion of the tropical Atlantic.

When native fish first encounter lionfish, they suffer from something

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that biologists call “prey naïveté.” They dart playfully around the lionfish’s coral-like tendrils. They cozy up to its flanks and hide in its branching fins. And then the lionfish eats them. Many biologists have concluded that the only way to stop the lionfish from eating everything is to find something that eats the venomous, invasive lionfish. And the only creature that has shown any interest in eating the venomous, invasive lionfish, thus far, is us.



PHOTOGRAPHS: STUART COVE'S FINPHOTO (SCUBA DIVERS), ANDY DEHART, NATIONAL AQUARIUM (FISH)

As someone who both fishes a fair amount and feels a fair amount of guilt about it, I see lionfish as a way out of my moral quandary: Here's a fish that really *ought* to be caught and eaten. But it turns out the only effective way to rid a reef of lionfish is to don scuba gear and scoop them up with a net or stick them with a spear (lionfish can grow up to one-and-a-half feet long). And I am a rotten scuba diver. The last time I dove, I lost my buoyancy and nearly disappeared into a 400-foot-deep Hawaiian abyss.

My trepidation was therefore apparent when I called Lad Akins, the Director of Special Projects and lionfish point person for the nonprofit Reef Environmental Education Foundation (REEF), to ask him if I could join him, members of REEF and scientists from Washington's National Aquarium for some lionfish hunting just outside of Nassau in the Bahamas. In the careful way of good professional divers, Akins took a pause before he replied to my request. "If you come down, we'll get you in the water and check out your skills," he said. "But I'll tell you one thing: We are not going to put a spear in your hand."

**E**ATING INVASIVE SPECIES to save native ones, or "invasivorism," as the *New York Times* recently dubbed it, is now officially a trendy thing to do. Alice Waters of Berkeley, California's famed Chez Panisse and a handful of other chefs have taken to hosting the occasional invasive species dinner, where guests eat anything from pesky Asian carp to Chinese mystery snails. Chef Bun Lai at the innovative sushi restaurant Miya's in New Haven, Connecticut, has gone so far as to create an invasive page in his menu. The trend has even spread to home cooks: Michael Pollan, at work on a book on cooking, wrote me from his kitchen in Berkeley, "We're all eating a lot of feral pig out here these days."

While invasivorism is largely viewed as a positive development, short-lived foodie fads are no match for the lionfish population bomb. According to biologist James Morris at the National Oceanic and Atmospheric Administration (NOAA), to effectively control lionfish in the Caribbean we would have to eat 27 percent of the total population every month for a year. At first that seemed doable, but when I asked Morris what the total lionfish population was, he shrugged: "We just don't know. Indeed, battling the lionfish might be a Sisyphean task. But to do nothing about the problem just seems plain wrong."

And so, though I was nervous about diving again, I was eager to throw my own personal monkey wrench into the lionfish gearbox. Unfortunately, both Akins and REEF board member Andy Dehart thought it best to relegate me to the B-team snorkel patrol for my first dive. As Dehart and I suited up, I probed him for details on capture techniques and, most crucially, what a lionfish sting feels like.

"It's worse than a jellyfish," he said, "but not as bad as a stingray. Actually, the most noticeable symptom is excessive swearing."

Dehart and two other divers slipped below the surface of the water while I snorkeled above. What transpired looked like an odd combination of Kabuki theater and dentistry. The dentistry part came first, as they combed over the tooth-like bulge of a reef, working the lionfish out with the pointy ends of their collecting nets.

## INVASIVES ON THE MENU

Some people think eating invasives is the best way to get rid of them.



### RAINBOW SMELT

The sardine-size fish destroy native vegetation in the Great Lakes. **Shaw's Crab House** in Chicago serves the smelts fried. *shaws-crabhouse.com*.



### ASIAN SHORE CRAB

Tiny soft-shell crabs compete with indigenous East Coast crabs. New Haven, Connecticut's **Miya's** offers them in a roasted potato skin roll. *miyassushi.com*.



### ASIAN CARP

These out-eat native Great Lake species; customers eat them blackened or sake-steamed at **Starfish Brasserie** in Bethlehem, Pennsylvania. *starfishbrasserie.com*.

And then the scene suddenly switched to Kabuki. A lionfish, flushed from its lair, alighted on the stage of the reef head, decked out in all its Indonesian glory—eagle-feather pectoral fins spread wide, venomous dorsal spines fully extended. It seemed to be saying, “Honorable guests, were you not informed? I am quite dangerous.” Dehart and his crew ignored this. They each spread out a pair of billowing nets, mirroring and overshadowing the lionfish’s own display. The fish widened its eyes when it saw the counter-display, as if to say, “Interesting. It appears you humans have talents similar to mine.”

Still, the lionfish would not be tamed. Even though it swam the slow, unconcerned stroke of a creature that nothing eats, it could also dart into new nooks in the coral, frustrating everybody. (Akins asserts that lionfish learn from failed capture attempts). It took five minutes for three divers to successfully corner the fish, net it and transfer it to a capture bag.

In the middle of it all, I saw another lionfish scoot unnoticed between a gap in the divers. I made a high-pitched “Eeeeeek” to try to alert them. If I couldn’t be a lionfish assassin, I at least wanted to be a lionfish snitch. But the fish sneaked into another crevice and disappeared.

After 40 minutes, Dehart and his companions surfaced with a total of six fish. Were this a commercial operation, the professional diving time, gear rental and other accoutrements would have brought the damage for this tiny seafood haul to about \$100 a pound. And there was collateral damage: Dehart’s hand had been stung.

“How does it feel?” I asked him when we were back aboard. Dehart flexed his hand, furrowed his brow and let loose an expletive not fit for print.

**W**HILE A LIONFISH STING feels awful, lionfish flesh actually tastes quite good. Lionfish-as-food promoters emphasize that the fish are venomous when they sting but not poisonous to consume (the venom is contained only within the fish’s spines, not in its flesh). In fact, Akins is in the early stages of working with Brooklyn, New York–based seafood distributor Sea to Table and various restaurants to try to promote the lionfish as a food fish.

Toward the goal of further promoting consumption, I helped clean some of the lionfish back at the dock. Most would go to Washington, DC, to be served at two invasive-species dinners at the National Aquarium. Before filleting, we carefully clipped off the spines, which would serve as appetizer skewers. With the spines gone, I could then safely grip the fish’s head securely by holding on to the pair of abrasive bony cheek protrusions it uses in courtship rituals. Then I made a standard fillet cut down either flank, loosening flesh from bone. The result: two pearly white slabs as firm and moist as any high quality snapper.

Caribbean natives liken lionfish to hogfish, a prized local delicacy. Off-island chefs cook with it too. Katie O’Donnell, the chef de cuisine at the esteemed New York City seafood restaurant Esca, says she likes how well the mild flavor pairs with other ingredients. Having eaten lionfish both raw (right off the filleting table) and cooked (deep-fried and grilled), I believe it would be fine in any white-fish recipe.

Versatility in the kitchen probably won’t be enough to get lionfish onto many US restaurant menus, though. For that to happen, a two-front war of marketing and procurement must be waged. First, to justify the cost, the public must be convinced that the lionfish is more than just a plain white piece of fish. The sustainability angle certainly helps, but some people feel the best way to jack up the price—necessary to make catching lionfish economically viable—is to emphasize its venomous mystique. The invasivore chef Bun Lai thinks that, like the famously toxic pufferfish eaten as fugu in Japan, the lionfish, “with its exotic appeal and aura of danger,” has genuine “star potential.” Akins and some Bahamian friends toyed around with popularizing the idea that it’s an aphrodisiac, coining the marketing tagline, “Eat lionfish and put some sting in your ding.” And it does seem as if the fish is hovering right on the edge





Greenberg shows off his catch. A Kevlar glove protects against stings.

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of celebrity consciousness. Producers of *Iron Chef America* have considered using it on the show, but then decided that its venomous spines presented a considerable safety challenge for chef-testants rushing to grab the secret ingredient.

The second front in the lionfish-as-food war—ensuring a steady, significant supply—is trickier. Chefs love exotic new ingredients, but what they need is consistency. And with lionfish mostly coming up from the islands in fits and starts from random dives, they make a pretty unreliable blue plate special. Bahamian fishermen I spoke with positively bristled when I mentioned the idea that they become America’s lionfish providers. “No, mon,” one fisherman in a Rasta cap told me as he sorted snapper under the Paradise Island bridge. “That fish be poisonous!” Sean Dimin of Sea to Table gets many lionfish requests from chefs but has managed to put together only a few diver-supplied shipments. He’s also been involved with NOAA in trying to design a way of catching them that doesn’t require scuba gear. Since lionfish prefer live fish over dead bait, Dimin explains, “The idea was to put a clear plastic soda bottle with a live fish inside and then put that inside a traditional fish trap. It looks like the bait fish are just swimming around waiting to be gobbled up.”

Finally, there is a valid argument that turning lionfish into a food fish might come back to bite us. “Once you create a market and put infrastructure into place, consumer demand will be ongoing,” says the DC-based chef and sustainability advocate Barton Seaver. “In a weird twist, financial interests will begin to lobby for the protection of lionfish stocks.” Seaver points out that this has already happened with invasive smelt in the Great Lakes. Other effects from lionfish hunting could include the overfishing of native species. In the Bahamas, where commercial divers are limited in depth and range by snorkeling-only spearfishing regulations, it’s conceivable that they may start shooting a few deep-dwelling grouper while using scuba gear to capture lionfish.

But there is another potential lionfishing fleet that could have a kinder, gentler approach: America’s millions of recreational scuba divers. Not only are the members of this fleet inherently sensitive to the other marine life they encounter, they also charge nothing to catch lionfish—in fact, they might willingly pay for the privilege. The question is, how feasible is lionfish hunting for the average tourist diver? As a below-average diver with an above-average investment in the sea, I decided it was my duty to get over my trepidation and give it a shot. If I could do it, anyone could.

With a capable instructor from Stuart Cove’s Aqua Adventures (30 minutes from downtown Nassau), five dives was all it took to get me lionfish-hunt ready. Cove says his is one of many local dive centers that are starting to offer lionfish-hunting packages. Some centers have even turned the hunt into competition—a kind of rodeo—awarding prizes in categories like “largest catch.”

On my first dive, my instructor led me to the side of a wreck, pointed and waggled his fingers above his head—the international underwater signal for “There’s a lionfish!” On my second dive, he guided me to the edge of a terrifying 600-foot drop-off, but unlike my dive accident in Hawaii, I found my buoyancy and floated calmly in the water column. Later, I discovered a lionfish all by myself. I watched the fish feed, angled down like an Apache helicopter, its big pectoral fins crowding the naive prey into the coral before it scarfed them down. It actually made me angry. And in the process of getting angry, I’d lost every trace of fear. It was game time.

On my last dive, Akins entrusted me with a pair of my very own capture nets and a Kevlar glove. Once we were hovering over the reef, we quickly found two lionfish hiding out. After some prodding, one slipped out to the right. Even though I’d told myself not to swing my net too fast, I did just that... and missed. I inverted myself and then saw him tucked in an inaccessible nook. While I was trying to complete my lionfish-killing training, the lionfish had managed to complete its human-avoidance training. I pawed uselessly at it with my net until I heard what sounded like a scream from below. I turned to see that it was Akins making an “Eeeeeek,” trying to draw my attention to a lionfish was strutting in all its glory. Not a huge one, but clearly an ignorant one.

Slowly I lowered myself into position. I waited for Akins to block the fish’s escape route and then put my nets out. It swam away from Akins and drifted slowly into my net. Steadying myself, I clamped my other net across the top and trapped the fish on the sea floor. I stared at him, he stared at me. Two little protrusions that he usually used to lure in prey no longer looked like the dastardly mustache it had been. Now, the fleshy tassels drooped bottomward. The lionfish was frowning.

Akins opened the capture bag. I remembered to get the Kevlar glove from my vest, grabbed the lionfish by its bony cheeks and guided him into the capture bag. When all was secure I turned to Akins. His hand, big and white, came up in an unfamiliar signal, his palm magnified one-and-a-half times, as all things are underwater. Did he want me to stop? Had I done something wrong? Then I realized he was offering a most above-water gesture—a slow motion, absolutely silent but intensely gratifying high-five.

If none of this is enough to turn you into a lionfish hunter, I’ll leave you with one last image. With my air running low, I swam to the dive rope to take a “safety stop”—a three-minute time-out to ensure all is well before heading to the surface. As I waited, I thought about something I’d read before my scuba reeducation—that invasive species like lionfish now represent, after habitat destruction, the single biggest threat to biodiversity on the planet. And, as with habitat destruction, invasive species are all our fault. Looking at the reef below, where other divers patiently gathered more lionfish, literally plucking them from the rock, I realized that what I was witnessing was not so much hunting as it was gardening. Like it or not, we have become the master landscapers of the oceans. Whether it’s food fish that we catch or colorful reef fish that we admire, we can no longer expect these things to continue without our stewardship. A lionfish hunt is a real way to do a little stewarding and give something back to the sea. And in the process, you might just wind up with dinner. ●

## HOW TO JOIN THE FISH HUNT



**STUART COVE; NASSAU, BAHAMAS** Recreational scuba spearfishing is illegal in the Bahamas, but this dive center lets divers join a research collaboration with REEF. [stuartcove.com](http://stuartcove.com).

**DISCOVERY DIVING; BEAUFORT, NC** Safaris include instruction on capture techniques, dives, fish-cleaning demos and tastings. *July 18 and Aug. 22; \$185; [discoverydiving.com](http://discoverydiving.com).*

**HORIZON DIVERS; KEY LARGO, FL** Resident lionfish expert Mike Ryan takes divers around shallow reefs. *\$120 for a guided dive; [horizondivers.com](http://horizondivers.com).*

**GREEN TURTLE CAY; ABACO, BAHAMAS** At the annual lionfish derby, teams compete to see who can catch the most fish between sunrise and 4 p.m. *\$125 per team; [lionfishderby.com](http://lionfishderby.com).*